

**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, 2019

OR

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

Commission file number: 001-35418

EPAM SYSTEMS, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

22-3536104

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

41 University Drive

Newtown

(Address of principal executive offices)

Suite 202

Pennsylvania

18940

(Zip code)

267-759-9000

(Registrant's telephone number, including area code)

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

<u>Title of Each Class</u>	<u>Trading Symbol</u>	<u>Name of Each Exchange on which Registered</u>
Common Stock, par value \$0.001 per share	EPAM	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the 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 and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

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

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

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

As of June 30, 2019 the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was approximately \$9,127,000,000 based on the closing sale price as reported on the New York Stock Exchange. Solely for purposes of the foregoing calculation, "affiliates" are deemed to consist of each officer and director of the registrant, and each person known to the registrant to own 10% or more of the outstanding voting power of the registrant.

As of February 12, 2020, there were 55,259,184 shares of common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

The registrant intends to file a definitive Proxy Statement for its 2020 annual meeting of stockholders pursuant to Regulation 14A within 120 days of the end of the registrant's fiscal year ended December 31, 2019. Portions of the registrant's Proxy Statement are incorporated by reference into Part III of this Form 10-K. With the exception of the portions of the Proxy Statement expressly incorporated by reference, such document shall not be deemed filed with this Form 10-K.

EPAM SYSTEMS, INC.
FORM 10-K
FOR THE YEAR ENDED DECEMBER 31, 2019

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In this annual report, "EPAM," "EPAM Systems, Inc.," the "Company," "we," "us" and "our" refer to EPAM Systems, Inc. and its consolidated subsidiaries.

"EPAM" is a trademark of EPAM Systems, Inc. "ISO 9001:2015" and "ISO 27001:2013" are trademarks of the International Organization for Standardization. "ISAE" is a trademark of the International Federation of Accountants. All other trademarks and servicemarks used herein are the property of their respective owners.

Unless otherwise indicated, information contained in this annual report concerning our industry and the markets in which we operate, including our general expectations and market position, market opportunity and market share, is based on information from various sources (including industry publications, surveys and forecasts and our internal research), on assumptions that we have made, which we believe are reasonable, based on such data and other similar sources and on our knowledge of the markets for our services. The projections, assumptions and estimates of our future performance and the future performance of the industry in which we operate, are subject to a high degree of uncertainty and risk due to a variety of factors, including those described under "Item 1A. Risk Factors" and elsewhere in this annual report. These and other factors could cause results to differ materially from those expressed in the estimates included in this annual report.

FORWARD-LOOKING STATEMENTS

This annual report on Form 10-K contains estimates and forward-looking statements, principally in “Item 1. Business”, “Item 1A. Risk Factors” and “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations.” Our estimates and forward-looking statements are mainly based on our current expectations and estimates of future events and trends, which affect or may affect our businesses and operations. Although we believe that these estimates and forward-looking statements are based upon reasonable assumptions, they are subject to several risks and uncertainties and are made in light of information currently available to us. Important factors, in addition to the factors described in this annual report, may materially and adversely affect our results as indicated in forward-looking statements. You should read this annual report and the documents that we have filed as exhibits hereto completely and with the understanding that our actual future results may be materially different from what we expect.

The words “may,” “will,” “should,” “could,” “expect,” “plan,” “anticipate,” “believe,” “estimate,” “predict,” “intend,” “potential,” “might,” “would,” “continue” or the negative of these terms or other comparable terminology and similar words are intended to identify estimates and forward-looking statements. Estimates and forward-looking statements speak only as of the date they were made and, except to the extent required by law, we undertake no obligation to update, to revise or to review any estimate and/or forward-looking statement because of new information, future events or other factors. Estimates and forward-looking statements involve risks and uncertainties and are not guarantees of future performance. As a result of the risks and uncertainties described above, the estimates and forward-looking statements discussed in this annual report might not occur and our future results, level of activity, performance or achievements may differ materially from those expressed in these forward-looking statements due to, including, but not limited to, the factors mentioned above, and the differences may be material and adverse. Because of these uncertainties, you should not place undue reliance on these forward-looking statements.

PART I

Item 1. Business

Company Background

EPAM delivers end-to-end value to its customers by combining its core engineering and technology capabilities with business and experience consulting. We support our customers in a market that is constantly challenged by the pressures of digitization through our innovative and scalable software solutions, high quality business consulting and experience design, and a continually evolving mix of advanced capabilities. We focus on building long-term partnerships with our customers, enabling them to reimagine their businesses through a digital lens.

Our historical core competency, software development and product engineering services, combined with our work with global leaders in enterprise software platforms and emerging technology companies, created our foundation for the evolution of our other offerings, which include advanced technology software solutions, intelligent enterprise services and digital engagement. Our strategic acquisitions have expanded our geographic reach and service capabilities to include digital strategy and design, consulting and test automation and we expect our strategic acquisitions will continue to enable us to offer a broader range of services to our customers from a wide variety of locations.

Business Strategy

Our service offerings continuously evolve to provide more customized and integrated solutions to our customers where we combine best-in-class software engineering with customer experience design, business consulting and technology innovation services. We are continually expanding our service capabilities, moving beyond traditional services into business consulting, design and physical product development and areas such as artificial intelligence, robotics and virtual reality.

EPAM's key service offerings and solutions include the following practice areas:

Engineering

Our engineering foundation underpins how we architect, build and scale next-generation software solutions and agile delivery teams. Our engineering expertise allows us to build enterprise technologies that improve business processes, offer smarter analytics and result in greater operational excellence through requirements analysis and platform selection, deep and complex customization, cross-platform migration, implementation and integration.

We use our experience, custom tools and specialized knowledge to integrate our customers' chosen application platforms with their internal systems and processes and to create custom solutions filling the gaps in their platforms' functionality in order to address the needs of the customers' users and customers. We address our customers' increased need for tighter enterprise integration between software development, testing and maintenance with private, public and mobile infrastructures through our infrastructure management services. These solutions cover the full lifecycle of infrastructure management including application, database, network, server, storage and systems operations management, as well as monitoring, incident notification and resolution. We deliver maintenance and support services through our proprietary distributed project management processes and tools, which reduce the time and costs related to maintenance, enhancement and support activities.

We have deep expertise and the ability to offer a comprehensive set of software product development services including product research, customer experience design and prototyping, program management, component design and integration, full lifecycle software testing, product deployment and end-user customization, performance tuning, product support and maintenance, managed services, as well as porting and cross-platform migration. We focus on software products covering a wide range of business applications as well as product development for multiple mobile platforms and embedded software product services.

Operations

We turn our customers' operations into intelligent enterprise hubs with our proprietary platforms, integrated engineering practices and smart automation. Developing a digital experience or product from end-to-end requires input and expertise from a variety of professionals with a broad range of skills. Our multidisciplinary teams and global delivery framework come together to deliver well-rounded technology solutions that bring a competitive advantage to our customers. In addition to utilizing our dedicated delivery centers, which allow us to deploy key delivery talent, we work closely with leading companies in various industries to enable our customers to better leverage technology and address the simultaneous pressures of driving value for their consumer and offering a more engaging experience.

Optimization

We turn process optimization into real transformation by using process automation and cognitive techniques to transform legacy processes and deliver streamlined operations that increase revenues and reduce costs for our customers. We rely on our teams, methodologies and tools to optimize every stage of software delivery for improved quality and better features with each release.

We maintain a dedicated group of testing and quality assurance professionals with experience across a wide range of technology platforms and industry verticals, who perform software application testing, test management, automation and consulting services focused on helping customers improve their existing software testing and quality assurance practices. We employ industry-recognized and proprietary defect tracking tools and frameworks to deliver a comprehensive range of testing services that identify threats and close loopholes to protect our customers' business systems from information loss.

Consulting

Over the years, as a complement to our core engineering skills, we have added capabilities in business consulting to give us an agile, hybrid approach to the market. Our consulting services drive deeper relationships as we help our customers with larger and more complex challenges. Our industry, technology and experience consulting services are interconnected to deliver maximum impact for our customers. The functional business expertise of our professionals is supplemented by a thorough understanding of technology platforms and their interactions as well as application of data science and machine learning to deliver our best insights into our customers' business.

Our technical advisory services help customers stay ahead of current technology changes and innovate, where innovation beyond technology is also delivered through collaborative workshops, challenges and new organizational models.

Design

We apply design thinking to digital and service strategy, user experience and the product lifecycle with a focus on innovative design ideas and product development. Our digital and service design practice provides strategy, design, creative and program management services for customers looking to improve the user experience.

We are continuously looking to strengthen and grow our design and consulting practices as evidenced by our 2018 strategic acquisitions of Continuum Innovation LLC, which enhances our consulting, physical design and product development capabilities, and Think Limited, which enhances our global product and design offerings.

Industry Expertise

Strong industry-specific knowledge, backed by extensive experience merging technology with the business processes of our customers, allows us to deliver tailored solutions to various industry verticals. Our customers operate in five main industry verticals as well as a number of other verticals in which we are increasing our presence.

Financial Services. We have significant experience working with global investment banks, commercial and retail lending institutions, credit card and payment solution companies, wealth management institutions, fund operators, insurance companies and various other providers of financial services. We assist these customers with challenges stemming from new regulations, compliance requirements, customer-based needs and risk management. Our financial services domain experts have been recognized with industry awards for engineering and deploying unique applications and business solutions that facilitate growth, competitiveness, and customer loyalty while driving cost efficiency for global financial institutions.

Travel and Consumer. Our capabilities span a range of platforms, applications and solutions that businesses in travel and hospitality use to serve their customers, capture management efficiencies, control operating expenses and grow revenues. Some of the world's leading airlines, hotel providers and travel agencies rely on our knowledge in creating high-quality tools for operating and managing their business. Within this vertical, we also serve global, regional and local retailers, online retail brands, consumer goods manufacturers, distributors, and online marketplaces. We deliver a wide range of services to retail and eCommerce customers from complex system modernizations to leading edge innovations in multi-channel sales and distribution. We have transformed organizations to use technology to expand and revolutionize their business models. Our services directly impact the consumer experience of our customers' brands, and allow our customers to reach more consumers.

Software and Hi-Tech. We provide complex software product development services to meet software and technology companies' constant need for innovation and agility. We help some of the most prominent software brands in the world build, what we believe to be, the best software. Through our extensive experience with many industry leaders in Hi-Tech research and development, software engineering and integration, we have developed proprietary internal processes, methodologies and information technology infrastructure, which give us an edge when it comes to serving customers in the Hi-Tech and Software Product markets. Our services span the complete software development lifecycle for software product development using our comprehensive development methodologies, testing, performance tuning, deployment, maintenance and support.

Business Information and Media. We help our business information and media customers build products and solutions for all modern platforms including web media streaming and mobile information delivery. Our solutions help customers develop new revenue sources, accelerate the creation, collection, packaging and management of content and reach broader audiences. We serve varied customers in this vertical including search engine providers, entertainment media, news providers, broadcasting companies, financial information providers, content distributors, knowledge management organizations and advertising networks.

Life Sciences and Healthcare. In the Life Sciences category, we partner with global pharmaceutical, medical technology and biotechnology companies to deliver sophisticated scientific informatics and innovative enterprise technology solutions. Our personnel in Life Sciences leverage their vast technology expertise to offer deep scientific and mathematical knowledge to broad-based initiatives. Our Life Sciences solutions enable customers to speed research and accelerate time-to-market while improving collaboration, knowledge management and operational excellence. We help our customers in the Healthcare industry respond to changing regulatory environments and improve the quality of care while managing the cost of care. Our professionals deliver an end-to-end experience that includes strategy, architecture, development and managed services to customers ranging from the traditional healthcare providers to innovative startups.

Emerging Verticals. We also serve the diverse technology needs of customers in the energy, telecommunications, automotive and manufacturing industries, as well as government customers. These customers are included in our Emerging Verticals, which are further discussed in "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II of this annual report.

Customers

We maintain a geographically diverse client base in multiple industries. Our focus on delivering quality service is reflected in established relationships with many of our customers, with 55.9% and 29.5% of our revenues in 2019 coming from customers that had used our services for at least five and ten years, respectively. Our sustained growth and increased capabilities are furthered by both organic growth and strategic acquisitions. We continually evaluate potential acquisition targets that can expand our vertical-specific domain expertise, geographic footprint, service portfolio, client base and management expertise.

As we remain committed to diversifying our client base and adding more customers to our client mix, we expect revenue concentration from our top customers to continue to decrease over the long-term. The following table shows revenues from the top five and ten customers in the respective year as a percentage of revenues for that year:

	% of Revenues for Year Ended December 31,		
	2019	2018	2017
Top five customers	19.9%	22.3%	24.0%
Top ten customers	29.1%	31.6%	33.9%

See "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II of this Annual Report on Form 10-K for additional information related to revenues.

See Note 15 "Segment Information" in the notes to our consolidated financial statements in this Annual Report on Form 10-K for information regarding long-lived assets and customer revenues by geographic location as well as financial information related to our reportable segments.

Global Delivery Model

We believe the development of a robust global delivery model creates a key competitive advantage, enabling us to better understand and meet our customers' diverse needs and to provide a compelling value proposition. We continuously grow our delivery platform both organically and through strategically acquired locations and personnel with diversified skills that support our strategy. We had 32,561 delivery personnel as of December 31, 2019, which mainly includes our core information technology professionals as well as designers, consultants and scientists.

We serve our customers through on-site, off-site and offshore locations across the world and use strategically located delivery centers to offer a strong, diversified and cost-effective delivery platform. Our largest delivery centers are located in Belarus, Ukraine and Russia.

As of December 31, 2019, we had 9,314 delivery professionals located in Belarus. The majority of these delivery professionals are located in Minsk, the capital of Belarus, which is well-positioned to serve as a prime IT outsourcing destination given its strong industrial base and established educational infrastructure. Furthermore, the government in Belarus strongly supports the technology industry and encourages investment in this sector through various long-term tax incentives.

Our locations in Ukraine and Russia offer many of the same benefits as Belarus, including educational infrastructure, availability of qualified software engineers and government support of the technology industry. As of December 31, 2019, we had 7,478 delivery professionals in Ukraine and 5,394 delivery professionals in Russia. Our delivery model has not been materially affected by the political and economic uncertainty in Ukraine and Russia to date.

Our other significant locations with delivery professionals are the United States with 2,236, Poland with 1,513, Hungary with 1,498, India with 1,476, China with 562 and Mexico with 540 as of December 31, 2019.

Sales and Marketing

We market and sell our services through our senior management, sales and business development teams, account managers, and professional staff. Our client service professionals and account managers, who maintain direct customer relationships, play an integral role in engaging with current customers to identify and pursue potential business opportunities. This strategy has been effective in promoting repeat business and growth from within our existing client base and we believe that our reputation as a reliable provider of software engineering solutions drives additional business from inbound requests and referrals. In addition to effective client management, our sales model also utilizes an integrated sales and marketing approach that leverages a dedicated sales team to identify and acquire new accounts.

We maintain a marketing team, which coordinates corporate-level branding efforts such as participation in and hosting of industry conferences and events as well as sponsorship of programming competitions. We have been recognized by many top global independent research agencies, such as Forrester, Gartner, Zinnov and HFS and by publications such as Forbes and Fortune.

Employees

Our employees are a key factor in our ability to grow our revenues and serve our customers, therefore the ability to hire and retain highly-skilled information technology professionals is critical to our success. We believe the quality of our employees serves as a key point of differentiation in how we deliver a superior value proposition to our customers. To attract, retain and motivate our delivery professionals, we offer a challenging work environment, ongoing skills development initiatives, attractive career advancement, and promotion opportunities thus providing an environment and culture that rewards entrepreneurial initiative and performance. We believe that we maintain a good working relationship with our employees and our employees have not entered into any collective bargaining agreements (other than broad industry-wide agreements as required in Mexico and certain countries in Europe) or engaged in any labor disputes.

In our competitive industry, it is critical that we effectively deploy the necessary personnel and utilization practices to satisfy the demands of our customers. We have dedicated full-time employees who oversee all aspects of our human capital management process including professional talent acquisition teams whose objective is to locate and attract qualified and experienced professionals around the world. We are continuously exploring new markets as sources of talent.

As our business grows, we also focus on hiring and retaining individuals with appropriate skills to fill our executive, finance, legal, human resources and other key management positions. At December 31, 2019, 2018 and 2017, we had a total of 36,739, 30,156 and 25,962 employees, respectively. Of these employees, as of December 31, 2019, 2018 and 2017, respectively, 32,561, 26,760 and 22,998 were delivery professionals.

We dedicate significant resources to the training, continuing education and career development programs of our entry-level and experienced delivery professionals. We believe in the importance of supporting educational initiatives and we sponsor employees' participation in internal and external training and certifications. Entry-level personnel undergo a rigorous training program that consists of approximately three to six months of classroom training, as well as numerous hours of hands-on training through actual engagements. This comprehensive program results in employees who are highly proficient and possess deep technical expertise that enables them to immediately serve our customers' needs. For our mid-level and senior delivery professionals, we offer continuing education programs aimed at helping them advance in their careers. We also provide mentoring opportunities, management and soft skills training, intensive workshops and management and technical advancement programs in order to support the development of middle and senior management through formal leadership training, evaluation, development and promotion.

Competition

The markets in which we compete are changing rapidly and we face competition from both global technology solutions providers as well as those based primarily in specific geographies with lower cost labor such as Eastern Europe, India and China. We believe that the principal competitive factors in our business include technical expertise and industry knowledge, end-to-end solution offerings, a reputation for and a track record of high-quality and on-time delivery of work, effective employee recruiting, training and retention, responsiveness to customers' business needs, scale, financial stability and price.

We face competition from various technology services providers such as Accenture, Atos, Capgemini, Cognizant Technology Solutions, Deloitte Digital, DXC Technology, Exlservice, Genpact, GlobalLogic, Globant, HCL Technologies, HP Enterprise, IBM Services, Infosys, Mindtree, Perficient, Tata Consultancy Services, Virtusa Corporation, and Wipro, among others. Additionally, we compete with numerous smaller local companies in the various geographic markets in which we operate.

We believe that our focus on complex and innovative software product development solutions, our technical employee base, and our development and continuous improvement in process methodologies, applications and tools position us well to compete effectively in the future.

Quality Management and Information Security

We are continuously investing in applications, tools and infrastructure to manage all aspects of our global delivery process in order to manage quality and security risks, while providing control and visibility across all project lifecycle stages both internally and to our customers. We maintain processes and infrastructure to protect our clients' and their customers' confidential and sensitive information and allocate resources to ensure information security, cybersecurity and data privacy. We have made significant investments in the appropriate people, processes and technology to establish and manage compliance with confidentiality policies, laws and regulations governing our activities, such as the European Union data protection legal framework referred to as the General Data Protection Regulation ("GDPR"), the California Consumer Privacy Act ("CCPA"), and others.

We focus on establishing stringent security standards and internal controls and meet the standards of ISO 27001:2013 and ISO 9001:2015. We are an ISAE 3402 Type 2 certified IT services provider. This certification is issued by an auditor in compliance with the globally recognized assurance standard. The certification, along with others we hold, provide our customers with independent third-party verification of our information security, quality management and general controls practices.

We have developed sophisticated project management techniques facilitated through our proprietary Project Management Tools, a web-based collaborative environment for software development, which we consider critical for visibility into project deliverables, resource management, team messaging and project-related documents. These tools promote collaboration and effective oversight, reduce work time and costs, and increase quality for our IT management and our customers.

Corporate and Social Responsibility

We are committed to integrating positive social, environmental and ethical practices into our business operations and strategy. This commitment is key to our continual development as a business and drives value for our employees, customers, business partners, the community and other stakeholders. We practice the principles established in our Code of Ethical Conduct by making positive contributions to the communities in which we operate and championing corporate social responsibility efforts.

Through our focused efforts in the areas of Education, Environment, and Community, we are committed to sharing the expertise and attributes of our highly skilled global workforce to effectively support the needs of, and positively add to the world at large and the communities where we work and live. By understanding our impact on local, regional and global communities, we strive to create positive change and opportunities in areas where it is needed most. Such efforts include our global technology education initiatives, through which we provide innovative, industry-relevant technology training and mentorship programs to students globally as well as through other technology conferences, seminars, and hackathon events where we encourage social innovation and jumpstart collaboration among our local tech communities. We maintain strong relationships with the leading technical institutions in Eastern Europe and we support these universities through EPAM-branded research labs, developing training courses and curriculum, providing teaching equipment and engaging students to identify their talents in information technology.

We believe responsible stewardship of the environment is critical, and we take this responsibility seriously. We continually strive to improve our environmental performance through implementation of sustainable development and environmental practices including recycling and upcycling electronics and computers and designing and releasing a carbon footprint calculator to our employees and the general public. In addition, as an innovation-driven business, EPAM's success depends on hiring the most talented employees in the industry. We are committed to respecting our employees' fundamental human rights at work. We similarly expect our suppliers, vendors, and subcontractors and all other third-party companies that comprise EPAM's supply chain to respect human rights and to avoid complicity in human rights abuses. EPAM seeks to provide our customers with exceptional personnel, which includes people with varied and diverse characteristics, to drive the innovation and thought diversity for which we are known. We aim to continuously retain and supply a pipeline of qualified, diverse candidates to foster this goal.

Intellectual Property

Protecting our intellectual property rights is important to our business. We have invested, and will continue to invest, in research and development to enhance our domain knowledge and create complex, specialized solutions for our customers. We rely on a combination of intellectual property laws, trade secrets, confidentiality procedures and contractual provisions to protect our intellectual property. We require our employees, vendors and independent contractors to enter into written agreements upon the commencement of their relationships with us, which assign to us all deliverable intellectual property and work product made, developed or conceived by them in connection with their employment or provision of services. These agreements also provide that any confidential or proprietary information disclosed or otherwise made available by us remains confidential.

We also enter into confidentiality and non-disclosure agreements with our customers. These customary agreements cover our use of our customers' software systems and platforms as our customers usually own the intellectual property in the products we develop for them. Furthermore, we often grant a perpetual, worldwide, royalty-free, nonexclusive, transferable and non-revocable license to our customers to use our pre-existing intellectual property, but only to the extent necessary in order to use the software or systems we develop for them.

Regulations

Due to the industry and geographic diversity of our operations and services, our operations are subject to a variety of rules and regulations. Several foreign and U.S. federal and state agencies regulate various aspects of our business. See "Item 1A. Risk Factors — Risks Relating to Our Business." We are subject to laws and regulations in the United States and other countries in which we operate, including export restrictions, economic sanctions, the Foreign Corrupt Practices Act ("FCPA") and similar anti-corruption laws and data privacy regulations. Compliance with these laws requires significant resources and non-compliance may result in civil or criminal penalties and other remedial measures.

Corporate Information

EPAM Systems, Inc. was incorporated in the State of Delaware on December 18, 2002. Our predecessor entity was founded in 1993. Our principal executive offices are located at 41 University Drive, Suite 202, Newtown, Pennsylvania 18940 and our telephone number is 267-759-9000. We maintain a website at <http://www.epam.com>. Our website and the information accessible through our website are not incorporated into this Annual Report on Form 10-K.

We make certain filings with the Securities and Exchange Commission (“SEC”), including our Annual Report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments and exhibits to those reports. We make such filings available free of charge through the Investor Relations section of our website, <http://investors.epam.com>, as soon as reasonably practicable after they are filed with the SEC. The filings are also available through the SEC at the SEC’s Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549 or by calling 1-800-SEC-0330. In addition, the SEC maintains a website at <http://www.sec.gov> that contains reports, proxy and information statements, and other information regarding issuers that file electronically through the EDGAR System.

Item 1A. Risk Factors

Our operations and financial results are subject to various risks and uncertainties, which could adversely affect our business, financial condition, results of operations, cash flows, and the trading price of our common stock. Listed below, not necessarily in order of importance or probability of occurrence, are the most significant risk factors applicable to us. Additionally, forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified. See “Forward-Looking Statements.”

Risks Relating to Our Business

We may be unable to effectively manage our rapid growth or achieve anticipated growth, which could place significant strain on our management, systems, resources, and results of operations.

We have grown rapidly and significantly expanded our business over the past several years, both organically and through strategic acquisitions. Our growth has resulted in part from managing larger and more complex projects for our customers, but consequently requires that we invest substantial amounts of cash in new facilities and physical infrastructure. Our rapid growth places significant demands on our management and our administrative, operational and financial infrastructure, and creates challenges, including:

- recruiting, training and retaining sufficiently skilled professionals and management personnel;
- planning resource utilization rates on a consistent basis and efficiently using on-site, off-site and offshore staffing;
- maintaining close and effective relationships with a larger number of customers in a greater number of industries and locations;
- controlling costs and minimizing cost overruns and project delays in new facilities and delivery centers;
- effectively maintaining productivity levels and implementing process improvements across geographies and business units; and
- improving our internal administrative, operational and financial infrastructure.

We intend to continue our expansion and pursue available opportunities for the foreseeable future. As we introduce new services, enter into new markets, and take on increasingly large and complex projects, our business may face new risks and challenges. If customers do not choose us for large and complex projects or we do not effectively manage those projects, our reputation, business, and financial goals may be damaged. We need to generate business and revenues to support new facilities and infrastructure projects. If the challenges associated with expansion negatively impact our anticipated growth and margins, our business, prospects, financial condition and results of operations could be materially adversely affected.

We must successfully attract, hire, train and retain qualified personnel to service our customers’ projects and we must productively utilize those personnel to remain profitable.

Hiring and retaining professionals with diverse skill sets across our broad geography of operations is critical to maintaining existing engagements and obtaining new business. If we do not deploy those professionals and use computers, office space, and other fixed-cost resources productively, our profitability will be significantly impacted. We must manage the utilization levels of the professionals that we hire and train by planning for future needs effectively and staffing projects appropriately while accurately predicting the general economy and our customers’ need for our services. If we are unable to attract, hire, train, and retain highly skilled personnel and productively deploy them on customer projects, we will jeopardize our ability to meet and develop ongoing and future business and our financial condition and results of operations could be adversely affected.

Competition for highly skilled professionals is intense in the markets where we operate, and we may experience significant employee turnover rates due to such competition. If we are unable to retain professionals with specialized skills, our revenues, operating efficiency and profitability will decrease. Cost reductions, such as reducing headcount, or voluntary departures that result from our failure to retain the professionals we hire, could negatively affect our reputation as an employer and our ability to hire personnel to meet our business requirements. Price increases could lead to a decline in demand for our services.

Increases in wages, equity compensation, and other compensation expenses could prevent us from sustaining our competitive advantage, increase our costs, and result in dilution to our stockholders.

Wages for technology professionals in the emerging markets where we have significant operations and delivery centers are lower than comparable wages in more developed countries. However, wages in the technology industry in these countries may increase at a faster rate than in the past, which may make us less competitive unless we are able to increase the efficiency and productivity of our people. If we increase operations and hiring in more developed economies, our compensation expenses will increase because of the higher wages demanded by technology professionals in those markets. Wage inflation, whether driven by competition for talent or ordinary course pay increases, may also increase our cost of providing services and reduce our profitability if we are not able to pass those costs on to our customers or charge premium prices when justified by market demand.

We expect to continue our practice of granting equity-based awards under our stock incentive plans and paying other stock-based compensation. The expenses associated with stock-based compensation may make issuing equity awards under our equity incentive plans less attractive to us, but if we reduce the amount or value of equity award grants, we may not be able to attract and retain key personnel. Conversely, if we grant more or higher value equity awards to attract and retain key personnel, the equity compensation expenses could materially adversely affect our results of operations. New regulations, volatility in our stock, and dilution to our stockholders could diminish our use and the value of our equity-based awards. This could put us at a competitive disadvantage or cause us to reconsider our compensation practices.

Our success depends substantially on the continuing efforts of our senior executives and other key personnel, and our business may be severely disrupted if we lose their services.

Our future success heavily depends upon the continued services of our senior executives and other key employees. If one or more of our senior executives or key employees are unable or unwilling to continue in their present positions, we may not be able to replace them easily or at all. If any of our senior executives or key personnel joins a competitor or forms a competing company, we may lose customers, suppliers, know-how and other key personnel to those competitors. If we are unable to attract new senior executives or key personnel due to the intense competition for talent in our industry, it could disrupt our business operations and growth.

Our operations in emerging markets subject us to greater economic, financial, and banking risks than we would face in more developed markets.

We have significant operations in certain emerging market economies in Eastern Europe, India and other Asian countries. Emerging markets are vulnerable to market and economic volatility to a greater extent than more developed markets, which presents risks to our business and operations. A majority of our revenues are generated in North America and Western Europe. However, most of our personnel and delivery centers are located in lower cost locations, including emerging markets. This exposes us to foreign exchange risks relating to revenues, compensation, purchases, capital expenditures, receivables and other balance-sheet items. As we continue to leverage and expand our global delivery model into other emerging markets, a larger portion of our revenues and incurred expenses may be in currencies other than U.S. dollars. Currency exchange volatility caused by economic instability or other factors could materially impact our results. See “Item 7A. Quantitative and Qualitative Disclosures About Market Risk.”

The economies of certain emerging market countries where we operate have experienced periods of considerable instability and have been subject to abrupt downturns. We have cash in banks in countries such as Belarus, Russia, Ukraine, Kazakhstan, Armenia and Uzbekistan, where the banking sector generally does not meet the banking standards of more developed markets, bank deposits made by corporate entities are not insured, and the banking system remains subject to instability. A banking crisis, or the bankruptcy or insolvency of banks that receive or hold our funds, particularly in Belarus, may result in the loss of our deposits or adversely affect our ability to complete banking transactions in that region. In addition, some countries where we operate may impose regulatory or practical restrictions on the movement of cash and the exchange of foreign currencies within their banking systems, which would limit our ability to use cash across our global operations and increase our exposure to currency fluctuations. Emerging market vulnerability, and especially its impact on currency exchange volatility and banking systems, could have a material adverse effect on our business, financial condition and results of operations.

War, terrorism, other acts of violence or natural or manmade disasters, including the ongoing conflict in Ukraine, may affect the markets in which we operate, our customers, and our service delivery.

Our business may be negatively affected by instability, disruption or destruction in the geographic regions where we operate. War, terrorism, riot, civil insurrection or social unrest; and natural or manmade disasters, including famine, flood, fire, earthquake, pandemics and other regional or global health crises, storm or disease may cause customers to delay their decisions on spending for the services we provide and give rise to sudden significant changes in regional and global economic conditions and cycles. Our crisis management procedures, business continuity, and disaster recovery plans may not be effective at preventing or mitigating the effects of such disasters, particularly in the case of a catastrophic event. These events pose significant security risks to our people, the facilities where they work, our operations, electricity and other utilities, communications, travel, and network services, and the disruption of any or all of them could materially adversely affect our financial results. Travel restrictions resulting from natural or manmade disruptions and political or social conflict increase the difficulty of obtaining and retaining highly-skilled and qualified professionals and could unexpectedly increase our labor costs and expenses, both of which could also adversely affect our ability to serve our customers.

In particular, continuing military activities in Ukraine and Ukraine's weak economic conditions have fueled ongoing economic uncertainty in Ukraine, Russia and other markets, and the uncertainty is exacerbated by existing and threatened economic sanctions imposed by the European Union, United States and other nations on certain Russian entities in the energy, defense and financial sectors. We have delivery centers in both Ukraine and Russia and between 35% and 40% of our billable professionals have been located in those two countries since the military activities began in 2014, although none are located in the most volatile regions of Eastern Ukraine. Long term disputes over Russia's supply of oil and gas to Belarus have also reemerged. To date we have not experienced any interruption in our office infrastructure, utility supply or internet connectivity needed to support our customers. We continue to monitor the situation closely and have developed contingency plans to relocate work and/or personnel to other locations and add new locations, as appropriate, but prolonged political instability in Ukraine, sanctions against Russia, Russia's potential response to such sanctions and tension between Russia and Belarus over energy supply could have a material adverse effect on our operations.

The U.S. Congress and Trump administration may make substantial changes to fiscal, political, regulatory and other federal policies that may adversely affect our business and financial results.

Changes in general economic or political conditions in the United States could adversely affect our business. For example, the administration under President Donald Trump has put forth and may continue to propose significant changes with respect to a variety of issues, including international trade agreements and conducting business offshore, import and export regulations, tariffs and customs duties, foreign relations, immigration laws and travel restrictions, and corporate governance laws, that could have a positive or negative impact on our business.

The majority of our professionals are offshore. Companies that outsource services to organizations operating in other countries remains a topic of political discussion in many countries, including the United States, which is our largest source of revenues. Proposed legislation in the United States could impose restrictions on offshore outsourcing and on our ability to deploy employees holding U.S. work visas to customer locations, both of which could adversely impact our business. Such legislative measures could broaden restrictions on outsourcing by federal and state government agencies and contracts and impact private industry with tax disincentives, intellectual property transfer restrictions, and restrictions on the use or availability of certain work visas.

Some of our projects require our personnel to obtain visas to travel and work at client sites outside of our personnel's home countries. Our reliance on visas to staff projects with employees who are not citizens of the country where the work is to be performed makes us vulnerable to legislative and administrative changes in visa and work permit laws and regulations. The process to obtain the required visas and work permits can be lengthy and difficult and variations in application and enforcement due to political forces and economic conditions may cause delays or rejections when trying to obtain visas. Delays in obtaining visas may result in delays in the ability of our personnel to travel to meet with and provide services to our customers or to continue to provide services on a timely basis. In addition, the availability of a sufficient number of visas without significant additional costs could limit our ability to provide services to our customers on a timely and cost-effective basis or manage our sales and delivery centers as efficiently as we otherwise could. Delays in or the unavailability of visas and work permits could have a material adverse effect on our business, results of operations, financial condition and cash flows.

We do not have long-term commitments from our customers, our customers may terminate contracts before completion, choose not to renew contracts, and we are not guaranteed payment for services performed under contract. A loss of business or non-payment from significant customers could materially affect our results of operations.

Our ability to maintain continuing relationships with our major customers and successfully obtain payment for our services is essential to the growth and profitability of our business. However, the volume of work performed for any specific customer is likely to vary from year to year, especially since we generally are not our customers' exclusive IT services provider and we generally do not have long-term commitments from customers to purchase our services. We may also fail to adequately or accurately assess the creditworthiness of our customers. Our customers' ability to terminate engagements with or without cause and our customers' inability or unwillingness to pay for services we performed makes our future revenues and profitability uncertain. Although a substantial majority of our revenues are generated from customers who also contributed to our revenues during the prior year, our engagements with our customers are typically for projects that are singular in nature. Therefore, we must seek to obtain new engagements when our current engagements end.

There are a number of factors relating to our customers that are outside of our control, which might lead them to terminate or not renew a contract or project with us, or be unable to pay us, including:

- financial difficulties;
- corporate restructuring, or mergers and acquisitions activity;
- our inability to complete our contractual commitments and bill and collect our contracted revenues;
- change in strategic priorities or economic conditions, resulting in elimination of the impetus for the project or a reduced level of technology related spending;
- change in outsourcing strategy resulting in moving more work to the customer's in-house technology departments or to our competitors; and
- replacement of existing software with packaged software supported by licensors.

Termination or non-renewal of a customer contract could cause us to experience a higher than expected number of unassigned employees and thus compress our margins until we are able to reallocate our headcount. Customers that delay payment, request modifications to their payment arrangements, or fail to meet their payment obligations to us could increase our cash collection time or cause us to incur bad debt expense. The loss of any of our major customers, a significant decrease in the volume of work they outsource to us or price they are willing or able to pay us, if not replaced by new service engagements and revenue, could materially adversely affect our revenues and results of operations.

Our revenues are highly dependent on a limited number of industries, and any decrease in demand for outsourced services in these industries could reduce our revenues and adversely affect our results of operations.

A substantial portion of our customers are concentrated in five specific industry verticals: Financial Services; Software & Hi-Tech; Business Information & Media; Travel & Consumer; and Life Sciences & Healthcare. Our business growth largely depends on continued demand for our services from customers in these five industry verticals and other industries that we target or may target in the future, and also depends on trends in these industries to outsource the type of services we provide.

A downturn in any of our targeted industries, a slowdown or reversal of the trend to outsource IT services in any of these industries or the introduction of regulations that restrict or discourage companies from outsourcing could result in a decrease in the demand for our services and could have a material adverse effect on our business, financial condition and results of operations. Other developments in the industries in which we operate may increase the demand for lower cost or lower quality IT services and decrease the demand for our services, or increase the pressure our customers put on us to reduce pricing. We may not be able to successfully anticipate and prepare for any such changes, which could adversely affect our results of operations.

Furthermore, developments in the industries we serve could shift customer demand to new services, solutions or technology. If our customers demand new services, solutions or technologies, we may be less competitive in these new areas or may need to make significant investments to meet that demand. Additionally, as we expand into serving new industry verticals, our solutions and technology may be used by, or generally affect, a broader base of customers and end users, which may expose us to new business and operational risks.

If our pricing structures are based on inaccurate expectations and assumptions regarding the cost and complexity of performing our work, or if we are not able to maintain favorable pricing for our services, then our contracts could be unprofitable.

We face a number of risks when pricing our contracts and setting terms with our customers. Our pricing is highly dependent on our internal forecasts, assumptions and predictions about our projects, the marketplace, global economic conditions (including foreign exchange volatility) and the coordination of operations and personnel in multiple locations with different skill sets and competencies. Larger and more complex projects that involve multiple engagements or stages heighten those pricing risks because a customer may choose not to retain us for additional stages or delay forecasted engagements, which disrupts our planned project resource requirements. If our pricing for a project includes dedicated personnel or facilities and the customer were to slow or stop that project, we may not be able to reallocate resources to other customers. Our pricing and cost estimates for the work that we perform may include anticipated long-term cost savings that we expect to achieve and sustain over the life of the contract. Because of these inherent uncertainties, we may underprice our projects, fail to accurately estimate the costs of performing the work or fail to accurately assess the risks associated with potential contracts, such as defined performance goals, service levels, and completion schedules. The risk of underpricing our services or underestimating the costs of performing the work is heightened in fixed-price contracts and in contracts that require our customer to receive a productivity benefit as a deliverable under the contract. If we fail to accurately estimate the resources, time or quality levels required to complete such engagements, or if the cost to us of employees, facilities, or technology unexpectedly increases, we could be exposed to cost overruns. Any increased or unexpected costs, delays or failures to achieve anticipated cost savings, or unexpected risks we encounter in connection with the performance of the services, including those caused by factors outside our control, could make these contracts less profitable or unprofitable.

Our industry is sensitive to the economic environment and the industry tends to decline during general economic downturns. Given our significant revenues from North America and Europe, if those economies weaken or slow, pricing for our services may be depressed and our customers may reduce or postpone their technology related spending significantly, which may in turn lower the demand for our services and negatively affect our revenues and profitability.

We face risks associated with having a long selling and implementation cycle for our services that require us to make significant resource commitments prior to realizing revenues for those services.

We have a long selling cycle for our services. Before potential customers commit to use our services, they require us to expend substantial time and resources educating them on the value of our services and our ability to meet their requirements. Therefore, our selling cycle is subject to many risks and delays over which we have little or no control, including our customers' decision to select another service provider or in-house resources to perform the services, the timing of our customers' budget cycles, and customer procurement and approval processes. If our sales cycle unexpectedly lengthens for one or more large projects, it could negatively affect the timing of our revenues and our revenue growth. In certain cases, we may begin work and incur costs prior to executing a contract, which may cause fluctuations in recognizing revenues between periods or jeopardize our ability to collect payment from customers.

Implementing our services also involves a significant commitment of resources over an extended period of time from both our customers and us. Our current and future customers may not be willing or able to invest the time and resources necessary to implement our services, and we may fail to close sales with potential customers despite devoting significant time and resources. Any significant failure to generate revenues or delays in recognizing revenues after incurring costs related to our sales or services processes could have a material adverse effect on our business.

We face intense and increasing competition for customers and opportunities from onshore and offshore IT services and other consulting companies. If we are unable to compete successfully against competitors, pricing pressures or loss of market share could have a material adverse effect on our business.

The market for our services is highly competitive, and we expect competition to persist and intensify. We face competition from offshore IT services providers in other outsourcing destinations with low wage costs such as India and China, as well as competition from large, global consulting and outsourcing firms and in-house IT departments of large corporations. Customers tend to engage multiple IT services providers instead of using an exclusive IT services provider, which could reduce our revenues or place significant downward pressure on pricing among competing IT services providers. Customers may prefer service providers that have more locations, more personnel, more experience in a particular country or market, or that are based in countries that are more cost-competitive or have the perception of being more stable than some of the emerging markets in which we operate.

Current or prospective customers may elect to perform certain services themselves or may be discouraged from transferring services from onshore to offshore service providers, which could harm our ability to compete effectively with competitors that provide services from within the countries in which our customers operate.

Some of our present and potential competitors may have substantially greater financial, marketing or technical resources; therefore, we may be unable to retain our customers or successfully attract new customers. Increased competition, our inability to compete successfully, pricing pressures or loss of market share could have a material adverse effect on our business.

If we are unable to adapt to rapidly changing technologies, methodologies and evolving industry standards, we may lose customers and our business could be materially adversely affected.

Rapidly changing technologies, methodologies and evolving industry standards are inherent in the market for our products and services. Our ability to anticipate developments in our industry, enhance our existing services, develop and introduce new services, provide enhancements and new features for our products, and keep pace with changes and developments are critical to meeting changing customer needs. Developing solutions for our customers is extremely complex and is expected to become increasingly complex and expensive in the future due to the introduction of new platforms, operating systems, technologies and methodologies. Our ability to keep pace with, anticipate or respond to changes and developments is subject to a number of risks, including that:

- we may find it difficult or costly to update existing or develop new services, applications, tools and software quickly enough to meet our customers' needs;
- we may find it difficult or costly to make existing software and products work effectively and securely over the internet or with new or changed operating systems;
- we may find it difficult or costly to update existing or develop new software, services, and products to keep pace with evolving industry standards, methodologies, and regulatory developments in the industries where our customers operate; and
- we may find it difficult to maintain high quality levels with new technologies and methodologies.

We may not be successful in anticipating or responding to these developments in a timely manner, or if we do respond, the services, products, technologies or methodologies we develop or implement may not be successful in the marketplace. Further, services, products, technologies or methodologies that our competitors develop may render our services or products non-competitive or obsolete. Our failure to enhance our existing services and products and to develop and introduce new services and products to promptly address the needs of our customers could have a material adverse effect on our business.

Undetected software design defects, errors or failures may result in loss of business or in liabilities that could materially adversely affect our business.

Our software development solutions involve a high degree of technological complexity, have unique specifications and could contain design defects or software errors that are difficult to detect or correct. Errors or defects may result in the loss of current customers, revenues, market share, or customer data, a failure to attract new customers or achieve market acceptance, and could divert development resources and increase support or service costs. We cannot provide assurance that, despite testing by our customers and us, errors will not be found in the software products we develop or the services we perform. Any such errors could result in claims for damages against us, litigation, and reputational harm that could materially adversely affect our business.

Security breaches and other disruptions to network security could compromise our information and expose us to liability, which would cause our business and reputation to suffer.

In the ordinary course of business, we collect, store, process, transmit, and view sensitive or confidential data, including intellectual property, or proprietary business information or personally identifiable information belonging to us, our customers, respective employees, and other end users. This information is stored in our data centers and networks or in the data centers and networks of third-party providers. Physical security and the secure processing, maintenance and transmission of this information is critical to our operations and business strategy. Some of our customers are seeking additional assurances for the protection of their sensitive information, including personally identifiable information, and attach greater liability in the event that their sensitive information is disclosed.

Despite security measures, information technology and infrastructure may be vulnerable to attacks by hackers or breached due to human error, employee misconduct or malfeasance, system failure, or other disruptions. Any such breach could compromise our networks or the networks of our third-party providers and the information stored there could be accessed, publicly disclosed, misappropriated, lost or stolen. Such a breach, misappropriation, or disruption could also disrupt our operations and the services we provide to customers, damage our reputation, and cause a loss of confidence in our products and services, as well as require us to expend significant resources to protect against further breaches and to rectify problems caused by these events. Any such access, disclosure or other loss of information could result in legal claims or proceedings, liability under applicable laws, and regulatory penalties and could adversely affect our business, revenues and competitive position.

If we cause disruptions to our customers' businesses, provide inadequate service, or breach contractual obligations, our customers may have claims for substantial damages against us and our reputation may be damaged. Our insurance coverage may be inadequate to protect us against such claims.

If our professionals make errors in the course of delivering services or we fail to meet contractual obligations to a customer, these errors or failures could disrupt the customer's business or expose confidential or personally identifiable information. Any of these events could result in a reduction in our revenues, damage to our reputation, and could also result in a customer terminating our engagement and making claims for substantial damages against us. Some of our customer agreements do not limit our potential liability for occurrences such as breaches of confidentiality and intellectual property infringement indemnity, and we cannot generally limit liability to third parties with which we do not have a contractual relationship. In some cases, breaches of confidentiality obligations, including obligations to protect personally identifiable information, may entitle the aggrieved party to equitable remedies, including injunctive relief.

Although we maintain professional liability insurance, product liability insurance, commercial general and property insurance, business interruption insurance, workers' compensation coverage, and umbrella insurance for certain of our operations, our insurance coverage does not insure against all risks in our operations or all claims we may receive. Damage claims from customers or third parties brought against us or claims that we initiate due to the disruption of our business, litigation, or natural disasters, may not be covered by our insurance, may exceed the limits of our insurance coverage, and may result in substantial costs and diversion of resources even if insured. Some types of insurance are not available on reasonable terms or at all in some countries in which we operate, and we cannot insure against damage to our reputation. The assertion of one or more large claims against us, whether or not successful and whether or not insured, could materially adversely affect our reputation, business, financial condition and results of operations.

A significant failure in our systems, telecommunications or IT infrastructure could harm our service model, which could result in a reduction of our revenues and otherwise disrupt our business.

Our service model relies on maintaining active voice and data communications, online resource management, financial and operational record management, customer service and data processing systems between our client sites, our delivery centers and our customer management locations. Our business activities may be materially disrupted in the event of a partial or complete failure of any of these technologies, which could be due to software malfunction, computer virus attacks, conversion errors due to system upgrades, damage from fire, earthquake, power loss, telecommunications failure, unauthorized entry, demands placed on internet infrastructure by growing numbers of users and time spent online, increased bandwidth requirements or other events beyond our control. Our crisis management procedures, business continuity, and disaster recovery plans may not be effective at preventing or mitigating the effects of such disruptions, particularly in the case of a catastrophic event. Loss of all or part of the infrastructure or systems for a period of time could hinder our performance or our ability to complete customer projects on time which, in turn, could lead to a reduction of our revenues or otherwise materially adversely affect our business and business reputation.

Our ability to generate and retain business could depend on our reputation in the marketplace.

Our services are marketed to customers and prospective customers based on a number of factors, including reputation. Our corporate reputation is a significant factor in our customers' evaluation of whether to engage our services. Our customers' perception of our ability to add value through our services is critical to the profitability of our engagements. We believe the EPAM brand name and our reputation are important corporate assets that help distinguish our services from those of our competitors and contribute to our efforts to recruit and retain talented employees.

Our corporate reputation is potentially susceptible to damage by actions or statements made by current or former customers and employees, competitors, vendors, adversaries in legal proceedings, government regulators, as well as members of the investment community and the media. There is a risk that negative information about us, even if untrue, could adversely affect our business, could cause damage to our reputation and be challenging to repair, could make potential or existing customers reluctant to select us for new engagements, and could adversely affect our recruitment and retention efforts. Damage to our reputation could also reduce the value and effectiveness of the EPAM brand name and could reduce investor confidence in us.

If we fail to integrate or manage acquired companies efficiently, or if acquisitions do not perform to our expectations, our overall profitability and growth plans could be materially adversely affected.

Strategic acquisitions are part of our expansion strategy, but these transactions involve significant risks. Acquired companies may not advance our business strategy or achieve a satisfactory return on our investment, we may not be able to successfully integrate acquired employees and business culture, customer relationships, or operations, and acquisitions divert significant management attention and financial resources from our ongoing business. Furthermore, contracts between our acquisition targets and their customers may lack terms and conditions that adequately protect us against the risks associated with the services we provide, which may increase our potential exposure to damages. If not effectively managed, the disruption of our ongoing business, increases in our expenses, including significant one-time expenses and write-offs, and difficulty and complexity of effectively integrating acquired operations may adversely affect our overall growth and profitability.

We may not be able to prevent unauthorized use of our intellectual property, and our intellectual property rights may not be adequate to protect our business and competitive position.

We rely on a combination of copyright, trademark, patent, unfair competition and trade secret laws, as well as intellectual property assignment and confidentiality agreements and other methods to protect our intellectual property rights. Protection of intellectual property rights and confidentiality in some countries in which we operate may not be as effective as in the United States or other countries with more developed intellectual property protections.

We require our employees and independent contractors to assign to us all intellectual property and work product they create in connection with their employment or engagement. These assignment agreements also obligate our personnel to keep proprietary information confidential. If these agreements are not enforceable in any of the jurisdictions in which we operate, we cannot ensure that we will own the intellectual property they create or that our proprietary information will not be disclosed. Our customers and certain vendors are generally obligated to keep our information confidential, but if these contractual obligations are not entered, or are breached or deemed unenforceable, our trade secrets, know-how or other proprietary information may be subject to unauthorized use, misappropriation or disclosure. Reverse engineering, unauthorized copying or other misappropriation of our and our customers' proprietary technologies, tools and applications could enable unauthorized parties to benefit from our or our customers' technologies, tools and applications without payment and may make us liable to our customers for damages and compensation, which could harm our business and competitive position.

We rely on our trademarks, trade names, service marks and brand names to distinguish our services and solutions from the services of our competitors. We have registered or applied to register many of these trademarks. Third parties may oppose our trademark applications, or otherwise challenge our use of our trademarks. In the event that our trademarks are successfully challenged, we could be forced to rebrand our services and solutions, which could result in loss of brand recognition, and could require us to devote additional resources to advertising and marketing new brands. Further, we cannot provide assurance that competitors will not infringe our trademarks, or that we will have adequate resources to enforce our trademarks. If we do enforce our trademarks and our other intellectual property rights through litigation, we may not be successful and the litigation may result in substantial costs and diversion of resources and management attention.

We may face intellectual property infringement claims that could be time-consuming and costly to defend. If we fail to defend ourselves against such claims, we may lose significant intellectual property rights and may be unable to continue providing our existing services.

Our success largely depends on our ability to use and develop our technology, tools, code, methodologies, products, and services without infringing the intellectual property rights of third parties, including patents, copyrights, trade secrets and trademarks. We may be unaware of intellectual property rights relating to our products or services that may give rise to potential infringement claims against us. If those intellectual property rights are potentially relevant to our service offerings, we may need to license those rights in order to continue to use the applicable technology, but the holders of those intellectual property rights may be unwilling to license those rights to us on commercially acceptable terms, if at all. There may also be technologies licensed to and relied on by us that if subject to infringement or misappropriation claims by third parties, may become unavailable to us if such third parties obtain an injunction to prevent us from delivering our services or using technology involving the allegedly infringing intellectual property.

We typically indemnify customers who purchase our products, services and solutions against potential infringement of third-party intellectual property rights, which subjects us to the risk and cost of defending the underlying infringement claims. These claims may require us to initiate or defend protracted and costly litigation on behalf of our customers, regardless of the merits of these claims, and our indemnification obligations are often not subject to liability limits or exclusion of consequential, indirect or punitive damages. Intellectual property litigation could also divert our management's attention from our business and existing or potential customers could defer or limit their purchase or use of our software product development services or solutions until we resolve such litigation. If any of these claims succeed, we may be forced to pay damages on behalf of our customers, redesign or cease offering our allegedly infringing products, services, or solutions, or obtain licenses for the intellectual property that such services or solutions allegedly infringe. If we cannot obtain all necessary licenses on commercially reasonable terms, our customers may be forced to stop using our services or solutions.

Any of these actions, regardless of the outcome of litigation or merits of the claim, could damage our reputation and materially adversely affect our business, financial condition and results of operations.

We are subject to laws and regulations in the United States and other countries in which we operate, including export restrictions, economic sanctions, the FCPA, and similar anti-corruption laws. Compliance with these laws requires significant resources and non-compliance may result in civil or criminal penalties and other remedial measures.

We are subject to many laws and regulations that restrict our international operations, including laws that prohibit activities involving restricted countries, organizations, entities and persons that have been identified as unlawful actors or that are subject to U.S. sanctions. The U.S. Office of Foreign Assets Control, or OFAC, and other international bodies have imposed sanctions that prohibit us from engaging in trade or financial transactions with certain countries, businesses, organizations and individuals. We are also subject to the FCPA and anti-bribery and anti-corruption laws in other countries, all of which prohibit companies and their intermediaries from bribing government officials for the purpose of obtaining or keeping business or otherwise obtaining favorable treatment. We operate in many parts of the world that have experienced government corruption to some degree, and, in certain circumstances, strict compliance with anti-bribery laws may conflict with local customs and practices, although adherence to local customs and practices is generally not a defense under U.S. and other anti-bribery laws.

Our compliance program contains controls and procedures designed to ensure our compliance with the FCPA, OFAC and other sanctions, and laws and regulations. The continuing implementation and ongoing development and monitoring of our compliance program may be time consuming and expensive, and could result in the discovery of compliance issues or violations by us or our employees, independent contractors, subcontractors or agents of which we were previously unaware.

Any violations of these or other laws, regulations and procedures by our employees, independent contractors, subcontractors and agents, including third parties we associate with or companies we acquire, could expose us to administrative, civil or criminal penalties, fines or business restrictions, which could have a material adverse effect on our results of operations and financial condition and would adversely affect our reputation and the market for shares of our common stock and may require certain of our investors to disclose their investment in us under certain state laws.

Changes in privacy and data protection regulations could expose us to risks of noncompliance and costs associated with compliance.

EPAM is subject to the GDPR and the CCPA, each of which imposes significant restrictions and requirements relating to the processing of personal data. These and other recent international data protection laws are more burdensome than historical privacy standards, especially in the United States. The CCPA and GDPR each established complex legal obligations that organizations must follow with respect to the processing of personal data, including a prohibition on the transfer of personal information to third parties or to other countries, and the imposition of additional notification, security and other control measures.

Enforcement actions taken by the European Union data protection authorities, in the case of GDPR, or by individuals or the California regulatory authorities, in the case of the CCPA, as well as audits or investigations by one or more individuals, organizations, or foreign government agencies could result in penalties and fines for non-compliance or direct claims against us in the event of any loss or damage as a result of a breach of these regulations. The burden of compliance with additional data protection requirements may result in significant additional costs, complexity and risk in our services and customer may seek to shift the potential risks resulting from the implementation of data privacy legislation to us. We are required to establish processes and change certain operations in relation to the processing of personal data as a result of GDPR and CCPA, which may involve substantial expense and distraction from other aspects of our business.

Complying with a wide variety of legal requirements in the jurisdictions where we operate can create risks to our operations and financial condition, including liquidation of the subsidiaries that operate our major delivery centers.

Our global operations require us to comply with a wide variety of foreign laws and regulations, trade or foreign exchange restrictions or sanctions, inflation, unstable political and military situations, labor issues, and legal systems that make it more difficult to enforce intellectual property, contractual, or corporate rights. Certain legal provisions in Russia, Belarus, and Ukraine, where our local subsidiaries operate important delivery centers and employ a significant number of billable professionals, may allow a court to order liquidation of a locally organized legal entity on the basis of its formal noncompliance with certain requirements during formation, reorganization or during its operations. If we fail to comply with certain requirements, including those relating to minimum net assets, governmental or local authorities can seek the involuntary liquidation of our local subsidiaries in court, and creditors will have the right to accelerate their claims, demand early performance of the company's obligations, and demand compensation for any damages. Involuntary liquidation of any of our subsidiaries could materially adversely affect our financial condition and results of operations.

Our effective tax rate could be materially adversely affected by several factors.

We conduct business globally and file income tax returns in multiple jurisdictions. Our effective tax rate could be materially adversely affected by several factors, including changes in the amount of income taxed by or allocated to the various jurisdictions in which we operate that have differing statutory tax rates; changing tax laws, regulations and interpretations of such tax laws in one or more jurisdictions; and the resolution of issues arising from tax audits or examinations and any related interest or penalties. The determination of our provision for income taxes and other tax liabilities requires estimation, judgment and calculations where the ultimate tax determination may not be certain. Our determination of tax liability is always subject to review or examination by authorities in various jurisdictions. If a tax authority in any jurisdiction reviews any of our tax returns and proposes an adjustment, including, but not limited to, a determination that the transfer prices and terms we have applied are not appropriate, such an adjustment could have a negative impact on our results of operations, business, and profitability. In addition, any significant changes to the Tax Cuts and Jobs Act ("U.S. Tax Act") enacted in 2017, or to regulatory guidance associated with the U.S. Tax Act, could materially adversely affect our effective tax rate.

Our operating results may be negatively impacted by the loss of certain tax benefits provided to companies in our industry by the governments of Belarus and other countries.

In Belarus, our local subsidiary along with other member technology companies of High-Technologies Park have a full exemption from Belarus income tax and value added tax until 2049 and are taxed at reduced rates on a variety of other taxes. In Russia, our local subsidiary along with other qualified IT companies, benefit from paying obligatory social contributions to the government at a significantly reduced rate as well as an exemption from value added tax in certain circumstances. If these tax benefits are changed, terminated, not extended or comparable new tax incentives are not introduced, we expect that our effective income tax rate and/or our operating expenses could increase significantly, which could materially adversely affect our financial condition and results of operations. See "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations - Provision for Income Taxes."

There may be adverse tax and employment law consequences if the independent contractor status of some of our personnel or the exempt status of our employees is successfully challenged.

In several countries, certain of our personnel are retained as independent contractors. The criteria to determine whether an individual is considered an independent contractor or an employee are typically fact sensitive and vary by jurisdiction, as can the interpretation of the applicable laws. If a government authority or court makes any adverse determination with respect to independent contractors in general or one or more of our independent contractors specifically, we could incur significant costs, including for prior periods, in respect of tax withholding, social security taxes or payments, workers' compensation and unemployment contributions, and recordkeeping, or we may be required to modify our business model, any of which could materially adversely affect our business, financial condition and results of operations and increase the difficulty in attracting and retaining personnel.

We may need additional capital, and a failure to raise additional capital on terms favorable to us, or at all, could limit our ability to grow our business and develop or enhance our service offerings to respond to market demand or competitive challenges.

We believe that our current cash, cash flow from operations and revolving line of credit are sufficient to meet our anticipated cash needs for at least the next twelve months. We may, however, require additional cash resources due to changed business conditions or other future developments, including any investments or acquisitions that we may decide to pursue. If these resources are insufficient to satisfy our cash requirements, we may seek to sell additional equity or debt securities or obtain another or larger credit facility, and we cannot be certain that such additional financing would be available on terms acceptable to us or at all. The sale of additional equity securities could result in dilution to our stockholders, and additional indebtedness would result in increased debt service costs and obligations and could impose operating and financial covenants that would further restrict our operations.

Our stock price is volatile.

Our common stock has at times experienced substantial price volatility as a result of variations between our actual and anticipated financial results, announcements by our competitors and us, projections or speculation about our business or that of our competitors by the media or investment analysts or uncertainty about current global economic conditions. The stock market, as a whole, also has experienced price and volume fluctuations that have affected the market price of many technology companies in ways that may have been unrelated to these companies' operating performance. Furthermore, we believe our stock price should reflect future growth and profitability expectations and, if we fail to meet these expectations, our stock price may significantly decline.

Expense related to our liability-classified restricted stock units, which are subject to mark-to-market accounting, and the calculation of the weighted-average diluted shares outstanding in accordance with the treasury method are both affected by our stock price. Any fluctuations in the price of our stock will affect our future operating results.

Our hedging program is subject to counterparty default risk.

We enter into foreign currency forward contracts with a number of counterparties. As a result, we are subject to the risk that the counterparty to one or more of these contracts defaults on its performance under the contract. During an economic downturn, the counterparty's financial condition may deteriorate rapidly and with little notice and we may be unable to take action to protect our exposure. In the event of a counterparty default, we could incur significant losses, which may harm our business and financial condition. In the event that one or more of our counterparties becomes insolvent or files for bankruptcy, our ability to eventually recover any losses suffered as a result of that counterparty's default may be limited by the liquidity of the counterparty.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate headquarters are located in Newtown, Pennsylvania. We own and lease office buildings used as delivery centers, client management locations and space for administrative and support functions. These facilities are located in numerous cities worldwide and are strategically positioned in relation to our talent sources and key in-market locations to align with the needs of our operations. We believe that our existing properties are adequate to meet the current requirements of our business, and that suitable additional or substitute space will be available, if necessary. Our facilities are used interchangeably among all of our segments. See Note 15 "Segment Information" in the notes to our consolidated financial statements in this Annual Report on Form 10-K for information regarding the geographical locations and values of our long-lived assets. See

Note 7 “Leases” in the notes to our consolidated financial statements in this Annual Report on Form 10-K for information regarding our leased assets.

Item 3. Legal Proceedings

From time to time, we are involved in litigation and claims arising out of our business and operations in the normal course of business. We are not currently a party to any material legal proceeding, nor are we aware of any material legal or governmental proceedings pending or contemplated to be brought against us.

Item 4. Mine Safety Disclosures

None.

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 traded on the New York Stock Exchange ("NYSE") under the symbol "EPAM."

The price range per share of common stock presented below represents the highest and lowest intraday sales prices for the Company's common stock on the NYSE during each quarter of the two most recent years.

2019

Quarter Ended	High	Low
December 31	\$ 217.00	\$ 168.26
September 30	\$ 201.00	\$ 174.71
June 30	\$ 180.55	\$ 157.16
March 31	\$ 173.71	\$ 111.44

2018

Quarter Ended	High	Low
December 31	\$ 139.31	\$ 104.77
September 30	\$ 144.19	\$ 115.95
June 30	\$ 131.75	\$ 110.20
March 31	\$ 125.88	\$ 102.03

As of February 12, 2020, we had approximately 18 stockholders of record of our common stock. The number of record holders does not include holders of shares in "street name" or persons, partnerships, associations, corporations or other entities identified in security position listings maintained by depositories.

Dividend Policy

We have not declared or paid any cash dividends on our common stock and currently do not anticipate paying any cash dividends in the foreseeable future. Instead, we intend to retain all available funds and any future earnings for use in the operation and expansion of our business. Any future determination relating to our dividend policy will be made at the discretion of our Board of Directors and will depend on our future earnings, capital requirements, financial condition, future prospects, applicable Delaware law, which provides that dividends are only payable out of surplus or current net profits, and other factors that our Board of Directors deems relevant. In addition, our revolving credit facility restricts our ability to make or pay dividends (other than certain intercompany dividends) unless no potential or actual event of default has occurred or would be triggered thereby.

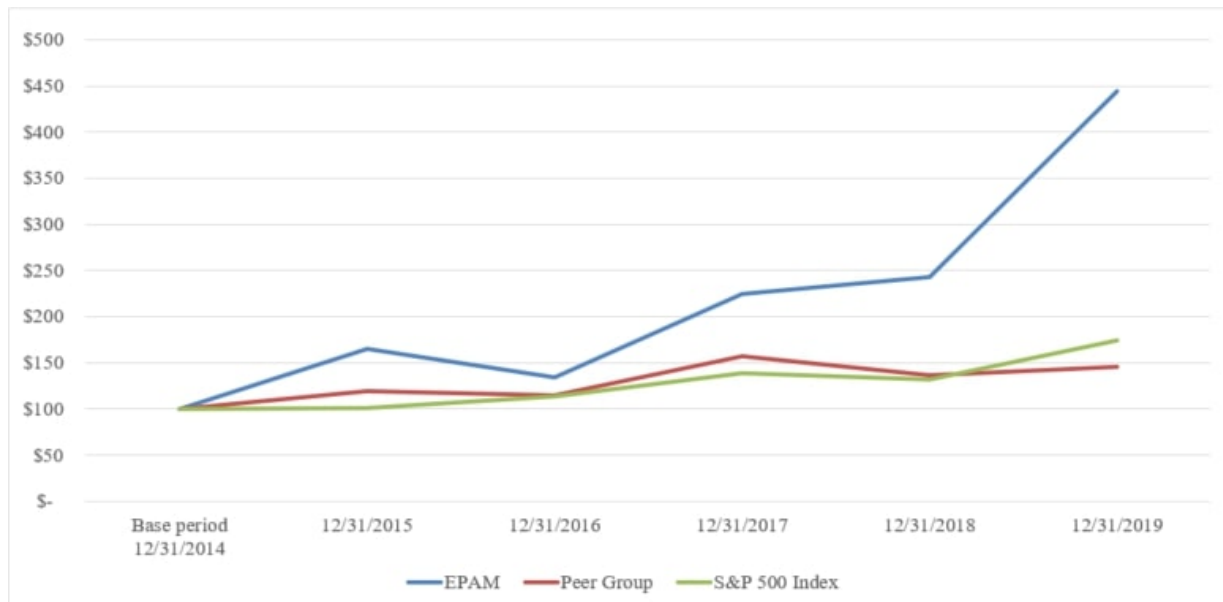
Equity Compensation Plan Information

See "Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters" in Part III of this Annual Report for our equity compensation plan information.

Performance Graph

The following graph compares the cumulative total stockholder return on our common stock with the cumulative total return on the S&P 500 Index and a Peer Group Index (capitalization weighted) for the period beginning December 31, 2014 and ending December 31, 2019. The stock performance shown on the graph below is not indicative of future price performance. The following performance graph and related information shall not be deemed “soliciting material” or to be “filed” with the SEC, nor shall information be incorporated by reference into any future filing under the Securities Act of 1933 or Securities Exchange Act of 1934, each as amended, except to the extent that we specifically incorporate it by reference into such filing.

**COMPARISON OF CUMULATIVE TOTAL RETURN ⁽¹⁾⁽²⁾
Among EPAM, a Peer Group ⁽³⁾ and the S&P 500 Index**



Company/Index	Base period 12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019
EPAM Systems, Inc.	\$ 100.00	\$ 164.65	\$ 134.68	\$ 224.98	\$ 242.95	\$ 444.31
Peer Group Index	\$ 100.00	\$ 119.57	\$ 115.32	\$ 157.15	\$ 136.41	\$ 145.19
S&P 500 Index	\$ 100.00	\$ 101.38	\$ 113.51	\$ 138.28	\$ 132.23	\$ 173.86

- (1) Graph assumes \$100 invested on December 31, 2014, in our common stock, a Peer Group and the S&P 500 Index.
- (2) Cumulative total return assumes reinvestment of dividends.
- (3) The Peer Group includes Cognizant Technology Solutions Corp. (NASDAQ:CTSH), ExlService Holdings, Inc. (NASDAQ:EXLS), Globant S.A. (NASDAQ:GLOB), Infosys Ltd. (NYSE:INFY), Perficient, Inc. (NASDAQ:PRFT), Virtusa Corporation (NASDAQ:VRTU), and Wipro Limited (NYSE:WIT).

Unregistered Sales of Equity Securities

In connection with the Company’s acquisition of all of the outstanding equity of Axsphère SAS (“Axsphere”), on September 3, 2019, the Company issued 18,787 shares of common stock to the Axsphere seller under the terms of the purchase agreement. Of these issued shares, 4,757 shares were immediately transferred to the seller and accounted for as service-based stock-based compensation expense; 4,637 shares were deposited in an escrow account to satisfy certain potential indemnification claims and were accounted for as service-based stock-based compensation; and 9,393 shares were deposited in an escrow account and will be released upon achievement of certain performance metrics and are accounted for as performance-based stock-based compensation. All of the shares of common stock issued in connection with these transactions are restricted securities (as defined in Rule 144 of the Securities Act of 1933, as amended (the “Securities Act”). No underwriter was involved in these transactions and no underwriting commissions were paid. The transactions were exempt from the registration requirements pursuant to Section 4(a)(2) of the Securities Act, since such transactions did not involve any public offering.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

Under our equity-based compensation plans, on the date of vesting of stock-based compensation awards to our personnel, the Company withholds a number of shares of vested stock to satisfy tax withholding obligations arising on that date. The number of shares of stock to be withheld is calculated based on the closing price of the Company’s common stock on the vesting date. The following table provides information about shares withheld by the Company during the year ended December 31, 2019:

Period	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Dollar Amount of Shares That May Yet Be Purchased Under the Program
January 1, 2019 to January 31, 2019	319	\$ 141.48	—	—
March 1, 2019 to March 31, 2019	81,243	\$ 165.41	—	—
April 1, 2019 to April 30, 2019	1,615	\$ 174.33	—	—
May 1, 2019 to May 31, 2019	71	\$ 171.57	—	—
June 1, 2019 to June 30, 2019	398	\$ 173.07	—	—
July 1, 2019 to July 31, 2019	5,846	\$ 182.75	—	—
August 1, 2019 to August 31, 2019	108	\$ 193.23	—	—
September 1, 2019 to September 30, 2019	7	\$ 180.36	—	—
October 1, 2019 to October 31, 2019	326	\$ 189.20	—	—
November 1, 2019 to November 30, 2019	5,227	\$ 179.82	—	—
December 1, 2019 to December 31, 2019	63	\$ 211.90	—	—
Total	95,223	\$ 167.52	—	—

Item 6. Selected Financial Data

The following table represents selected financial data for each of the last five years. Our historical results are not necessarily indicative of the results to be expected for any future period. The following selected financial data should be read in conjunction with “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our consolidated financial statements and related notes included elsewhere in this annual report.

	Year Ended December 31,				
	2019	2018	2017	2016	2015
(in thousands, except per share data)					
Consolidated Statements of Income Data:					
Revenues	\$ 2,293,798	\$ 1,842,912	\$ 1,450,448	\$ 1,160,132	\$ 914,128
Operating expenses:					
Cost of revenues (exclusive of depreciation and amortization)	1,488,198	1,186,921	921,352	737,186	566,913
Selling, general and administrative expenses	457,433	373,587	327,588	265,863	223,853
Depreciation and amortization expense	45,317	36,640	28,562	23,387	17,395
Income from operations	302,850	245,764	172,946	133,696	105,967
Interest and other income, net	8,725	3,522	4,601	4,848	4,731
Foreign exchange (loss)/gain	(12,049)	487	(3,242)	(12,078)	(4,628)
Income before provision for income taxes	299,526	249,773	174,305	126,466	106,070
Provision for income taxes	38,469	9,517	101,545	27,200	21,614
Net income	\$ 261,057	\$ 240,256	\$ 72,760	\$ 99,266	\$ 84,456
Net income per share of common stock:					
Basic	\$ 4.77	\$ 4.48	\$ 1.40	\$ 1.97	\$ 1.73
Diluted	\$ 4.53	\$ 4.24	\$ 1.32	\$ 1.87	\$ 1.62
Shares used in calculation of net income per share:					
Basic	54,719	53,623	52,077	50,309	48,721
Diluted	57,668	56,673	54,984	53,215	51,986

	As of December 31,				
	2019	2018	2017	2016	2015
(in thousands)					
Consolidated Balance Sheets Data:					
Cash and cash equivalents	\$ 936,552	\$ 770,560	\$ 582,585	\$ 362,025	\$ 199,449
Trade receivables and contract assets, net	\$ 497,716	\$ 402,337	\$ 352,139	\$ 263,307	\$ 270,425
Property and equipment, net	\$ 165,259	\$ 102,646	\$ 86,419	\$ 73,616	\$ 60,499
Total assets	\$ 2,244,208	\$ 1,611,802	\$ 1,250,256	\$ 925,811	\$ 778,536
Long-term debt	\$ 25,074	\$ 25,031	\$ 25,033	\$ 25,048	\$ 35,000
Total liabilities	\$ 648,063	\$ 349,206	\$ 275,309	\$ 144,399	\$ 165,313
Total stockholders’ equity	\$ 1,596,145	\$ 1,262,596	\$ 974,947	\$ 781,412	\$ 613,223

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

You should read the following discussion and analysis of our financial condition and results of operations together with our audited consolidated financial statements and the related notes included elsewhere in this annual report. In addition to historical information, this discussion contains forward-looking statements that involve risks, uncertainties and assumptions that could cause actual results to differ materially from management’s expectations. Factors that could cause such differences are discussed in the sections entitled “Forward-Looking Statements” and “Part I. Item 1A. Risk Factors.” We assume no obligation to update any of these forward-looking statements.

Executive Summary

We are a leading global provider of digital platform engineering and software development services offering specialized technological solutions to many of the world’s leading organizations.

Our customers depend on us to solve their complex technical challenges and rely on our expertise in core engineering, advanced technology, digital design and intelligent enterprise development. We continuously explore opportunities in new industries to expand our core industry client base in software and technology, financial services, business information and media, travel and consumer, retail and distribution and life sciences and healthcare. Our teams of developers, architects, consultants, strategists, engineers, designers, and product experts have the capabilities and skill sets to deliver business results.

Our global delivery model and centralized support functions, combined with the benefits of scale from the shared use of fixed-cost resources, enhance our productivity levels and enable us to better manage the efficiency of our global operations. As a result, we have created a delivery base whereby our applications, tools, methodologies and infrastructure allow us to seamlessly deliver services and solutions from our delivery centers to global customers across all geographies, further strengthening our relationships with them.

Through increased specialization in focused verticals and a continued emphasis on strategic partnerships, we are leveraging our roots in software engineering to grow as a recognized brand in software development and end-to-end digital transformation services for our customers.

Overview of 2019 and Financial Highlights

The following table presents a summary of our results of operations for the years ended December 31, 2019, 2018 and 2017:

	Year Ended December 31,					
	2019		2018		2017	
	% of revenues		% of revenues		% of revenues	
	(in millions, except percentages and per share data)					
Revenues	\$ 2,293.8	100.0%	\$ 1,842.9	100.0%	\$ 1,450.4	100.0%
Income from operations	\$ 302.9	13.2%	\$ 245.8	13.3%	\$ 172.9	11.9%
Net income	\$ 261.1	11.4%	\$ 240.3	13.0%	\$ 72.8	5.0%
Effective tax rate	12.8%		3.8%		58.3%	
Diluted earnings per share	\$ 4.53		\$ 4.24		\$ 1.32	

The key highlights of our consolidated results for 2019 were as follows:

- We recorded revenues of \$2.3 billion, or a 24.5% increase from \$1.8 billion in the previous year, negatively impacted by \$25.0 million or 1.3% due to changes in certain foreign currency exchange rates as compared to the corresponding period in the previous year.
- Income from operations grew 23.2% to \$302.9 million from \$245.8 million in 2018. Expressed as a percentage of revenues, income from operations was consistent with last year at 13.2% compared to 13.3%.
- Our effective tax rate was 12.8% compared to 3.8% last year. The provision for income taxes for 2018 was favorably impacted by the recognition of \$34.9 million of one-time tax benefits, partially offset by an increase in excess tax benefits associated with equity award exercises and vesting in 2019 compared to the same period last year.
- Net income increased 8.7% to \$261.1 million compared to \$240.3 million in 2018. Expressed as a percentage of revenues, net income decreased 1.6% compared to last year, which was largely driven by the increase in our effective tax rate.
- Diluted earnings per share increased 6.8% to \$4.53 for the year ended December 31, 2019 from \$4.24 in 2018.
- Cash provided by operations decreased \$4.8 million, or 1.6%, to \$287.5 million during 2019 as compared to last year.

The operating results in any period are not necessarily indicative of the results that may be expected for any future period.

Critical Accounting Policies

We prepare our consolidated financial statements in accordance with U.S. generally accepted accounting principles (“GAAP”), which require us to make judgments, estimates and assumptions that affect: (i) the reported amounts of assets and liabilities, (ii) the disclosure of contingent assets and liabilities at the end of each reporting period and (iii) the reported amounts of revenues and expenses during each reporting period. We evaluate these estimates and assumptions based on historical experience, knowledge and assessment of current business and other conditions, and expectations regarding the future based on available information and reasonable assumptions, which together form a basis for making judgments about matters not readily apparent from other sources. Since the use of estimates is an integral component of the financial reporting process, actual results could differ from those estimates. Some of our accounting policies require higher degrees of judgment than others in their application. When reviewing our audited consolidated financial statements, you should consider (i) our selection of critical accounting policies, (ii) the judgment and other uncertainties affecting the application of such policies and (iii) the sensitivity of reported results to changes in conditions and assumptions. We consider the policies discussed below to be critical to an understanding of our consolidated financial statements as their application places significant demands on the judgment of our management.

An accounting policy is considered critical if it requires an accounting estimate to be made based on assumptions about matters that are highly uncertain at the time the estimate is made, and if different estimates that reasonably could have been used, or changes in the accounting estimates that are reasonably likely to occur periodically, could materially impact the consolidated financial statements. We believe that the following critical accounting policies are the most sensitive and require more significant estimates and assumptions used in the preparation of our consolidated financial statements. You should read the following descriptions of critical accounting policies, judgments and estimates in conjunction with our audited consolidated financial statements and other disclosures included elsewhere in this annual report.

Revenues — As discussed in Note 1 “Business and Summary of Significant Accounting Policies” in the notes to our consolidated financial statements in this Annual Report on Form 10-K, on January 1, 2018, we adopted the new accounting standard ASU 2014-09, “Revenue from Contracts with Customers” (Topic 606) as amended using the modified retrospective method. This resulted in different revenue recognition accounting policies applied to the years presented in our consolidated financial statements.

For the years ended December 31, 2019 and 2018

We recognize revenues when control of goods or services is passed to a customer in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services. Such control may be transferred over time or at a point in time depending on satisfaction of obligations stipulated by the contract. Consideration expected to be received may consist of both fixed and variable components and is allocated to each separately identifiable performance obligation based on the performance obligation’s relative standalone selling price. Variable consideration usually takes the form of volume-based discounts, service level credits, price concessions or incentives. Determining the estimated amount of such variable consideration involves assumptions and judgment that can have an impact on the amount of revenues reported.

We derive revenues from a variety of service arrangements, which have been evolving to provide more customized and integrated solutions to customers by combining software engineering with customer experience design, business consulting and technology innovation services. Fees for these contracts may be in the form of time-and-materials or fixed-price arrangements. We generate the majority of our revenues under time-and-material contracts, which are billed using hourly, daily or monthly rates to determine the amounts to be charged directly to the customer. We apply a practical expedient and revenues related to time-and-material contracts are recognized based on the right to invoice for services performed.

Fixed-price contracts include maintenance and support arrangements, which may exceed one year in duration. Maintenance and support arrangements generally relate to the provision of ongoing services and revenues for such contracts are recognized ratably over the expected service period. Fixed-price contracts also include application development arrangements, where progress towards satisfaction of the performance obligation is measured using input or output methods and input methods are used only when there is a direct correlation between hours incurred and the end product delivered. Assumptions, risks and uncertainties inherent in the estimates used to measure progress could affect the amount of revenues, receivables and deferred revenues at each reporting period.

Revenues from licenses which have significant stand-alone functionality are recognized at a point in time when control of the license is transferred to the customer. Revenues from licenses which do not have stand-alone functionality are recognized over time. If there is an uncertainty about the receipt of payment for the services, revenue recognition is deferred until the uncertainty is sufficiently resolved. We apply a practical expedient and do not assess the existence of a significant financing component if the period between transfer of the service to a customer and when the customer pays for that service is one year or less.

We report gross reimbursable “out-of-pocket” expenses incurred as both revenues and cost of revenues in the consolidated statements of income and comprehensive income.

For the year ended December 31, 2017

We recognized revenue when the following criteria were met: (1) persuasive evidence of an arrangement existed; (2) delivery had occurred; (3) the sales price was fixed or determinable; and (4) collectability was reasonably assured. Determining whether and when some of these criteria had been satisfied often involved assumptions and judgments that could have had a significant impact on the timing and amount of revenues reported.

We derived our revenues from a variety of service offerings, which represent specific competencies of our delivery professionals. Contracts for these services had different terms and conditions based on the scope, deliverables, and complexity of the engagement, which required management to make judgments and estimates in determining appropriate revenue recognition. Fees for these contracts may have been in the form of time-and-materials or fixed-price arrangements. If there was uncertainty about the project completion or receipt of payment for the services, revenue was deferred until the uncertainty was sufficiently resolved. At the time revenue was recognized, we provided for any contractual deductions and reduced revenue accordingly. The Company reported gross reimbursable “out-of-pocket” expenses incurred as both revenues and cost of revenues in the consolidated statements of income and comprehensive income.

We deferred amounts billed to our customers for revenues not yet earned. Such amounts were anticipated to be recorded as revenues when services were performed in subsequent periods. Revenues were recorded when services had been provided but billed subsequent to the period end in accordance with the contract terms.

The majority of our revenues (90.3% of revenues in 2017) were generated under time-and-material contracts whereby revenues were recognized as services were performed with the corresponding cost of providing those services reflected as cost of revenues. The majority of such revenues were billed using hourly, daily or monthly rates as actual time was incurred on the project. Revenues from fixed-price contracts (8.3% of revenues in 2017) included fixed-price maintenance and support arrangements, which may have exceeded one year in duration and revenues from maintenance and support arrangements were generally recognized ratably over the expected service period. Fixed-price contracts also included application development arrangements and revenues from these arrangements were primarily determined using the proportional performance method. In cases where final acceptance of the product, system, or solution was specified by the customer, and the acceptance criteria were not objectively determinable to have been met as the services were provided, revenues were deferred until all acceptance criteria had been met. In the absence of a sufficient basis to measure progress towards completion, revenue was recognized upon receipt of final acceptance from the customer. Assumptions, risks and uncertainties inherent in the estimates used in the application of the proportional performance method of accounting could have affected the amount of revenues, receivables and deferred revenues at each reporting period.

Business Combinations — We account for business combinations using the acquisition method which requires us to estimate the fair value of identifiable assets acquired and liabilities assumed, including any contingent consideration, to properly allocate purchase price to the individual assets acquired and liabilities assumed. The allocation of the purchase price utilizes significant estimates in determining the fair values of identifiable assets acquired and liabilities assumed, especially with respect to intangible assets. The significant estimates and assumptions used include the timing and amount of forecasted revenues and cash flows, anticipated growth rates, client attrition rates, the discount rate reflecting the risk inherent in future cash flows and the determination of useful lives for finite-lived assets. There are different valuation models for each component, the selection of which requires considerable judgment. These determinations will affect the amount of amortization expense recognized in future periods. We base our fair value estimates on assumptions we believe are reasonable, but recognize that the assumptions are inherently uncertain. The acquired assets typically include customer relationships, software, trade names, non-competition agreements, and assembled workforce and as a result, a substantial portion of the purchase price is allocated to goodwill and other intangible assets.

If the initial accounting for the business combination has not been completed by the end of the reporting period in which the business combination occurs, provisional amounts are reported to present information about facts and circumstances that existed as of the acquisition date. Once the measurement period ends, which in no case extends beyond one year from the acquisition date, revisions to the accounting for the business combination are recorded in earnings.

Leases — We determine if an arrangement is a lease or contains a lease at inception. We perform an assessment and classify the lease as either an operating lease or a financing lease at the lease commencement date with a right-of-use asset (“RoU Asset”) and a lease liability recognized in the consolidated balance sheet under both classifications.

Lease liabilities are initially measured at the present value of lease payments not yet paid. The present value is determined by applying the readily determinable rate implicit in the lease or, if not available, the incremental borrowing rate of the lessee. We determine the incremental borrowing rate of the lessee on a lease-by-lease basis by developing an estimated centralized U.S. dollar borrowing rate for a fully collateralized obligation with a term similar to the lease term and adjust the rate to reflect the incremental risk associated with the currency in which the lease is denominated. The development of this estimate includes the use of recovery rates, U.S. risk-free rates, foreign currency/country base rate yields, and a synthetic corporate credit rating of the Company developed using regression analysis. Our lease agreements may include options to extend or terminate the lease. We includes such options in the lease term when it is reasonably certain that we will exercise that option. RoU Assets are recognized based on the initial measurement of the lease liabilities plus initial direct costs less lease incentives. Lease expense for operating leases is recognized on a straight-line basis over the lease term. RoU Assets are subject to periodic impairment tests.

We have elected a practical expedient to account for lease and non-lease components together as a single lease component. In addition, we elected the short-term lease recognition exemption for all classes of lease assets.

Recent Accounting Pronouncements

See Note 1 “Business and Summary of Significant Accounting Policies” in the notes to our consolidated financial statements in this Annual Report on Form 10-K for information regarding recent accounting pronouncements.

Results of Operations

The following table sets forth a summary of our consolidated results of operations for the periods indicated. This information should be read together with our consolidated financial statements and related notes included elsewhere in this annual report. The operating results in any period are not necessarily indicative of the results that may be expected for any future period.

	Year Ended December 31,					
	2019		2018		2017	
		% of revenues		% of revenues		% of revenues
	(in thousands, except percentages and per share data)					
Revenues	\$ 2,293,798	100.0 %	\$ 1,842,912	100.0%	\$ 1,450,448	100.0 %
Operating expenses:						
Cost of revenues (exclusive of depreciation and amortization) ⁽¹⁾	1,488,198	64.9	1,186,921	64.4	921,352	63.5
Selling, general and administrative expenses ⁽²⁾	457,433	19.9	373,587	20.3	327,588	22.6
Depreciation and amortization expense	45,317	2.0	36,640	2.0	28,562	2.0
Income from operations	302,850	13.2	245,764	13.3	172,946	11.9
Interest and other income, net	8,725	0.4	3,522	0.3	4,601	0.3
Foreign exchange (loss)/gain	(12,049)	(0.5)	487	—	(3,242)	(0.2)
Income before provision for income taxes	299,526	13.1	249,773	13.6	174,305	12.0
Provision for income taxes	38,469	1.7	9,517	0.6	101,545	7.0
Net income	\$ 261,057	11.4 %	\$ 240,256	13.0%	\$ 72,760	5.0 %
Effective tax rate	12.8%		3.8%		58.3%	
Diluted earnings per share	\$ 4.53		\$ 4.24		\$ 1.32	

(1) Included \$37,580, \$27,245 and \$20,868 of stock-based compensation expense for the years ended December 31, 2019, 2018 and 2017, respectively.

(2) Included \$34,456, \$31,943 and \$31,539 of stock-based compensation expense for the years ended December 31, 2019, 2018 and 2017, respectively.

Revenues

We continue to expand our presence across multiple geographies and verticals, both organically and through strategic acquisitions. During the year ended December 31, 2019, our total revenues grew 24.5% over the previous year to \$2.3 billion. This growth resulted from our ability to retain existing customers and increase the level of services we provide to them and our ability to produce revenues from new customer relationships. Customer concentration continued to decrease with revenues from our top five, top ten and top twenty clients declining as a percentage of total revenues for the year ended December 31, 2019 as compared to the previous year. Revenue has been positively impacted from the acquisition of test IO and other 2019 acquisitions, which contributed 0.2% and 0.5%, respectively to our revenue growth, and negatively impacted by the fluctuations in foreign currency that decreased our revenue growth by 1.3% during the year ended December 31, 2019 as compared to the previous year.

We discuss below the breakdown of our revenues by vertical, customer location, service arrangement type, and customer concentration.

Revenues by Vertical

We assign our customers into one of our five main vertical markets or a group of various industries where we are increasing our presence, which we label as “Emerging Verticals”. Emerging Verticals include customers in multiple industries such as energy, utilities, manufacturing, automotive, telecommunications and several others.

The following table presents our revenues by vertical and revenues as a percentage of total revenues by vertical for the periods indicated:

	Year Ended December 31,					
	2019		2018		2017	
	(in thousands, except percentages)					
Financial Services	\$ 500,872	21.8%	\$ 423,977	23.0%	\$ 338,899	23.4%
Travel & Consumer	439,358	19.2	393,643	21.4	317,415	21.9
Software & Hi-Tech	433,398	18.9	350,815	19.0	287,633	19.8
Business Information & Media	420,923	18.4	324,033	17.6	256,267	17.7
Life Sciences & Healthcare	248,452	10.8	171,703	9.3	120,591	8.3
Emerging Verticals	250,795	10.9	178,741	9.7	129,643	8.9
Revenues	\$ 2,293,798	100.0%	\$ 1,842,912	100.0%	\$ 1,450,448	100.0%

Revenues by Customer Location

Our revenues are sourced from four geographic markets: North America, Europe, CIS and APAC. We present and discuss our revenues by customer location based on the location of the specific customer site that we serve, irrespective of the location of the headquarters of the customer or the location of the delivery center where the work is performed. Revenues by customer location is different from revenues by reportable segment in our consolidated financial statements included elsewhere in this annual report. Segments are not based on the geographic location of the customers, but instead they are based on the location of the Company’s management responsible for a particular customer or market.

The following table sets forth revenues by customer location by amount and as a percentage of our revenues for the periods indicated:

	Year Ended December 31,					
	2019		2018		2017	
	(in thousands, except percentages)					
North America	\$ 1,390,015	60.6%	\$ 1,099,167	59.6%	\$ 840,692	58.0%
Europe	746,866	32.6	612,472	33.2	511,319	35.2
CIS ⁽¹⁾	100,471	4.4	81,703	4.4	68,390	4.7
APAC ⁽²⁾	56,446	2.4	49,570	2.8	30,047	2.1
Revenues	\$ 2,293,798	100.0%	\$ 1,842,912	100.0%	\$ 1,450,448	100.0%

(1) CIS includes revenues from customers in Belarus, Kazakhstan, Russia and Ukraine.

(2) APAC, which stands for Asia Pacific, includes revenues from customers in Southeast Asia and Australia.

During the year ended December 31, 2019, revenues in our largest geography, North America, were \$1,390.0 million growing \$290.8 million, or 26.5%, from \$1,099.2 million reported for the year ended December 31, 2018. Revenues from this geography accounted for 60.6% of total revenues in 2019, an increase from 59.6% in the prior year. The United States continued to be our largest customer location contributing revenues of \$1,321.7 million in 2019 compared to \$1,029.3 million in 2018.

Revenues in our Europe geography were \$746.9 million, an increase of \$134.4 million, or 21.9%, over \$612.5 million in the previous year. Revenues in this geography accounted for 32.6% of consolidated revenues in 2019 as compared to 33.2% in the previous year. The top three revenue contributing customer location countries in Europe were the United Kingdom, Switzerland and the Netherlands generating revenues of \$290.0 million, \$152.7 million and \$88.5 million in 2019, respectively, compared to \$200.9 million, \$144.4 million and \$70.3 million in 2018, respectively. Fluctuations in foreign currency exchange rates with the U.S. dollar, particularly the euro and the British pound, during 2019 compared to the same period in the prior year negatively impacted revenue growth in the European geography by 3.2%.

During 2019, revenues in the CIS geography increased \$18.8 million, or 23.0%, from the previous year. The increase in CIS revenues came predominantly from customers in Russia, contributing \$18.8 million of revenue growth in 2019 compared to the previous year.

Revenues from customers in locations in the APAC region comprised 2.4% of total revenues in 2019, a level consistent with the prior year.

Discussion of revenues from 2018 as compared to 2017 is disclosed in “Part II. Item 7. Results of Operations” of our Annual Report on Form 10-K for the year ended December 31, 2018.

Revenues by Customer Concentration

We have long-standing relationships with many of our customers and we seek to grow revenues from our existing customers by continually expanding the scope and size of our engagements. Revenues derived from these customers may fluctuate as these accounts mature or upon completion of multi-year projects. While we believe there is a significant potential for future growth as we expand our capabilities and offerings within existing customers, we continue to focus on diversification of our customer concentration and building up a portfolio of new accounts that we believe have significant revenue potential. We anticipate the contribution of these new accounts to our total revenues to increase in the mid- to long-term and offset the potential slower growth rate of some of our largest customers as those accounts mature.

We expect customer concentration from our top customers to continue to decrease over the long-term. The following table presents revenues contributed by our customers by amount and as a percentage of our revenues for the periods indicated:

	Year Ended December 31,					
	2019		2018		2017	
	(in thousands, except percentages)					
Top five customers	\$ 456,985	19.9%	\$ 410,987	22.3%	\$ 348,219	24.0%
Top ten customers	\$ 666,584	29.1%	\$ 582,539	31.6%	\$ 491,742	33.9%
Top twenty customers	\$ 933,178	40.7%	\$ 782,771	42.5%	\$ 648,786	44.7%
Customers below top twenty	\$ 1,360,620	59.3%	\$ 1,060,141	57.5%	\$ 801,662	55.3%

The following table shows the number of customers from which we earned revenues for each year presented:

Revenues Greater Than or Equal To	Year Ended December 31,		
	2019	2018	2017
\$0.1 million	610	562	460
\$0.5 million	402	375	316
\$1 million	297	256	232
\$5 million	91	81	63
\$10 million	49	36	26
\$20 million	22	14	10

Revenues by Service Offering

Effective January 1, 2018, the Company adopted ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)* as amended. The adoption of this standard required various disaggregated levels of revenue to be disclosed as presented in Note 9 “Revenues” in the notes to our consolidated financial statements in this Annual Report on Form 10-K. The standard also required us to consider how management views the business and provide the appropriate disclosures that would be relevant and informative under those views.

Our service arrangements have been evolving to provide more customized and integrated solutions to our customers where we combine software engineering with customer experience design, business consulting and technology innovation services. We are continually expanding our service capabilities, moving beyond traditional services into business consulting, design and physical product development. As more of our projects involve multiple competencies and different types of specialized professionals working collaboratively, it has been increasingly difficult to classify our projects into the specific service offerings that we historically presented. Given the market demand for integrated customer solutions and our management’s view of the business, we changed our presentation of service offerings to better reflect our business model.

Our professional services engagement models vary based on the type of services provided to a customer, the mix and locations of delivery professionals involved and pricing type, which is either time-and-material or fixed-price. Historically, the majority of our professional services revenues have been generated under time-and-material contracts and we expect time-and-material arrangements to continue to comprise the majority of our revenues in the foreseeable future.

The following table shows revenues by service offering as an amount and as a percentage of our revenues for the years indicated:

	Year Ended December 31,					
	2019		2018		2017	
	(in thousands, except percentages)					
Professional services	\$ 2,285,303	99.7%	\$ 1,837,148	99.7%	\$ 1,429,781	98.6%
Licensing	5,081	0.2	4,097	0.2	3,529	0.2
Other	3,414	0.1	1,667	0.1	1,147	0.1
Reimbursable expenses	See (1)	See (1)	See (1)	See (1)	15,991	1.1
Revenues	\$ 2,293,798	100.0%	\$ 1,842,912	100.0%	\$ 1,450,448	100.0%

(1) Following the adoption of Topic 606 on January 1, 2018, the Company includes reimbursable expenses in total contract consideration and is included in Professional services revenues. See Note 1 “Business and Summary of Significant Accounting Policies.”

See Note 9 “Revenues” in the notes to our consolidated financial statements in this Annual Report on Form 10-K for more information regarding our contract types and related revenue recognition policies.

Cost of Revenues (Exclusive of Depreciation and Amortization)

The principal components of our cost of revenues (exclusive of depreciation and amortization) are salaries, bonuses, fringe benefits, stock-based compensation, project-related travel costs and fees for subcontractors who are assigned to customer projects. Salaries and other compensation expenses of our delivery professionals are reported as cost of revenues regardless of whether the employees are actually performing customer services during a given period. Our employees are a critical asset, necessary for our continued success and therefore we expect to continue hiring talented employees and providing them with competitive compensation programs.

We manage the utilization levels of our delivery professionals through strategic hiring and efficient staffing of projects. Some of these professionals are hired and trained to work for specific customers or on specific projects and some of our offshore development centers are dedicated to specific customers or projects. Our staff utilization also depends on the general economy and its effect on our customers and their business decisions regarding the use of our services.

During the year ended December 31, 2019, cost of revenues (exclusive of depreciation and amortization) was \$1,488.2 million, representing an increase of 25.4% from \$1,186.9 million reported last year. The increase was primarily due to an increase in compensation costs as a result of a 19.2% growth in the average number of production headcount for the year and a higher level of accrued variable compensation in 2019 as compared to the prior year.

Expressed as a percentage of revenues, cost of revenues (exclusive of depreciation and amortization) was 64.9% and 64.4% during the years ended December 31, 2019 and 2018, respectively. The year-over-year increase reflects the impact from lower utilization rates and increased stock compensation expense.

Discussion of cost of revenues (exclusive of depreciation and amortization) from 2018 as compared to 2017 is disclosed in “Part II. Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations” of our Annual Report on Form 10-K for the year ended December 31, 2018.

Selling, General and Administrative Expenses

Selling, general and administrative expenses represent expenses associated with promoting and selling our services and general and administrative functions of our business. These expenses include the costs of salaries, bonuses, fringe benefits, stock-based compensation, severance, bad debt, travel, legal and accounting services, insurance, facilities including operating leases, advertising and other promotional activities. In addition, we pay a membership fee of 1% of revenues generated in Belarus to the administrative organization of the Belarus High-Technologies Park. We expect our selling, general and administrative expenses to continue to increase in absolute terms as our business expands but generally to remain steady as a percentage of our revenues in the foreseeable future.

Our selling, general and administrative expenses have increased due to our continuously expanding operations, strategic business acquisitions, and the hiring of necessary personnel to support our growth. During the year ended December 31, 2019, selling, general and administrative expenses were \$457.4 million, representing an increase of 22.4% as compared to \$373.6 million reported last year. The increase in selling, general and administrative expenses in 2019 was primarily driven by a \$44.8 million increase in personnel-related costs including stock-based compensation expense and talent acquisition and development expenses, and a \$28.0 million increase in facilities and infrastructure related expenses to support our growth.

Expressed as a percentage of revenues, selling, general and administrative expenses decreased 0.4% to 19.9% for the year ended December 31, 2019. The decrease was primarily driven by the slower growth of 19.7% in personnel-related costs including stock-based compensation expense as compared to revenue growth of 24.5%.

Discussion of selling, general and administrative expenses from 2018 as compared to 2017 is disclosed in “Part II. Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations” of our Annual Report on Form 10-K for the year ended December 31, 2018.

Depreciation and Amortization Expense

During the year ended December 31, 2019, depreciation and amortization expense was \$45.3 million, representing an increase of \$8.7 million from \$36.6 million reported last year. The increase in depreciation and amortization expense was primarily due to an increase in computer equipment to support headcount growth. Depreciation and amortization expense includes amortization of acquired finite-lived intangible assets. Expressed as a percentage of revenues, depreciation and amortization expense remained consistent at 2.0% during the year ended December 31, 2019 as compared to 2018.

Discussion of depreciation and amortization expense from 2018 as compared to 2017 is disclosed in “Part II. Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations” of our Annual Report on Form 10-K for the year ended December 31, 2018.

Interest and Other Income, Net

Interest and other income, net includes interest earned on cash and cash equivalents and employee housing loans, gains and losses from certain financial instruments, interest expense related to our revolving credit facility and changes in the fair value of contingent consideration. There were no material changes in interest and other income, net in 2019 as compared to 2018 and 2017.

Provision for Income Taxes

Determining the consolidated provision for income tax expense, deferred income tax assets and liabilities and any potential related valuation allowances involves judgment. We consider factors that may contribute, favorably or unfavorably, to the overall annual effective tax rate in the current year as well as the future. These factors include statutory tax rates and tax law changes in the countries where we operate and excess tax benefits upon vesting or exercise of equity awards as well as consideration of any significant or unusual items.

As a global company, we are required to calculate and provide for income taxes in each of the jurisdictions in which we operate. During 2019, 2018 and 2017, we had \$234.2 million, \$205.2 million and \$180.9 million, respectively, in income before provision for income taxes attributed to our foreign jurisdictions. Changes in the geographic mix or level of annual pre-tax income can also affect our overall effective income tax rate.

Our provision for income taxes also includes the impact of provisions established for uncertain income tax positions, as well as the related net interest and penalty expense. Tax exposures can involve complex issues and may require an extended period to resolve. Although we believe we have adequately reserved for our uncertain tax positions, we cannot provide assurance that the final tax outcome of these matters will not be different from our current estimates. We adjust these reserves in light of changing facts and circumstances, such as the closing of a tax audit, statute of limitation lapse or the refinement of an estimate. To the extent that the final tax outcome of these matters differs from the amounts recorded, such differences will impact the provision for income taxes in the period in which such determination is made.

In Belarus, member technology companies of High-Technologies Park, including our local subsidiary, have a full exemption from Belarus income tax on qualifying income through January 2049. However, beginning February 1, 2018, the earnings of the Company's Belarus local subsidiary became subject to U.S. income taxation due to the Company's decision to change the tax status of the subsidiary. Consequently, there was less income tax benefit from the Belarus tax exemption during 2018 compared to the previous year. There was no aggregate dollar benefit derived from this tax holiday for the year ended December 31, 2019, and the aggregate dollar benefits derived from this tax holiday approximated \$1.4 million and \$15.5 million for the years ended December 31, 2018 and 2017, respectively. There was no impact on diluted net income per share for the year ended December 31, 2019. The benefit the tax holiday had on diluted net income per share approximated \$0.02 and \$0.28 for the years ended December 31, 2018 and 2017, respectively.

The provision for income taxes was \$38.5 million in 2019 and \$9.5 million in 2018, partially driven by the increase in pre-tax income year over year. The effective tax rate increased from 3.8% in 2018 to 12.8% in 2019 primarily due to one-time benefits in 2018, partially offset by an increase in excess tax benefits associated with equity award exercises and vesting which were \$28.4 million in 2019 compared to \$17.4 million in 2018. The provision for income taxes in 2018 included the following one-time net tax benefits:

- We recorded a \$26.0 million benefit to reflect the establishment of net deferred tax assets as a result of our decision to file entity classification elections with the Internal Revenue Service for the majority of our foreign subsidiaries to change the tax status and to classify most of our foreign subsidiaries as disregarded for U.S. income tax purposes.
- The provisional charge recorded in 2017 due to the one-time transition tax on accumulated foreign subsidiary earnings not previously subject to U.S. income tax was reduced by \$4.9 million, and the provisional charge recorded in 2017 due to the impact of the change in the U.S. statutory tax rate from 35.0% to 21.0% on the valuation of the net deferred tax assets was increased by \$0.9 million.
- Based on proposed tax regulations issued by the U.S. Department of the Treasury during 2018, it was determined that a U.S. foreign tax credit could be claimed for the withholding tax paid to Belarus resulting in a net \$4.9 million tax benefit recognized in 2018.

Discussion of the provision for income taxes from 2018 as compared to 2017 is disclosed in "Part II. Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations" of our Annual Report on Form 10-K for the year ended December 31, 2018.

Foreign Exchange Gain / Loss

For discussion of the impact of foreign exchange fluctuations see "Item 7A. Quantitative and Qualitative Disclosures About Market Risk — Foreign Exchange Risk."

Results by Business Segment

Our operations consist of three reportable segments: North America, Europe, and Russia. The segments represent components of EPAM for which separate financial information is available and used on a regular basis by our chief executive officer, who is also our chief operating decision maker ("CODM"), to determine how to allocate resources and evaluate performance. Our CODM makes business decisions based on segment revenues and segment operating profits. Segment operating profit is defined as income from operations before unallocated costs. Expenses included in segment operating profit consist principally of direct selling and delivery costs as well as an allocation of certain shared services expenses. Certain corporate expenses are not allocated to specific segments as these expenses are not controllable at the segment level. Such expenses include certain types of professional fees, non-corporate taxes, compensation to non-employee directors and certain other general and administrative expenses, including compensation of specific groups of non-production employees. In addition, the Company does not allocate stock-based compensation expenses, amortization of purchased intangible assets and other acquisition-related expenses. These unallocated amounts are combined with total segment operating profit to arrive at consolidated income from operations.

We manage our business primarily based on the managerial responsibility for the client base and market. As managerial responsibility for a particular customer relationship generally correlates with the customer's geographic location, there is a high degree of similarity between customer locations and the geographic boundaries of our reportable segments. In some cases, managerial responsibility for a particular customer is assigned to a management team in another region and is usually based on the strength of the relationship between customer executives and particular members of EPAM's senior management team. In such cases, the customer's activity would be reported through the management team's reportable segment.

During the fourth quarter of 2019, the Company changed its management reporting of segment revenues to exclude other income. Prior year amounts presented below have been changed to conform to that presentation.

Segment revenues from external customers and segment operating profit, before unallocated expenses, for the North America, Europe and Russia segments for the years ended December 31, 2019, 2018 and 2017 were as follows:

	Year Ended December 31,		
	2019	2018	2017
	(in thousands)		
Segment revenues:			
North America	\$ 1,380,944	\$ 1,076,979	\$ 796,040
Europe	820,717	692,785	591,450
Russia	92,137	73,148	62,958
Total segment revenues	\$ 2,293,798	\$ 1,842,912	\$ 1,450,448
Segment operating profit:			
North America	\$ 293,757	\$ 221,846	\$ 169,340
Europe	114,863	115,876	92,080
Russia	17,347	11,377	13,906
Total segment operating profit	\$ 425,967	\$ 349,099	\$ 275,326

During the year ended December 31, 2018, the Company began to allocate certain staff recruitment and development expenses into segment operating profit as these expenses became part of the evaluation of segment management's performance. These costs were not previously allocated to segments and were included in unallocated amounts in the reconciliation of segment operating profit to consolidated income before provision for income taxes. The effect of this reclassification was not material to segment operating profit and had no impact on total income from operations for the year ended December 31, 2018.

North America Segment

2019 compared to 2018

During 2019, North America segment revenues increased \$304.0 million, or 28.2%, over last year. Revenues from our North America segment represent 60.2% and 58.4% of total segment revenues during 2019 and 2018, respectively. During 2019 as compared to 2018, the North America segment's operating profits increased \$71.9 million, or 32.4%, to \$293.8 million. North America's operating profit represented 21.3% of North America segment revenues as compared to 20.6% in 2018.

Revenues were negatively impacted by the reassignment of a certain customer to the Europe segment from the North America segment as a result of a change in managerial responsibility. Without this reassignment, North America segment revenue growth would have been 34.6% for the year ended December 31, 2019 as compared to 2018.

The following table presents North America segment revenues by industry vertical for the periods indicated:

Industry Vertical	Year Ended December 31,		Change	
	2019	2018	Dollars	Percentage
	(in thousands, except percentages)			
Software & Hi-Tech	\$ 354,023	\$ 269,067	\$ 84,956	31.6%
Business Information & Media	262,448	251,081	11,367	4.5%
Life Sciences & Healthcare	224,925	151,418	73,507	48.5%
Travel & Consumer	198,264	177,910	20,354	11.4%
Financial Services	184,469	112,444	72,025	64.1%
Emerging Verticals	156,815	115,059	41,756	36.3%
Revenues	\$ 1,380,944	\$ 1,076,979	\$ 303,965	28.2%

Software & Hi-Tech remained the largest industry vertical in the North America segment during the year ended December 31, 2019, growing 31.6% as compared to the prior year, which was a result of the continued focus on working with our technology customers. Revenues from the Financial Services vertical grew in excess of 50% during the year ended December 31, 2019 compared to 2018. Revenues from the Business Information & Media vertical grew 4.5% during the year ended December 31, 2019, as compared to the corresponding period from the prior year and were adversely impacted by the reassignment of a certain customer to the Europe segment. Without this reassignment, the Business Information & Media vertical would have grown 31.8% during the year 2019 compared to the previous year.

2018 compared to 2017

North America segment revenues increased \$280.9 million, or 35.3%, over 2017. Revenues from our North America segment represent 58.4% and 54.9% of total segment revenues during 2018 and 2017, respectively. During 2018 as compared to 2017, the North America segment's operating profits increased \$52.5 million, or 31.0%, to \$221.8 million. North America's operating profit represented 20.6% of North America segment revenues as compared to 21.3% in 2017.

The following table presents North America segment revenues by industry vertical for the periods indicated:

<u>Industry Vertical</u>	<u>Year Ended December 31,</u>		<u>Change</u>	
	<u>2018</u>	<u>2017</u>	<u>Dollars</u>	<u>Percentage</u>
	<i>(in thousands, except percentages)</i>			
Software & Hi-Tech	\$ 269,067	\$ 211,310	\$ 57,757	27.3%
Business Information & Media	251,081	192,110	58,971	30.7%
Travel & Consumer	177,910	148,190	29,720	20.1%
Life Sciences & Healthcare	151,418	105,839	45,579	43.1%
Financial Services	112,444	65,150	47,294	72.6%
Emerging Verticals	115,059	73,441	41,618	56.7%
Revenues	\$ 1,076,979	\$ 796,040	\$ 280,939	35.3%

Software & Hi-Tech remained the largest industry vertical in the North America segment during the year ended December 31, 2018, growing 27.3% as compared to the prior year, which was a result of the continued focus on working with our technology customers. Revenues from the Financial Services and Emerging Verticals grew in excess of 50% during the year ended December 31, 2018 compared to 2017 substantially driven by customers we began serving in the prior 24 months.

Europe Segment

Our Europe segment includes the business in the APAC region, which is managed by the same management team.

2019 compared to 2018

During 2019, Europe segment revenues were \$820.7 million, reflecting an increase of \$127.9 million, or 18.5%, from last year. Revenues from our Europe segment represent 35.8% and 37.6% of total segment revenues during 2019 and 2018, respectively. During 2019, this segment's operating profits decreased \$1.0 million, or 0.9% as compared to last year, to \$114.9 million. Europe's operating profit represented 14.0% of Europe segment revenues as compared to 16.7% in 2018.

Revenues benefited from the reassignment of a certain customer to the Europe segment from the North America segment as a result of a change in managerial responsibility. Without this reassignment, Europe segment revenue growth would have been 8.6% for the year ended December 31, 2019 as compared to 2018.

The following table presents Europe segment revenues by industry vertical for the periods indicated:

<u>Industry Vertical</u>	<u>Year Ended December 31,</u>		<u>Change</u>	
	<u>2019</u>	<u>2018</u>	<u>Dollars</u>	<u>Percentage</u>
	(in thousands, except percentages)			
Financial Services	\$ 244,284	\$ 252,196	\$ (7,912)	(3.1)%
Travel & Consumer	229,523	208,266	21,257	10.2 %
Business Information & Media	157,844	72,898	84,946	116.5 %
Software & Hi-Tech	77,377	79,121	(1,744)	(2.2)%
Life Sciences & Healthcare	23,444	20,272	3,172	15.6 %
Emerging Verticals	88,245	60,032	28,213	47.0 %
Revenues	\$ 820,717	\$ 692,785	\$ 127,932	18.5 %

The Europe segment benefited from strong growth in the Business Information & Media vertical of 116.5% for the year ended December 31, 2019 as compared to 2018. This is primarily due to the reassignment of a certain customer to the Europe segment from the North America segment as a result of a change in managerial responsibility. Without this reassignment, Business Information & Media growth would have been 22.7% for the year ended December 31, 2019 as compared to 2018.

For the year ended December 31, 2019, Financial Services remained the largest industry vertical in the Europe segment, however, revenues in Financial Services decreased compared to 2018 primarily due to slower demand for our services by certain banks in Europe. Revenues in Software & Hi-Tech also decreased during the year ended December 31, 2019 as compared to the corresponding period of 2018 primarily due to a change in the estimate of variable consideration associated with a single customer.

2018 compared to 2017

Europe segment revenues were \$692.8 million, reflecting an increase of \$101.3 million, or 17.1%, from 2017. Revenues from our Europe segment represented 37.6% and 40.8% of total segment revenues during 2018 and 2017, respectively. During 2018, this segment's operating profits increased \$23.8 million, or 25.8% as compared to 2017, to \$115.9 million. Europe's operating profit represented 16.7% of the Europe segment revenues as compared to 15.6% in 2017.

The following table presents Europe segment revenues by industry vertical for the periods indicated:

<u>Industry Vertical</u>	<u>Year Ended December 31,</u>		<u>Change</u>	
	<u>2018</u>	<u>2017</u>	<u>Dollars</u>	<u>Percentage</u>
	(in thousands, except percentages)			
Financial Services	\$ 252,196	\$ 232,283	\$ 19,913	8.6%
Travel & Consumer	208,266	160,112	48,154	30.1%
Software & Hi-Tech	79,121	70,620	8,501	12.0%
Business Information & Media	72,898	64,089	8,809	13.7%
Life Sciences & Healthcare	20,272	14,726	5,546	37.7%
Emerging Verticals	60,032	49,620	10,412	21.0%
Revenues	\$ 692,785	\$ 591,450	\$ 101,335	17.1%

The Europe segment benefited from strong growth in the Travel & Consumer vertical of 30.1% for the year ended December 31, 2018 as compared to 2017. Financial Services remained the largest industry vertical in the Europe segment. Revenues in Financial Services grew less than 10% as compared to 2017 primarily due to decreasing revenues from certain customers outside of our top 5 customers.

Russia Segment

2019 compared to 2018

During 2019, revenues from our Russia segment increased \$19.0 million relative to 2018 and represent 4.0% of total segment revenues during both 2019 and 2018. Operating profits of our Russia segment increased \$6.0 million when compared to 2018. Expressed as a percentage of Russia segment revenues, the segment's operating profits were 18.8% and 15.6% in 2019 and 2018, respectively.

The following table presents Russia segment revenues by industry vertical for the periods indicated:

Industry Vertical	Year Ended December 31,		Change	
	2019	2018	Dollars	Percentage
	(in thousands, except percentages)			
Financial Services	\$ 72,119	\$ 59,337	\$ 12,782	21.5 %
Travel & Consumer	11,571	7,467	4,104	55.0 %
Software & Hi-Tech	1,998	2,627	(629)	(23.9)%
Business Information & Media	631	54	577	1,068.5 %
Life Sciences & Healthcare	83	13	70	538.5 %
Emerging Verticals	5,735	3,650	2,085	57.1 %
Revenues	\$ 92,137	\$ 73,148	\$ 18,989	26.0 %

The depreciation of the Russian ruble against the U.S. dollar during 2019 as compared to 2018 unfavorably impacted revenues in this segment; however, segment operating profit as a percentage of revenues improved primarily due to realized gains on our foreign currency hedges. Currency fluctuations of the Russian ruble typically impact the results in the Russia segment. Ongoing economic and geopolitical uncertainty in the region and the volatility of the Russian ruble can significantly impact reported revenues and profitability in this segment. We continue to monitor geopolitical forces, economic and trade sanctions, and other issues involving this region.

2018 compared to 2017

Revenues from our Russia segment increased \$10.2 million relative to 2017 and represent 4.0% and 4.3% of total segment revenues during 2018 and 2017, respectively. Operating profits of our Russia segment decreased \$2.5 million when compared to 2017. Expressed as a percentage of Russia segment revenues, the segment's operating profits were 15.6% and 22.1% in 2018 and 2017, respectively.

Industry Vertical	Year Ended December 31,		Change	
	2018	2017	Dollars	Percentage
	(in thousands, except percentages)			
Financial Services	\$ 59,337	\$ 41,466	\$ 17,871	43.1 %
Travel & Consumer	7,467	9,113	(1,646)	(18.1)%
Software & Hi-Tech	2,627	5,702	(3,075)	(53.9)%
Business Information & Media	54	68	(14)	(20.6)%
Life Sciences & Healthcare	13	27	(14)	(51.9)%
Emerging Verticals	3,650	6,582	(2,932)	(44.5)%
Revenues	\$ 73,148	\$ 62,958	\$ 10,190	16.2 %

The depreciation of the Russian ruble against the U.S. dollar during 2018 as compared to 2017 significantly impacted the revenues in this segment, which were not similarly offset with the costs due to realized losses on our foreign currency hedges.

Effects of Inflation

Economies in some countries where we operate, particularly Belarus, Russia, Kazakhstan, Ukraine and India have periodically experienced high rates of inflation. Periods of higher inflation may affect various economic sectors in those countries and increase our cost of doing business there. Inflation may increase some of our expenses such as wages. While inflation may impact our results of operations and financial condition and it is difficult to accurately measure the impact of inflation, we believe the effects of inflation on our results of operations and financial condition are not significant.

Liquidity and Capital Resources

Capital Resources

Our cash generated from operations has been our primary source of liquidity to fund operations and investments to support the growth of our business. As of December 31, 2019, our principal sources of liquidity were cash and cash equivalents totaling \$936.6 million and \$274.7 million of available borrowings under our revolving credit facility.

We have cash in banks in Belarus, Russia, Ukraine, Kazakhstan, Armenia and Uzbekistan, where the banking sector remains subject to periodic instability. Banking and other financial systems in these countries generally do not meet the banking standards of more developed markets and bank deposits made by corporate entities are not insured. As of December 31, 2019, the total amount of cash held in these countries was \$206.5 million and of this amount, \$123.4 million was located in Belarus.

As of December 31, 2019, we had \$274.7 million available for borrowing under our revolving credit facility and had outstanding debt of \$25.0 million. As of December 31, 2019, we were in compliance with all covenants specified under the credit facility and anticipate being in compliance for the foreseeable future. See Note 8 “Long-Term Debt” in the notes to our consolidated financial statements in this Annual Report on Form 10-K for information regarding our long-term debt.

Our ability to expand and grow our business in accordance with current plans and to meet our long-term capital requirements will depend on many factors, including the rate at which our cash flows increase or decrease and the availability of public and private debt and equity financing. We may require additional cash resources due to changed business conditions or other future developments, including any investments or acquisitions we may decide to pursue. If our resources are insufficient to satisfy our cash requirements, we may seek to sell additional equity or debt securities or obtain another credit facility.

Cash Flows

The following table summarizes our cash flows for the periods indicated:

	For the Years Ended December 31,		
	2019	2018	2017
	(in thousands)		
Consolidated Statements of Cash Flow Data:			
Net cash provided by operating activities	\$ 287,453	\$ 292,218	\$ 192,820
Net cash used in investing activities	(145,369)	(112,123)	(36,151)
Net cash provided by financing activities	20,363	23,001	49,746
Effect of exchange rate changes on cash, cash equivalents and restricted cash	3,530	(14,240)	11,776
Net increase in cash, cash equivalents and restricted cash	\$ 165,977	\$ 188,856	\$ 218,191
Cash, cash equivalents and restricted cash, beginning of period	771,711	582,855	364,664
Cash, cash equivalents and restricted cash, end of period	\$ 937,688	\$ 771,711	\$ 582,855

Operating Activities

Net cash provided by operating activities during the year ended December 31, 2019 decreased \$4.8 million, or 1.6%, to \$287.5 million, as compared to 2018 primarily driven by the payout of a higher level of variable compensation related to 2018 performance, partially offset by the increase in net income. Additionally, a larger improvement in days sales outstanding during 2018 compared to 2019 resulted in higher relative collections during 2018 as compared to 2019.

Investing Activities

Net cash used in investing activities during the year ended December 31, 2019 was \$145.4 million compared to \$112.1 million used in the same period in 2018. During 2019, the increase in cash used in investing activities was primarily due to an increase in capital expenditures of \$61.7 million compared to the same period last year, partially offset by a decrease in net cash used to acquire businesses of \$34.9 million.

Financing Activities

During the year ended December 31, 2019, net cash provided by financing activities was \$20.4 million, representing a \$2.6 million decrease from \$23.0 million cash provided by financing activities in 2018. The decrease was primarily driven by \$7.8 million in higher payments of withholding taxes related to net share settlements of restricted stock units, partially offset by a \$3.5 million repayment of debt in 2018 and \$2.2 million of higher cash received in 2019 from the exercises of stock options issued under our long-term incentive plans compared to 2018.

Discussion of the comparison of the cash flows between 2018 and 2017 is disclosed in “Part II. Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources” of our Annual Report on Form 10-K for the year ended December 31, 2018.

Contractual Obligations and Future Capital Requirements

Contractual Obligations

Set forth below is information concerning our significant fixed and determinable contractual obligations as of December 31, 2019.

	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
	(in thousands)				
Operating lease obligations	\$ 264,049	\$ 64,667	\$ 91,229	\$ 49,621	\$ 58,532
U.S. Tax Act transition tax ⁽¹⁾	42,973	—	7,753	20,545	14,675
Long-term incentive plan payouts ⁽²⁾	51,403	25,965	22,961	2,477	—
Long-term debt obligations ⁽³⁾	27,785	1,232	26,553	—	—
Commitments for the purchase of long term assets ⁽⁴⁾	53,821	53,821	—	—	—
Total contractual obligations	\$ 440,031	\$ 145,685	\$ 148,496	\$ 72,643	\$ 73,207

- (1) The U.S. Tax Act transition tax on undistributed foreign earnings is payable in annual installments through 2026. See Note 6 “Income Taxes” to our consolidated financial statements.
- (2) We estimate our future obligations for long-term incentive plan payouts by assuming the closing price per share of our common stock at December 31, 2019 remains constant into the future. This is an estimate as actual prices will vary over time.
- (3) Our future obligations related to the 2017 Credit Facility consist of principal, interest and fees for the unused balance. We assume the floating interest rate in effect at December 31, 2019 will remain constant into the future. This is an estimate, as actual rates will vary over time. In addition, for the 2017 Credit Facility, we assume that the balance outstanding and the unused balance as of December 31, 2019 remain the same through the remaining term of the agreement. The actual respective balances under our 2017 Credit Facility may fluctuate significantly in future periods depending on the business decisions of management.
- (4) During the year ended December 31, 2019, we entered into agreements to purchase office space in Ukraine intended to support the global delivery centers in that country. See Note 14 “Commitments and Contingencies” in the notes to our consolidated financial statements in this Annual Report on Form 10-K. We also committed to purchasing certain software licenses.

As of December 31, 2019, we had \$2.9 million of unrecognized tax benefits for which we are unable to make a reliable estimate of the eventual cash flows by period that may be required to settle these matters. In addition, we had recorded \$10.5 million of contingent consideration liabilities as of December 31, 2019 related to the acquisitions of businesses that are not included in the table above due to the uncertainty involved with the potential payments.

See Note 14 “Commitments and Contingencies” in the notes to our consolidated financial statements in this Annual Report on Form 10-K for the year ended December 31, 2019 for information regarding contractual obligations.

Future Capital Requirements

We believe that our existing cash and cash equivalents combined with our expected cash flow from operations will be sufficient to meet our projected operating and capital expenditure requirements for at least the next twelve months and that we possess the financial flexibility to execute our strategic objectives, including the ability to make acquisitions and strategic investments in the foreseeable future. However, our ability to generate cash is subject to our performance, general economic conditions, industry trends and other factors. To the extent that existing cash and cash equivalents and operating cash flow are insufficient to fund our future activities and requirements, we may need to raise additional funds through public or private equity or debt financing. If we issue equity securities in order to raise additional funds, substantial dilution to existing stockholders may occur. If we raise cash through the issuance of additional indebtedness, we may be subject to additional contractual restrictions on our business. There is no assurance that we would be able to raise additional funds on favorable terms or at all.

Off-Balance Sheet Commitments and Arrangements

We do not have any material obligations under guarantee contracts or other contractual arrangements other than as disclosed in Note 14 “Commitments and Contingencies” in the notes to our consolidated financial statements in this Annual Report on Form 10-K. We have not entered into any transactions with unconsolidated entities where we have financial guarantees, subordinated retained interests, derivative instruments, or other contingent arrangements that expose us to material continuing risks, contingent liabilities, or any other obligation under a variable interest in an unconsolidated entity that provides financing, liquidity, market risk, or credit risk support to us, or engages in leasing, hedging, or research and development services with us.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to certain market risks in the ordinary course of our business. These risks primarily result from changes in concentration of credit risks, interest rates and foreign currency exchange rates. In addition, our international operations are subject to risks related to differing economic conditions, changes in political climate, differing tax structures, and other regulations and restrictions.

Concentration of Credit and Other Credit Risks

Financial instruments that potentially subject us to significant concentrations of credit risk consist primarily of cash, cash equivalents and trade receivables.

We maintain our cash, cash equivalents and short-term investments with financial institutions. We believe that our credit policies reflect normal industry terms and business risk. We do not anticipate non-performance by the counterparties. We have cash in banks in countries such as Belarus, Russia, Ukraine, Kazakhstan, Armenia and Uzbekistan, where the banking sector remains subject to periodic instability, banking and other financial systems generally do not meet the banking standards of more developed markets, and bank deposits made by corporate entities are not insured. As of December 31, 2019, \$206.5 million of total cash was kept in banks in these countries, of which \$123.4 million was held in Belarus. In this region, and particularly in Belarus, a banking crisis, bankruptcy or insolvency of banks that process or hold our funds, may result in the loss of our deposits or adversely affect our ability to complete banking transactions in the region, which could adversely affect our business and financial condition. Cash in this region is used for short-term operational needs and cash balances in those banks move with the needs of those entities.

Trade receivables are generally dispersed across many customers operating in different industries; therefore, concentration of credit risk is limited and we do not believe significant credit risks existed at December 31, 2019. Though our results of operations depend on our ability to successfully collect payment from our customers for work performed, historically, credit losses and write-offs of trade receivables have not been material to our consolidated financial statements.

Interest Rate Risk

Our exposure to market risk is influenced by the changes in interest rates on our cash and cash equivalent deposits and paid on any outstanding balance on our borrowings, mainly under our 2017 Credit Facility, which is subject to a variety of rates depending on the currency and timing of funds borrowed. We do not believe we are exposed to material direct risks associated with changes in interest rates related to these deposits and borrowings.

Foreign Exchange Risk

Our global operations are conducted predominantly in U.S. dollars. Other than U.S. dollars, we generate revenues principally in euros, British pounds, Swiss francs, Canadian dollars and Russian rubles. Other than U.S. dollars, we incur expenditures principally in Russian rubles, Hungarian forints, Polish zlotys, British pounds, Swiss francs, euros, Indian rupees and Chinese yuan renminbi. As a result, currency fluctuations, specifically the depreciation of the euro, British pound, and Canadian dollar and the appreciation of Russian rubles, Hungarian forints, Polish zlotys, Indian rupees and Chinese yuan renminbi relative to the U.S. dollar, could negatively impact our results of operations.

During the year ended December 31, 2019, our foreign exchange loss was \$12.0 million compared to a \$0.5 million gain reported last year. During the year ended December 31, 2019, approximately 32.3% of consolidated revenues and 40.5% of operating expenses were denominated in currencies other than the U.S. dollar.

During 2018, we implemented a hedging program through which we entered into a series of foreign exchange forward contracts that are designated as cash flow hedges of forecasted Russian ruble, Indian rupee and Polish zloty transactions. We entered into these foreign exchange contracts to hedge a portion of our forecasted foreign currency denominated operating expenses in the normal course of business and accordingly, they are not speculative in nature. As of December 31, 2019, the net unrealized gain from these hedges was \$1,667.

Management supplements results reported in accordance with United States generally accepted accounting principles, referred to as GAAP, with non-GAAP financial measures. Management believes these measures help illustrate underlying trends in our business and uses the measures to establish budgets and operational goals, communicated internally and externally, for managing our business and evaluating its performance. When important to management's analysis, operating results are compared on the basis of "constant currency", which is a non-GAAP financial measure. This measure excludes the effect of foreign currency exchange rate fluctuations by translating the current period revenues and expenses into U.S. dollars at the weighted average exchange rates of the prior period of comparison.

During the year ended December 31, 2019, we reported revenue growth of 24.5%. Had our consolidated revenues been expressed in constant currency terms using the exchange rates in effect during 2018, we would have reported revenue growth of 25.8%. During 2019, revenues have been negatively impacted by the depreciation of the euro and the British pound relative to the U.S. dollar. During the year ended December 31, 2019, we reported net income growth of 8.7% over the previous year. Had our consolidated results been expressed in constant currency terms using the exchange rates in effect during 2018, we would have reported net income growth of 7.3%. Net income has been positively impacted by the depreciation of the Hungarian forint, Polish zloty and Russian ruble relative to the U.S. dollar, partially offset by the depreciation of the euro and British pound relative to the U.S. dollar.

Item 8. Financial Statements and Supplementary Data

The information required is included in this Annual Report on Form 10-K beginning on page F-1.

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

None.

Item 9A. Controls and Procedures

Conclusion Regarding the Effectiveness of Disclosure Controls and Procedures

Based on management's evaluation, with the participation of our Chief Executive Officer and Chief Financial Officer, as of the end of the period covered by this report, these officers have concluded that our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), are effective to provide reasonable assurance that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and is accumulated and communicated to management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting during the quarter ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting, except as described below.

Beginning January 1, 2019, we adopted the new lease standard and implemented significant new lease accounting systems, processes and internal controls over lease accounting to assist us in the application of the new lease standard.

During the year ended December 31, 2019, the Company acquired test IO together with its subsidiary and made certain other business acquisitions, as described more fully in Note 2 in the notes to our consolidated financial statements in this Annual Report on Form 10-K. As permitted by the Securities and Exchange Commission, management has elected to exclude these acquired entities from its assessment of the effectiveness of its internal controls over financial reporting as of December 31, 2019. The Company began to integrate these acquired companies into its internal control over financial reporting structure subsequent to their respective acquisition dates and expects to complete these integrations in 2020.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles.

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Based on this assessment, management concluded that our internal control over financial reporting was effective as of December 31, 2019 to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles.

Management has excluded test IO together with its subsidiary and other acquired businesses from our assessment of the effectiveness of our internal control over financial reporting as of December 31, 2019 since these entities were acquired in business combinations in 2019. These businesses are included in our 2019 consolidated financial statements and constituted 3.0% of total assets as of December 31, 2019 and 1.0% of revenues for the year then ended.

The effectiveness of our internal control over financial reporting as of December 31, 2019 has been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report, which appears in "Part IV. Item 15 Exhibits, Financial Statement Schedule" of this Annual Report on Form 10-K.

Inherent Limitations on Effectiveness of Controls

Our management, including the CEO and CFO, does not expect that our disclosure controls or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. The design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been detected. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of the effectiveness of controls to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

We incorporate by reference the information required by this Item from the information set forth under the captions “Board of Directors”, “Corporate Governance”, and “Our Executive Officers” in our definitive proxy statement for our 2020 annual meeting of stockholders, to be filed within 120 days after the end of the year covered by this Annual Report on Form 10-K, pursuant to Regulation 14A under the Exchange Act (our “2020 Proxy Statement”).

Item 11. Executive Compensation

We incorporate by reference the information required by this Item from the information set forth under the captions “Executive Compensation” and “Compensation Committee Interlocks and Insider Participation” in our 2020 Proxy Statement.

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

We incorporate by reference the information required by this Item from the information set forth under the caption “Security Ownership of Certain Beneficial Owners and Management” in our 2020 Proxy Statement.

Equity Compensation Plan Information

The following table sets forth information about awards outstanding as of December 31, 2019 and securities remaining available for issuance under our 2015 Long-Term Incentive Plan (the “2015 Plan”), our 2012 Long-Term Incentive Plan (the “2012 Plan”), the Amended and Restated 2006 Stock Option Plan (the “2006 Plan”) and the 2012 Non-Employee Directors Compensation Plan (the “2012 Directors Plan”) as of December 31, 2019.

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders: ⁽¹⁾			5,498,195 ⁽²⁾
Stock options	3,322,930 ⁽³⁾	\$ 50.85 ⁽⁴⁾	—
Restricted stock unit and restricted stock awards	759,182 ⁽⁵⁾	\$ —	—
Equity compensation plans not approved by security holders	—	\$ —	—
Total	4,082,112	\$ 50.85	5,498,195

(1) This table includes the following stockholder approved plans: the 2015 Plan, 2012 Plan, the 2006 Plan and the 2012 Directors Plan.

(2) Represents the number of shares available for future issuances under our stockholder approved equity compensation plans and is comprised of 4,969,754 shares available for future issuance under the 2015 Plan and 528,441 shares available for future issuances under the 2012 Directors Plan.

(3) Represents the number of underlying shares of common stock associated with outstanding options under our stockholder approved plans and is comprised of 677,915 shares underlying options granted under our 2015 Plan; 2,489,500 shares underlying options granted under our 2012 Plan; and 155,515 shares underlying options granted under our 2006 Plan.

(4) Represents the weighted-average exercise price of stock options outstanding under the 2015 Plan, the 2012 Plan and the 2006 Plan.

(5) Represents the number of underlying shares of common stock associated with outstanding restricted stock units and restricted stock awards under our stockholder approved plans and is comprised of 753,604 shares underlying restricted stock units granted under our 2015 Plan; 0 shares underlying restricted stock units granted under our 2012 Plan; and 5,578 shares underlying restricted stock units granted under our 2012 Directors Plan.

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

We incorporate by reference the information required by this Item from the information set forth under the caption “Certain Relationships and Related Transactions and Director Independence” in our 2020 Proxy Statement.

Item 14. Principal Accountant Fees and Services

We incorporate by reference the information required by this Item from the information set forth under the caption “Independent Registered Public Accounting Firm” in our 2020 Proxy Statement.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) We have filed the following documents as part of this annual report:

1. Audited Consolidated Financial Statements

	Page
Index to Consolidated Financial Statements	F-1
Report of Independent Registered Public Accounting Firm	F-2
Consolidated Balance Sheets as of December 31, 2019 and 2018	F-4
Consolidated Statements of Income and Comprehensive Income for the Years Ended December 31, 2019, 2018 and 2017	F-5
Consolidated Statements of Changes in Stockholders' Equity for the Years Ended December 31, 2019, 2018 and 2017	F-6
Consolidated Statements of Cash Flows for the Years Ended December 31, 2019, 2018 and 2017	F-8
Notes to Consolidated Financial Statements for the Years Ended December 31, 2019, 2018 and 2017	F-10

2. Financial Statement Schedules

Schedule II Valuation and Qualifying Accounts is filed as part of this Annual Report on Form 10-K and should be read in conjunction with our audited consolidated financial statements and the related notes.

3. Exhibits

A list of exhibits required to be filed as part of this Annual Report on Form 10-K is set forth below:

Exhibit Number	Description
3.1	Certificate of incorporation (incorporated herein by reference to Exhibit 3.1 to the Company's Form 10-K for the fiscal year ended December 31, 2011, SEC File No. 001-35418, filed March 30, 2012 (the "2011 Form 10-K"))
3.2	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K filed September 15, 2017, SEC file No. 001-35418)
4.1	Form of Common Stock Certificate (incorporated herein by reference to Exhibit 4.1 to Amendment No. 6 to Form S-1, SEC File No. 333-174827, filed January 23, 2012 ("Amendment No. 6"))
4.4*	Description of the Registrant's Securities Registered Under Section 12 of the Securities Exchange Act of 1934
10.1†	EPAM Systems, Inc. Amended and Restated 2006 Stock Option Plan (incorporated herein by reference to Exhibit 10.6 to Amendment No. 6)
10.2†	Form of EPAM Systems, Inc. 2006 Stock Option Plan Award Agreement (under the EPAM Systems, Inc. Amended and Restated 2006 Stock Option Plan) (incorporated herein by reference to Exhibit 10.7 to Amendment No. 6)
10.3†	EPAM Systems, Inc. 2012 Long-Term Incentive Plan (incorporated herein by reference to Exhibit 10.12 to Amendment No. 6)
10.4†	Form of Senior Management Non-Qualified Stock Option Award Agreement (under the EPAM Systems, Inc. 2012 Long-Term Incentive Plan) (incorporated herein by reference to Exhibit 10.13 to Amendment No. 6)
10.5†	Restricted Stock Award Agreement by and between Karl Robb and EPAM Systems, Inc. dated January 16, 2012 (incorporated herein by reference to Exhibit 10.14 to Amendment No. 6)
10.6†	Form of Chief Executive Officer Restricted Stock Unit Award Agreement (under the EPAM Systems, Inc. 2012 Long-Term Incentive Plan) (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, SEC File No. 001-35418, filed May 7, 2014 (the "Q1 2014 Form 10-Q"))
10.7†	Form of Senior Management Restricted Stock Unit Award Agreement (under the EPAM Systems, Inc. 2012 Long-Term Incentive Plan) (incorporated by reference to Exhibit 10.2 to the Q1 2014 Form 10-Q)
10.8†	Form of Chief Executive Officer Non-Qualified Stock Option Award Agreement (under the EPAM Systems, Inc. 2012 Long-Term Incentive Plan) (incorporated by reference to Exhibit 10.3 to the Q1 2014 Form 10-Q)

10.9†	Form of Chief Executive Officer Restricted Stock Unit Award Agreement (under the EPAM Systems, Inc. 2012 Long-Term Incentive Plan) (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2015, SEC File No. 001-35418, filed May 7, 2015 (the "Q1 2015 Form 10-Q"))
10.10†	Form of Senior Management Restricted Stock Unit Award Agreement (under the EPAM Systems, Inc. 2012 Long-Term Incentive Plan) (incorporated by reference to Exhibit 10.2 to the Q1 2015 Form 10-Q)
10.11†	EPAM Systems, Inc. 2015 Long-Term Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, SEC File No. 001-35418, filed June 15, 2015)
10.12†	Form of Chief Executive Officer Non-Qualified Stock Option Award Agreement (incorporated by reference to Exhibit 10.12 to the Company's Form 10-K for the fiscal year ended December 31, 2015, SEC File No. 001-35418, filed February 23, 2016 (the "2015 Form 10-K"))
10.13†	Form of Chief Executive Officer Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.13 of the 2015 Form 10-K)
10.14†	Form of Senior Management Non-Qualified Stock Option Award Agreement (incorporated by reference to Exhibit 10.14 of the 2015 Form 10-K)
10.15†	Form of Senior Management Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.15 of the 2015 Form 10-K)
10.16†	Amended and Restated EPAM Systems, Inc. Non-Employee Directors Compensation Plan (incorporated herein by reference to Exhibit 10.3 to the Q1 2015 Form 10-Q)
10.17†	Form of Non-Employee Director Restricted Stock Award Agreement (under the EPAM Systems, Inc. 2012 Non-Employee Directors Compensation Plan) (incorporated herein by reference to Exhibit 10.16 to Amendment No. 6)
10.18†	Form of Director Offer Letter (incorporated herein by reference to Exhibit 10.18 to Amendment No. 6)
10.19†	Executive Employment Agreement by and between Arkadiy Dobkin and EPAM Systems, Inc. dated January 20, 2006 (expired except with respect to Section 8) (incorporated herein by reference to Exhibit 10.19 to Amendment No. 6)
10.20†	Employment Contract by and between Balazs Fejes and EPAM Systems (Switzerland) GmbH. dated June 15, 2009 (incorporated herein by reference to Exhibit 10.21 to Amendment No. 6)
10.21†	Consultancy Agreement by and between Landmark Business Development Limited, Balazs Fejes and EPAM Systems, Inc. dated January 20, 2006 (expired except with respect to Section 8) (incorporated herein by reference to Exhibit 10.22 to Amendment No. 6)
10.22†	Form of nondisclosure, noncompete and nonsolicitation agreement (incorporated herein by reference to Exhibit 10.24 to Amendment No. 6)
10.23†	Form of Indemnification Agreement (incorporated herein by reference to Exhibit 10.25 to Amendment No. 6)
10.24†	Offer Letter by and between Boris Shnayder and EPAM Systems, Inc. dated June 20, 2015 (incorporated by reference to Exhibit 10.28 to the Company's Form 10-K for the year ended December 31, 2016 (the "2016 10-K"))
10.25†	Transition Agreement by and between Anthony Conte and EPAM Systems, Inc. dated February 23, 2017 (incorporated by reference to Exhibit 10.30 to the 2016 10-K)
10.26†	Offer Letter by and between Jason Peterson and EPAM Systems, Inc. dated March 16, 2017 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed March 29, 2017, SEC file No. 001-35418)
10.27†	EPAM Systems, Inc. Amended Non-Employee Directors Compensation Policy (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report for the quarter ended March 31, 2017, SEC File No., 001-35418, filed May 8, 2017 (the "Q1 2017 Form 10-Q"))
10.28†	Amended Non-Employee Director Compensation Policy (effective January 1, 2019) (incorporated by reference to Exhibit 10.28 to the Company's Form 10-K for the year ended December 31, 2018 (the "2018 10-K"))
10.29†	EPAM Systems, Inc. 2017 Non-Employee Directors Deferral Plan (incorporated by reference to Exhibit 10.2 to the Q1 2017 Form 10-Q)
10.30†	Form of Non-Employee Director Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.3 to the Q1 2017 Form 10-Q)
10.31†	Form of Director Deferral Election Form (incorporated by reference to Exhibit 10.4 to the Q1 2017 Form 10-Q)
10.32	Credit Agreement dated as of May 24, 2017 by and among EPAM Systems, Inc. (as borrower), the lenders and guarantors party thereto, and PNC Bank, National Association, as Administrative Agent (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on May 26, 2017, SEC File No. 001-35418)
10.33	First Amendment to Credit Agreement (incorporated by reference to Exhibit 10.33 to the 2018 10-K)
10.34*	Second Amendment to Credit Agreement
21.1*	Subsidiaries of the Registrant

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23.1*	Consent of Independent Registered Public Accounting Firm
31.1*	Certification of the Chief Executive Officer pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934
31.2*	Certification of the Chief Financial Officer pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934
32.1*	Certification of the Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2*	Certification of the Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	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
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File - (formatted as Inline XBRL and contained in Exhibit 101)

† Indicates management contracts or compensatory plans or arrangements
* Exhibits filed herewith

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Date: February 28, 2020

EPAM SYSTEMS, INC.

By: /s/ Arkadiy Dobkin

Name: Arkadiy Dobkin

Title: Chairman, Chief Executive Officer and President
(principal executive officer)

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

Signature	Title	Date
<u>/s/ Arkadiy Dobkin</u> Arkadiy Dobkin	Chairman, Chief Executive Officer and President (principal executive officer)	February 28, 2020
<u>/s/ Jason Peterson</u> Jason Peterson	Senior Vice President, Chief Financial Officer and Treasurer (principal financial officer)	February 28, 2020
<u>/s/ Gary Abrahams</u> Gary Abrahams	Vice President, Corporate Controller, Chief Accounting Officer (principal accounting officer)	February 28, 2020
<u>/s/ Eugene Roman</u> Eugene Roman	Director	February 28, 2020
<u>/s/ Helen Shan</u> Helen Shan	Director	February 28, 2020
<u>/s/ Jill B. Smart</u> Jill B. Smart	Director	February 28, 2020
<u>/s/ Karl Robb</u> Karl Robb	Director	February 28, 2020
<u>/s/ Richard Michael Mayoras</u> Richard Michael Mayoras	Director	February 28, 2020
<u>/s/ Robert E. Segert</u> Robert E. Segert	Director	February 28, 2020
<u>/s/ Ronald P. Vargo</u> Ronald P. Vargo	Director	February 28, 2020

EPAM SYSTEMS, INC.
FORM 10-K
FOR THE YEAR ENDED DECEMBER 31, 2019

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of EPAM Systems, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of EPAM Systems, Inc. and subsidiaries (the “Company”) as of December 31, 2019 and 2018, the related consolidated statements of income and comprehensive income, changes in stockholders’ equity, and cash flows, for each of the three years in the period ended December 31, 2019, and the related notes and the schedule listed in the Index at Item 15 (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company’s internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 28, 2020, expressed an unqualified opinion on the Company’s internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 1 to the financial statements, effective January 1, 2019, the Company adopted FASB Accounting Standards Update (“ASU”) 2016-02, *Leases (Topic 842)*. The adoption of FASB ASU 2016-02 is also communicated as a critical audit matter below.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current-period audit of the financial statements that were communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. 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 matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Leases - Incremental Borrowing Rates - Refer to Notes 1 and 7 to the financial statements (also see adoption of FASB ASU 2016-02, Leases (Topic 842), explanatory paragraph above)

Critical Audit Matter Description

Effective January 1, 2019, the Company adopted FASB ASU 2016-02, *Leases (Topic 842)*, which required the Company to recognize all leases, with the exception of leases with a term of twelve months or less, on the balance sheet as right-of-use assets (“RoU Assets”) and lease liabilities. Lease liabilities are initially measured by the Company at the present value of lease payments not yet paid, which is determined by applying the incremental borrowing rate of the lessee. The Company determines the incremental borrowing rate of the lessee on a lease-by-lease basis by developing an estimated centralized U.S. dollar borrowing rate for a fully collateralized obligation with a term similar to the lease term and adjusts the rate to reflect the incremental risk associated with the foreign currencies in which the lease is denominated.

The Company’s estimate of the lessee’s incremental borrowing rate was developed using significant observable and unobservable inputs such as recovery rates, U.S. risk-free rates, foreign currency/country base rate yields, and a synthetic corporate credit rating of the Company developed using regression analysis that involved considerable judgment by management.

We identified the incremental borrowing rates as a critical audit matter because of the complex models and unobservable inputs management employs to estimate the incremental borrowing rates used to measure its lease liabilities and RoU Assets and the quantitative significance of the RoU Assets and lease liabilities recognized by the Company upon adoption of the new guidance. Performing audit procedures to evaluate the appropriateness of these models and inputs required a high degree of auditor judgment and an increased extent of audit effort, including the need to involve our fair value specialists who possess significant quantitative and modeling expertise.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the complex models and unobservable inputs used by management to estimate the incremental borrowing rates included the following, among others:

- We tested the effectiveness of management’s controls over the selection of the incremental borrowing rates.
- With the assistance of our fair value specialists, we evaluated the reasonableness of (1) the methodology used to estimate the incremental borrowing rates, (2) the significant inputs to the incremental borrowing rates, (3) the source information underlying the significant inputs, and (4) the mathematical accuracy of the incremental borrowing rates model. Our procedures included (1) testing the source information underlying the determination of the incremental borrowing rates and the mathematical accuracy of the calculations, and (2) developing a range of independent estimates and comparing our estimates to the incremental borrowing rates selected by management.

Revenues - Refer to Notes 1 and 9 to the financial statements

Critical Audit Matter Description

The Company recognizes revenues when control of goods or services is passed to a customer in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods or services. Such control may be transferred over time or at a point in time depending on satisfaction of obligations stipulated by the contract. Total revenues were \$2,294 million for the year ended December 31, 2019.

In 2019, the Company recognized revenue related to contracts with over 1,500 customers, with no single customer accounting for more than 10% of revenues. Although some of these revenues are recognized under long-term agreements of more than one year, others are negotiated on an annual basis or shorter. Given the number of customers and the nature of the different customer agreements, auditing revenue was challenging due to the extent of audit effort required to evaluate whether revenue was recorded in accordance with the terms of the contracts with the Company’s customers.

How the Critical Audit Matter Was Addressed in the Audit

- Our audit procedures related to whether revenue was recorded in accordance with the terms of the contracts with the Company's customers included the following, among others:
- We tested the effectiveness of controls over revenue, including management's controls over (1) the determination of whether an arrangement with a customer meets the criteria to be considered a contract under ASC 606 and (2) the inputs used in and the mathematical accuracy of the contract revenue calculations and the terms of the related customer contracts.
- We selected a sample of recorded revenue transactions and (1) recalculated the amount using the terms of the customer contract and (2) tested whether the underlying arrangement with the customer met the criteria to be considered a contract under ASC 606 as of the date the revenue was recorded.
- We selected a sample of hours charged by the Company's employees in the Company's internal time tracking system, obtained support for whether such hours represented services provided to a customer, and tested whether the hours had been properly evaluated for inclusion in the Company's revenue calculations.

/s/ DELOITTE & TOUCHE LLP

Philadelphia, Pennsylvania
February 28, 2020

We have served as the Company's auditor since 2006.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors of EPAM Systems, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of EPAM Systems, Inc. and subsidiaries (the “Company”) as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements and financial statement schedule as of and for the year ended December 31, 2019, of the Company and our report dated February 28, 2020, expressed an unqualified opinion on those financial statements and financial statement schedule and included an explanatory paragraph regarding the Company’s adoption of FASB Accounting Standards Update No. 2016-02, *Leases (Topic 842)*.

As described in *Management’s Report on Internal Control Over Financial Reporting*, management excluded from its assessment the internal control over financial reporting at test IO, together with its subsidiary, and other acquired businesses as described more fully in Note 2 to the consolidated financial statements, which were acquired during the year ended December 31, 2019, and whose financial statements constitute 3.0% of total assets and 1.0% of revenues of the consolidated financial statement amounts as of and for the year ended December 31, 2019. Accordingly, our audit did not include the internal control over financial reporting at test IO, together with its subsidiary, and the other acquired businesses as described more fully in Note 2 to the consolidated financial statements.

Basis for Opinion

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

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

Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/ DELOITTE & TOUCHE LLP

Philadelphia, Pennsylvania
February 28, 2020

EPAM SYSTEMS, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(In thousands, except share and per share data)

	As of December 31, 2019	As of December 31, 2018
Assets		
Current assets		
Cash and cash equivalents	\$ 936,552	\$ 770,560
Trade receivables and contract assets, net of allowance of \$2,920 and \$1,557, respectively	497,716	402,337
Prepaid and other current assets	39,943	26,171
Total current assets	1,474,211	1,199,068
Property and equipment, net	165,259	102,646
Operating lease right-of-use assets	238,991	—
Intangible assets, net	56,258	57,065
Goodwill	195,043	166,832
Deferred tax assets	75,013	69,983
Other noncurrent assets	39,433	16,208
Total assets	\$ 2,244,208	\$ 1,611,802
Liabilities		
Current liabilities		
Accounts payable	\$ 7,831	\$ 7,444
Accrued compensation and benefits expenses	230,035	177,594
Accrued expenses and other current liabilities	82,476	50,253
Income taxes payable, current	9,064	27,538
Operating lease liabilities, current	57,542	—
Total current liabilities	386,948	262,829
Long-term debt	25,074	25,031
Income taxes payable, noncurrent	45,878	43,685
Operating lease liabilities, noncurrent	180,848	—
Other noncurrent liabilities	9,315	17,661
Total liabilities	648,063	349,206
Commitments and contingencies (Note 14)		
Stockholders' equity		
Common stock, \$0.001 par value; 160,000,000 authorized; 55,207,446 and 54,099,927 shares issued, 55,187,711 and 54,080,192 shares outstanding at December 31, 2019 and December 31, 2018, respectively	55	54
Additional paid-in capital	607,051	544,700
Retained earnings	1,020,590	759,533
Treasury stock	(177)	(177)
Accumulated other comprehensive loss	(31,374)	(41,514)
Total stockholders' equity	1,596,145	1,262,596
Total liabilities and stockholders' equity	\$ 2,244,208	\$ 1,611,802

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

EPAM SYSTEMS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF INCOME AND COMPREHENSIVE INCOME
(In thousands, except share and per share data)

	For the Years Ended December 31,		
	2019	2018	2017
Revenues	\$ 2,293,798	\$ 1,842,912	\$ 1,450,448
Operating expenses:			
Cost of revenues (exclusive of depreciation and amortization)	1,488,198	1,186,921	921,352
Selling, general and administrative expenses	457,433	373,587	327,588
Depreciation and amortization expense	45,317	36,640	28,562
Income from operations	302,850	245,764	172,946
Interest and other income, net	8,725	3,522	4,601
Foreign exchange (loss)/gain	(12,049)	487	(3,242)
Income before provision for income taxes	299,526	249,773	174,305
Provision for income taxes	38,469	9,517	101,545
Net income	\$ 261,057	\$ 240,256	\$ 72,760
Foreign currency translation adjustments, net of tax	6,295	(21,338)	20,065
Unrealized gain/(loss) on cash-flow hedging instruments, net of tax	3,845	(2,553)	—
Comprehensive income	\$ 271,197	\$ 216,365	\$ 92,825
Net income per share:			
Basic	\$ 4.77	\$ 4.48	\$ 1.40
Diluted	\$ 4.53	\$ 4.24	\$ 1.32
Shares used in calculation of net income per share:			
Basic	54,719,414	53,622,989	52,077,011
Diluted	57,667,789	56,672,676	54,984,173

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

EPAM SYSTEMS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN
STOCKHOLDERS' EQUITY
(In thousands, except share data)

	Common Stock		Additional Paid-in Capital	Retained Earnings	Treasury Stock		Accumulated Other Comprehensive (Loss)/ Income	Total Stockholders' Equity
	Shares	Amount			Shares	Amount		
Balance, January 1, 2017	51,097,687	\$ 50	\$ 374,907	\$ 444,320	19,735	\$ (177)	\$ (37,688)	\$ 781,412
Restricted stock units vested	140,043	—	—	—	—	—	—	—
Restricted stock units withheld for employee taxes	(43,479)	—	(3,300)	—	—	—	—	(3,300)
Stock-based compensation expense	—	—	48,173	—	—	—	—	48,173
Proceeds from stock option exercises	1,789,434	3	54,094	—	—	—	—	54,097
Foreign currency translation adjustments	—	—	—	—	—	—	20,065	20,065
Cumulative effect of the adoption of ASU 2016-09	—	—	—	1,740	—	—	—	1,740
Net income	—	—	—	72,760	—	—	—	72,760
Balance, December 31, 2017	52,983,685	\$ 53	\$ 473,874	\$ 518,820	19,735	\$ (177)	\$ (17,623)	\$ 974,947
Restricted stock units vested	222,675	—	—	—	—	—	—	—
Restricted stock units withheld for employee taxes	(71,334)	—	(8,131)	—	—	—	—	(8,131)
Stock-based compensation expense	—	—	44,279	—	—	—	—	44,279
Proceeds from stock option exercises	945,166	1	34,678	—	—	—	—	34,679
Foreign currency translation adjustments, net of tax	—	—	—	—	—	—	(21,338)	(21,338)
Change in unrealized gains and losses on cash flow hedges, net of tax	—	—	—	—	—	—	(2,553)	(2,553)
Cumulative effect of the adoption of ASU 2014-09	—	—	—	457	—	—	—	457
Net income	—	—	—	240,256	—	—	—	240,256
Balance, December 31, 2018	54,080,192	\$ 54	\$ 544,700	\$ 759,533	19,735	\$ (177)	\$ (41,514)	\$ 1,262,596

EPAM SYSTEMS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN
STOCKHOLDERS' EQUITY
(Continued)
(In thousands, except share data)

	Common Stock		Additional Paid-in Capital	Retained Earnings	Treasury Stock		Accumulated Other Comprehensive (Loss)/ Income	Total Stockholders' Equity
	Shares	Amount			Shares	Amount		
Balance, December 31, 2018	54,080,192	\$ 54	\$ 544,700	\$ 759,533	19,735	\$ (177)	\$ (41,514)	\$ 1,262,596
Restricted stock issued in connection with acquisitions (Note 2)	18,787	—	—	—	—	—	—	—
Restricted stock units vested	284,922	—	—	—	—	—	—	—
Restricted stock units withheld for employee taxes	(95,223)	—	(15,951)	—	—	—	—	(15,951)
Stock-based compensation expense	—	—	41,256	—	—	—	—	41,256
Proceeds from stock option exercises	899,033	1	37,046	—	—	—	—	37,047
Foreign currency translation adjustments, net of tax	—	—	—	—	—	—	6,295	6,295
Change in unrealized gains and losses on cash flow hedges, net of tax	—	—	—	—	—	—	3,845	3,845
Net income	—	—	—	261,057	—	—	—	261,057
Balance, December 31, 2019	55,187,711	\$ 55	\$ 607,051	\$ 1,020,590	19,735	\$ (177)	\$ (31,374)	\$ 1,596,145

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

EPAM SYSTEMS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	For the Years Ended December 31,		
	2019	2018	2017
Cash flows from operating activities:			
Net income	\$ 261,057	\$ 240,256	\$ 72,760
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization expense	45,317	36,640	28,562
Operating lease right-of-use assets amortization expense	55,859	—	—
Bad debt expense	1,619	848	51
Deferred taxes	(7,764)	(48,000)	12,561
Stock-based compensation expense	72,036	59,188	52,407
Other	4,764	(1,712)	(4,010)
Changes in assets and liabilities:			
Trade receivables and contract assets	(87,174)	(46,902)	(81,488)
Prepaid and other assets	(7,155)	(8,432)	1,061
Accounts payable	(1,685)	(772)	1,221
Accrued expenses and other liabilities	27,125	51,953	47,803
Operating lease liabilities	(53,419)	—	—
Income taxes payable	(23,127)	9,151	61,892
Net cash provided by operating activities	287,453	292,218	192,820
Cash flows from investing activities:			
Purchases of property and equipment	(99,308)	(37,574)	(29,806)
Decrease in time deposits, net	—	418	—
Acquisition of businesses, net of cash acquired (Note 2)	(39,322)	(74,268)	(6,810)
Other investing activities, net	(6,739)	(699)	465
Net cash used in investing activities	(145,369)	(112,123)	(36,151)
Cash flows from financing activities:			
Proceeds from stock option exercises	37,003	34,845	53,984
Payments of withholding taxes related to net share settlements of restricted stock units	(15,503)	(7,747)	(3,194)
Proceeds from debt (Note 8)	—	—	25,000
Repayment of debt (Note 8)	(9)	(3,494)	(25,103)
Acquisition of businesses, contingent consideration	(1,104)	—	—
Other financing activities, net	(24)	(603)	(941)
Net cash provided by financing activities	20,363	23,001	49,746
Effect of exchange rate changes on cash, cash equivalents and restricted cash	3,530	(14,240)	11,776
Net increase in cash, cash equivalents and restricted cash	165,977	188,856	218,191
Cash, cash equivalents and restricted cash, beginning of period	771,711	582,855	364,664
Cash, cash equivalents and restricted cash, end of period	\$ 937,688	\$ 771,711	\$ 582,855

EPAM SYSTEMS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)
(Continued)

	For the Years Ended December 31,		
	2019	2018	2017
Supplemental disclosures of cash flow information:			
Cash paid during the year for:			
Income taxes, net of refunds	\$ 65,306	\$ 40,437	\$ 26,669
Interest	\$ 832	\$ 777	\$ 548
Supplemental disclosure of non-cash investing and financing activities			
Acquisition-date fair value of contingent consideration issued for acquisition of businesses	\$ 3,876	\$ 8,390	\$ —
Capital expenditures incurred but not yet paid	\$ 16,921	\$ 2,140	\$ 1,042

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the consolidated balance sheets:

	As of December 31, 2019	As of December 31, 2018	As of December 31, 2017
Balance sheet classification			
Cash and cash equivalents	\$ 936,552	\$ 770,560	\$ 582,585
Restricted cash in Prepaid and other current assets	—	14	91
Restricted cash in Other noncurrent assets	1,136	1,137	179
Total restricted cash	1,136	1,151	270
Total cash, cash equivalents and restricted cash	\$ 937,688	\$ 771,711	\$ 582,855

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

EPAM SYSTEMS, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(In thousands, except share and per share data)

1. BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

EPAM Systems, Inc. (the “Company” or “EPAM”) is a leading global provider of digital platform engineering and software development services to customers located around the world, primarily in North America, Europe, Asia and Australia. The Company’s industry expertise includes financial services, travel and consumer, software and hi-tech, business information and media, life sciences and healthcare, as well as other emerging industries. The Company is incorporated in Delaware with headquarters in Newtown, Pennsylvania.

Principles of Consolidation — The consolidated financial statements include the financial statements of EPAM and its subsidiaries. All intercompany balances and transactions have been eliminated.

Reclassifications — Certain amounts recorded in the prior-period consolidated balance sheets and consolidated statements of cash flows presented have been reclassified to conform to the current-period financial statement presentation. These reclassifications had no effect on previously reported results of operations.

The Company made the following reclassifications to its consolidated balance sheet as of December 31, 2018:

- The Company combined previously reported Accounts receivable and Unbilled revenues into Trade receivables and contract assets.
- Amounts previously reported within Accrued expenses and other current liabilities, Due to employees, Deferred compensation due to employees and Taxes payable, current were reclassified to Accrued compensation and benefits expenses.
- Amounts previously reported within Taxes payable, current were reclassified to Accrued expenses and other current liabilities, Accrued compensation and benefits expenses and Income taxes payable, current.

The following table summarizes the impact of these changes on the consolidated balance sheet as of December 31, 2018:

	As of December 31, 2018		
	As Previously Reported	Change	As Reported
Current assets			
Accounts receivable, net of allowance of \$1,557	\$ 297,685	\$ (297,685)	\$ —
Unbilled revenues	\$ 104,652	\$ (104,652)	\$ —
Trade receivables and contract assets, net of allowance of \$1,557	\$ —	\$ 402,337	\$ 402,337
Current liabilities			
Accrued expenses and other current liabilities	\$ 127,937	\$ (77,684)	\$ 50,253
Accrued compensation and benefits expenses	\$ —	\$ 177,594	\$ 177,594
Due to employees	\$ 49,683	\$ (49,683)	\$ —
Deferred compensation due to employees	\$ 9,920	\$ (9,920)	\$ —
Taxes payable, current	\$ 67,845	\$ (67,845)	\$ —
Income taxes payable, current	\$ —	\$ 27,538	\$ 27,538

Use of Estimates — The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions. These estimates and assumptions affect reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as revenues and expenses during the reporting period. The Company bases its estimates and judgments on historical experience, knowledge of current conditions and its beliefs of what could occur in the future, given available information. Actual results could differ from those estimates, and such differences may be material to the financial statements.

Cash and Cash Equivalents — Cash equivalents are short-term, highly liquid investments that are readily convertible into cash, with maturities of three months or less at the date acquired.

Trade Receivables and Contract Assets — The Company classifies its right to consideration in exchange for deliverables as either a trade receivable or a contract asset. A trade receivable is a right to consideration that is unconditional (i.e., only the passage of time is required before payment is due) regardless of whether the amounts have been billed. Trade receivables are stated net of allowance for doubtful accounts. Outstanding trade receivables are reviewed periodically and allowances are provided for the estimated amount of receivables that may not be collected. The allowance for doubtful accounts is determined based on historical experience and management's evaluation of trade receivables. A contract asset is a right to consideration that is conditional upon factors other than the passage of time. Contract assets primarily relate to unbilled amounts on fixed-price contracts. Contract assets are recorded when services have been provided but the Company does not have an unconditional right to receive consideration. The Company recognizes an impairment loss when the contract carrying amount is greater than the remaining consideration receivable, less directly related costs to be incurred.

Property and Equipment — Property and equipment acquired in the ordinary course of the Company's operations are stated at cost, net of accumulated depreciation. Depreciation is calculated on a straight-line basis over the estimated useful lives of the assets generally ranging from two to fifty years. Leasehold improvements are amortized on a straight-line basis over the shorter of the term of the lease or the estimated useful life of the improvement. Maintenance and repairs are expensed as incurred.

Business Combinations — The Company accounts for business combinations using the acquisition method which requires it to estimate the fair value of identifiable assets acquired and liabilities assumed, including any contingent consideration, to properly allocate the purchase price to the individual assets acquired and liabilities assumed in accordance with the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Topic 805, *Business Combinations*. The allocation of the purchase price utilizes significant estimates in determining the fair values of identifiable assets acquired and liabilities assumed, especially with respect to intangible assets. The significant estimates and assumptions used include the timing and amount of forecasted revenues and cash flows, anticipated growth rates, client attrition rates, the discount rate reflecting the risk inherent in future cash flows and the determination of useful lives for finite-lived assets. There are different valuation models for each component, the selection of which requires considerable judgment. These determinations will affect the amount of amortization expense recognized in future periods. The Company bases its fair value estimates on assumptions it believes are reasonable, but recognizes that the assumptions are inherently uncertain. The acquired assets typically include customer relationships, software, trade names, non-competition agreements, and assembled workforce and as a result, a substantial portion of the purchase price is allocated to goodwill and other intangible assets.

If the initial accounting for the business combination has not been completed by the end of the reporting period in which the business combination occurs, provisional amounts are reported to present information about facts and circumstances that existed as of the acquisition date. Once the measurement period ends, which in no case extends beyond one year from the acquisition date, revisions to the accounting for the business combination are recorded in earnings.

All acquisition-related costs, other than the costs to issue debt or equity securities, are accounted for as expenses in the period in which they are incurred. Changes in the fair value of contingent consideration arrangements that are not measurement period adjustments are recognized in earnings.

Long-Lived Assets — Long-lived assets, such as property and equipment and finite-lived intangible assets, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. When the carrying value of an asset is more than the sum of the undiscounted expected future cash flows, an impairment is recognized. An impairment loss is measured as the excess of the asset's carrying amount over its fair value. Intangible assets that have finite useful lives are amortized over their estimated useful lives on a straight-line basis.

Goodwill and Other Indefinite-Lived Intangible Assets — Goodwill and other intangible assets that have indefinite useful lives are accounted for in accordance with FASB ASC 350, *Intangibles — Goodwill and Other*. The Company conducts its evaluation of goodwill impairment at the reporting unit level on an annual basis as of October 31st, and more frequently if events or circumstances indicate that the carrying value of a reporting unit exceeds its fair value. A reporting unit is an operating segment or one level below. The Company does not have intangible assets other than goodwill that have indefinite useful lives.

Derivative Financial Instruments — The Company enters into derivative financial instruments to manage exposure to fluctuations in certain foreign currencies. During 2018, for accounting purposes, these foreign currency forward contracts became designated as hedges, as defined under FASB ASC Topic 815, *Derivatives and Hedging*. The Company measures these foreign currency derivative contracts at fair value on a recurring basis utilizing Level 2 inputs. The Company records changes in the fair value of these hedges in accumulated other comprehensive income/(loss) until the forecasted transaction occurs. When the forecasted transaction occurs, the Company reclassifies the related gain or loss on the cash flow hedge to cost of revenues (exclusive of depreciation and amortization). In the event the underlying forecasted transaction does not occur, or it becomes probable that it will not occur, the Company reclassifies the gain or loss on the underlying hedge into income. If the Company does not elect hedge accounting, or the contract does not qualify for hedge accounting treatment, the changes in fair value from period to period are recorded in income. The cash flow impact of derivatives identified as hedging instruments is reflected as cash flows from operating activities. The cash flow impact of derivatives not identified as hedging instruments is reflected as cash flows from investing activities.

Fair Value of Financial Instruments — The Company makes assumptions about fair values of its financial assets and liabilities in accordance with FASB ASC Topic 820, *Fair Value Measurement*, and utilizes the following fair value hierarchy in determining inputs used for valuation:

Level 1 — Quoted prices for identical assets or liabilities in active markets.

Level 2 — Inputs other than quoted prices within Level 1 that are observable either directly or indirectly, including quoted prices in markets that are not active, quoted prices in active markets for similar assets or liabilities, and observable inputs other than quoted prices such as interest rates or yield curves.

Level 3 — Unobservable inputs reflecting management’s view about the assumptions that market participants would use in pricing the asset or liability.

Where the fair values of financial assets and liabilities recorded in the consolidated balance sheets cannot be derived from an active market, they are determined using a variety of valuation techniques. These valuation techniques include a net present value technique, comparison to similar instruments with market observable inputs, option pricing models and other relevant valuation models. To the extent possible, observable market data is used as inputs into these models but when it is not feasible, a degree of judgment is required to establish fair values.

Changes in the fair value of liabilities could cause a material impact to, and volatility in the Company’s operating results. See Note 11 “Fair Value Measurements.”

Revenue Recognition — Effective January 1, 2018, the Company adopted the Accounting Standard Update (“ASU”) No. 2014-09, *Revenue from Contracts with Customers* (Topic 606) as amended using the modified retrospective method. The standard effectively replaced previously existing revenue recognition guidance (Topic 605) and requires entities to recognize revenue to depict the transfer of promised goods or services in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services as well as requires additional disclosure about the nature, amount, timing and uncertainty of revenues and cash flows arising from customer contracts, including significant judgments and changes in judgments.

The Company applied a practical expedient to aggregate the effect of all contract modifications that occurred before the adoption date.

The following table summarizes the impacts of changes in accounting policies after adoption of Topic 606 on the Company’s consolidated Statement of Income and Comprehensive Income for the year ended December 31, 2018, which primarily resulted from deferring the timing of revenue recognition for contracts that were previously recognized on a cash basis and recognizing revenues from certain license agreements at a point-in-time rather than over time:

	Year Ended December 31, 2018		
	As Reported	Balances Without Adoption of Topic 606	Effect of Change Higher/(Lower)
Revenues	\$ 1,842,912	\$ 1,843,159	\$ (247)
Income from operations	\$ 245,764	\$ 246,011	\$ (247)
Provision for income taxes	\$ 9,517	\$ 9,572	\$ (55)
Net income	\$ 240,256	\$ 240,448	\$ (192)

For the years ended December 31, 2019 and 2018

The Company recognizes revenues when control of goods or services is passed to a customer in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods or services. Such control may be transferred over time or at a point in time depending on satisfaction of obligations stipulated by the contract. Consideration expected to be received may consist of both fixed and variable components and is allocated to each separately identifiable performance obligation based on the performance obligation's relative standalone selling price. Variable consideration usually takes the form of volume-based discounts, service level credits, price concessions or incentives. Determining the estimated amount of such variable consideration involves assumptions and judgment that can have an impact on the amount of revenues reported.

The Company derives revenues from a variety of service arrangements, which have been evolving to provide more customized and integrated solutions to customers by combining software engineering with customer experience design, business consulting and technology innovation services. Fees for these contracts may be in the form of time-and-materials or fixed-price arrangements. The Company generates the majority of its revenues under time-and-material contracts, which are billed using hourly, daily or monthly rates to determine the amounts to be charged directly to the customer. EPAM applies a practical expedient and revenues related to time-and-material contracts are recognized based on the right to invoice for services performed.

Fixed-price contracts include maintenance and support arrangements which may exceed one year in duration. Maintenance and support arrangements generally relate to the provision of ongoing services and revenues for such contracts are recognized ratably over the expected service period. Fixed-price contracts also include application development arrangements, where progress towards satisfaction of the performance obligation is measured using input or output methods and input methods are used only when there is a direct correlation between hours incurred and the end product delivered. Assumptions, risks and uncertainties inherent in the estimates used to measure progress could affect the amount of revenues, receivables and deferred revenues at each reporting period.

Revenues from licenses which have significant stand-alone functionality are recognized at a point in time when control of the license is transferred to the customer. Revenues from licenses which do not have stand-alone functionality are recognized over time.

If there is an uncertainty about the receipt of payment for the services, revenue recognition is deferred until the uncertainty is sufficiently resolved. The Company applies a practical expedient and does not assess the existence of a significant financing component if the period between transfer of the service to a customer and when the customer pays for that service is one year or less.

The Company reports gross reimbursable "out-of-pocket" expenses incurred as both revenues and cost of revenues in the consolidated statements of income and comprehensive income.

For the year ended December 31, 2017

The Company recognized revenue when the following criteria were met: (1) persuasive evidence of an arrangement existed; (2) delivery had occurred; (3) the sales price was fixed or determinable; and (4) collectability was reasonably assured. Determining whether and when some of these criteria had been satisfied often involved assumptions and judgments that could have had a significant impact on the timing and amount of revenue reported.

The Company derived its revenues from a variety of service offerings, which represent specific competencies of its delivery professionals. Contracts for these services have different terms and conditions based on the scope, deliverables, and complexity of the engagement, which require management to make judgments and estimates in determining the appropriate revenue recognition. Fees for these contracts may have been in the form of time-and-materials or fixed-price arrangements. If there was uncertainty about the project completion or receipt of payment for the services, revenue was deferred until the uncertainty was sufficiently resolved. At the time revenue was recognized, the Company provided for any contractual deductions and reduced revenue accordingly. The Company reported gross reimbursable "out-of-pocket" expenses incurred as both revenues and cost of revenues in the consolidated statements of income and comprehensive income.

The Company deferred amounts billed to its customers for revenues not yet earned. Such amounts were anticipated to be recorded as revenues when services were performed in subsequent periods. Unbilled revenue was recorded when services have been provided but billed subsequent to the period end in accordance with the contract terms.

The majority of the Company's revenues (90.3% of revenues in 2017) were generated under time-and-material contracts whereby revenues were recognized as services were performed with the corresponding cost of providing those services reflected as cost of revenues. The majority of such revenues were billed using hourly, daily or monthly rates as actual time was incurred on the project. Revenues from fixed-price contracts (8.3% of revenues in 2017) included fixed-price maintenance and support arrangements, which may have exceeded one year in duration and revenues from maintenance and support arrangements were generally recognized ratably over the expected service period. Fixed-price contracts also included application development arrangements and revenues from these arrangements were primarily determined using the proportional performance method. In cases where final acceptance of the product, system, or solution was specified by the customer, and the acceptance criteria were not objectively determinable to have been met as the services were provided, revenues were deferred until all acceptance criteria had been met. In the absence of a sufficient basis to measure progress towards completion, revenue was recognized upon receipt of final acceptance from the customer. Assumptions, risks and uncertainties inherent in the estimates used in the application of the proportional performance method of accounting could have affected the amount of revenues, receivables and deferred revenues at each reporting period.

Cost of Revenues (Exclusive of Depreciation and Amortization) — Consists principally of salaries, bonuses, fringe benefits, stock-based compensation, project related travel costs and fees for subcontractors that are assigned to customer projects. Salaries and other compensation expenses of the Company's delivery professionals are reported as cost of revenues regardless of whether the employees are actually performing client services during a given period.

Selling, General and Administrative Expenses — Consists of expenses associated with promoting and selling the Company's services and general and administrative functions of the business. These expenses include the costs of salaries, bonuses, fringe benefits, stock-based compensation, severance, bad debt, travel, legal and accounting services, insurance, facilities including operating leases, advertising and other promotional activities. In addition, we pay a membership fee of 1% of revenues generated in Belarus to the administrative organization of the Belarus High-Technologies Park.

Stock-Based Compensation — The Company recognizes the cost of its equity settled stock-based incentive awards based on the fair value of the award at the date of grant, net of estimated forfeitures. The cost is expensed evenly over the service period. The service period is the period over which the employee performs the related services, which is normally the same as the vesting period. Quarterly, the forfeiture assumption is adjusted and such adjustment may affect the timing of recognition of the total amount of expense recognized over the vesting period. Equity-based awards that do not require future service are expensed immediately. Stock-based awards that do not meet the criteria for equity classification are recorded as liabilities and adjusted to fair value at the end of each reporting period.

Income Taxes — The provision for income taxes includes federal, state, local and foreign taxes. Deferred tax assets and liabilities are recognized for the estimated future tax consequences of temporary differences between the financial statement carrying amounts and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the year in which the temporary differences are expected to be reversed. Changes to enacted tax rates would result in either increases or decreases in the provision for income taxes in the period of changes.

The realizability of deferred tax assets is primarily dependent on future earnings. The Company evaluates the realizability of deferred tax assets and recognizes a valuation allowance when it is more likely than not that all, or a portion of, deferred tax assets will not be realized. A reduction in estimated forecasted results may require that we record valuation allowances against deferred tax assets. Once a valuation allowance has been established, it will be maintained until there is sufficient positive evidence to conclude that it is more likely than not that the deferred tax assets will be realized. A pattern of sustained profitability will generally be considered as sufficient positive evidence to reverse a valuation allowance. If the allowance is reversed in a future period, the income tax provision will be correspondingly reduced. Accordingly, the increase and decrease of valuation allowances could have a significant negative or positive impact on future earnings.

On December 22, 2017, the United States enacted the Tax Cuts and Jobs Act ("U.S. Tax Act"), which subjects a U.S. shareholder to taxes on Global Intangible Low-Taxed Income ("GILTI") earned by certain foreign subsidiaries. The FASB Staff Q&A, Topic 740, No. 5, *Accounting for Global Intangible Low-Taxed Income*, states that an entity can make an accounting policy election to either recognize deferred taxes for temporary basis differences expected to reverse as GILTI in future years or provide for the tax expense related to GILTI in the year the tax is incurred. During the year ended December 31, 2018, the Company elected to provide for the tax expense related to GILTI in the year the tax is incurred. This election did not have a material impact on the financial statements for the years ended December 31, 2019 or 2018.

Earnings per Share (“EPS”) — Basic EPS is computed by dividing income available to common shareholders by the weighted-average number of shares of common stock outstanding during the period. Diluted earnings per share is computed by dividing income available to common shareholders by the weighted-average number of shares of common stock outstanding during the period, increased by the number of additional shares of common stock that would have been outstanding if the potentially dilutive securities had been issued. Potentially dilutive securities include outstanding stock options, unvested restricted stock and unvested restricted stock units (“RSUs”). The dilutive effect of potentially dilutive securities is reflected in diluted earnings per share by application of the treasury stock method.

Foreign Currency Translation — Assets and liabilities of consolidated foreign subsidiaries whose functional currency is not the U.S. dollar are translated into U.S. dollars at period-end exchange rates and revenues and expenses are translated into U.S. dollars at daily exchange rates. The adjustment resulting from translating the financial statements of such foreign subsidiaries into U.S. dollars is reflected as a cumulative translation adjustment and reported as a component of accumulated other comprehensive income/(loss).

For consolidated foreign subsidiaries whose functional currency is the U.S. dollar, transactions and balances denominated in the local currency are foreign currency transactions. Foreign currency transactions and balances related to non-monetary assets and liabilities are remeasured to the functional currency of the subsidiary at historical exchange rates while monetary assets and liabilities are remeasured to the functional currency of the subsidiary at period-end exchange rates. Foreign currency exchange gains or losses from remeasurement are included in income in the period in which they occur.

Risks and Uncertainties — As a result of its global operations, the Company may be subject to certain inherent risks.

Concentration of Credit — Financial instruments that potentially subject the Company to concentration of credit risk consist primarily of cash, cash equivalents and trade receivables. The Company maintains cash, cash equivalents and short-term deposits with financial institutions. The Company determined that the Company’s credit policies reflect normal industry terms and business risk and there is no expectation of non-performance by the counterparties.

The Company has cash in banks in countries such as Belarus, Russia, Ukraine, Kazakhstan, Armenia and Uzbekistan, where the banking sector remains subject to periodic instability. Banking and other financial systems generally do not meet the banking standards of more developed markets, and bank deposits made by corporate entities are not insured. As of December 31, 2019, \$206,485 of total cash was kept in banks in these countries, of which \$123,370 was held in Belarus. In this region, and particularly in Belarus, a banking crisis, bankruptcy or insolvency of banks that process or hold the Company’s funds, may result in the loss of deposits or adversely affect the Company’s ability to complete banking transactions in the region, which could adversely affect the Company’s business and financial condition. Cash in this region is used for operational needs and cash balances in those banks move with the needs of those entities.

Trade receivables are generally dispersed across many customers operating in different industries; therefore, concentration of credit risk is limited. Historically, credit losses and write-offs of trade receivable balances have not been material to the consolidated financial statements.

Foreign currency risk — The Company’s global operations are conducted predominantly in U.S. dollars. Other than U.S. dollars, the Company generates a significant portion of revenues in various currencies, principally, euros, British pounds, Canadian dollars, Swiss francs and Russian rubles and incurs expenditures principally in Russian rubles, Hungarian forints, Polish zlotys, British pounds, Swiss francs, euros, Indian rupees and Chinese yuan renminbi.

The Company’s international operations expose it to foreign currency exchange rate changes that could impact translations of foreign denominated assets and liabilities into U.S. dollars and future earnings and cash flows from transactions denominated in different currencies. The Company is exposed to fluctuations in foreign currency exchange rates primarily related to trade receivables from sales in foreign currencies and cash outflows for expenditures in foreign currencies. The Company’s results of operations, primarily revenues and expenses denominated in foreign currencies, can be affected if any of the currencies, which are used materially in the Company’s business, appreciate or depreciate against the U.S. dollar. The Company has a hedging program whereby it entered into a series of foreign exchange forward contracts that are designated as cash flow hedges of forecasted Russian ruble, Polish zloty and Indian rupee transactions.

Interest rate risk — The Company’s exposure to market risk is influenced primarily by changes in interest rates received on cash and cash equivalents and paid on the Company’s borrowings, mainly under the 2017 Credit Facility, which is subject to a variety of rates depending on the type and timing of funds borrowed (See Note 8 “Long-Term Debt”). The Company does not use derivative financial instruments to hedge the risk of interest rate volatility.

Adoption of New Accounting Standards

Unless otherwise discussed below, the adoption of new accounting standards did not have a material impact on the Company's consolidated financial position, results of operations, and cash flows.

Leases — In February 2016, the FASB issued ASU 2016-02, Leases ("Topic 842"). The standard supersedes previously existing lease guidance (Topic 840) and requires entities to recognize all leases, with the exception of leases with a term of twelve months or less, on the balance sheet as right-of-use assets ("RoU Assets") and lease liabilities. The guidance also changes disclosure requirements with a focus on providing information that will enable users of financial statements to assess the amount, timing and uncertainty of cash flows arising from leases.

The Company adopted Topic 842, effective January 1, 2019, using the optional transition approach, which allows the Company to apply the provisions of the standard at the effective date without adjusting the comparable periods and carry forward disclosures under previously existing guidance for those periods presented within the Company's financial statements.

The Company determines if an arrangement is a lease or contains a lease at inception. The Company performs an assessment and classifies the lease as either an operating lease or a financing lease at the lease commencement date with a right-of-use asset and a lease liability recognized in the consolidated balance sheet under both classifications. The Company does not have finance leases that are material to the Company's consolidated financial statements.

Lease liabilities are initially measured at the present value of lease payments not yet paid. The present value is determined by applying the readily determinable rate implicit in the lease or, if not available, the incremental borrowing rate of the lessee. The Company determines the incremental borrowing rate of the lessee on a lease-by-lease basis by developing an estimated centralized U.S. dollar borrowing rate for a fully collateralized obligation with a term similar to the lease term and adjusts the rate to reflect the incremental risk associated with the foreign currency in which the lease is denominated. The development of this estimate includes the use of recovery rates, U.S. risk-free rates, foreign currency/country base rate yields, and a synthetic corporate credit rating of the Company developed using regression analysis. Lease agreements of the Company may include options to extend or terminate the lease and the Company includes such options in the lease term when it is reasonably certain that the Company will exercise that option. RoU Assets are recognized based on the initial measurement of the lease liabilities plus initial direct costs less lease incentives and, according to the guidance for long-lived assets, RoU Assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Lease expense for operating leases is recognized on a straight-line basis over the lease term.

The Company elected a practical expedient to account for lease and non-lease components together as a single lease component. The Company also elected the short-term lease recognition exemption for all classes of lease assets with an original term of twelve months or less. As part of the transition, the Company elected a package of practical expedients allowing it to carry forward historical accounting for any expired or existing contracts that are or contain lease contracts, including classification of such contracts and initial direct costs associated with them.

The adoption of Topic 842 on January 1, 2019 resulted in the recognition of RoU Assets for operating leases of \$177,597 and operating lease liabilities of \$173,863. The adoption of Topic 842 did not have a material impact on the consolidated statement of income and comprehensive income, consolidated statement of changes in stockholders' equity or the consolidated statement of cash flows.

See Note 7 "Leases" in the condensed consolidated financial statements for additional information regarding leases.

Pending Accounting Standards

From time to time, new accounting pronouncements are issued by the FASB or other standards-setting bodies that the Company will adopt according to the various timetables the FASB specifies. Unless otherwise discussed below, the Company believes the impact of recently issued standards that are not yet effective will not have a material impact on its consolidated financial position, results of operations and cash flows upon adoption.

Measurement of Credit Losses on Financial Instruments — Effective January 1, 2020, the Company will adopt the amended guidance of FASB ASC Topic 326, *Financial Instruments — Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, (with early adoption permitted effective January 1, 2019.) The amendments in this update change how companies measure and recognize credit impairment for many financial assets. The new expected credit loss model requires companies to immediately recognize an estimate of credit losses expected to occur over the remaining life of the financial assets (including trade receivables) that are in the scope of the update. The update also made amendments to the current impairment model for held-to-maturity and available-for-sale debt securities and certain guarantees. Entities are required to adopt the standard using a modified-retrospective approach through a cumulative effect adjustment to retained earnings as of the beginning of the period of adoption. The Company does not expect Topic 326 to have a material impact on its consolidated financial statements.

2. ACQUISITIONS

Continuum — On March 15, 2018, the Company acquired all of the outstanding equity of Continuum Innovation LLC together with its subsidiaries (“Continuum”) to enhance the Company’s consulting capabilities as well as its digital and service design practices. Continuum, headquartered in Boston with offices located in Milan, Seoul, and Shanghai, focuses on four practices including strategy, physical and digital design, technology and its Made Real Lab. The acquisition of Continuum added approximately 125 design consultants to the Company’s headcount. In connection with the Continuum acquisition, the Company paid \$52,515 of cash and committed to making a cash earnout payment with a maximum amount payable of \$3,135, subject to attainment of specified performance targets in the 12 months after the acquisition date. See Note 11 “Fair Value Measurements” for more information regarding this earnout payment.

Think — On November 1, 2018, the Company acquired all of the equity interests of Think Limited (“Think”), a digital transformation agency headquartered in London, UK. This acquisition is intended to strengthen EPAM’s digital and organizational consulting capabilities in the UK and Western European markets and enhance the Company’s global product and design offerings. In connection with the Think acquisition, the Company paid \$26,254 at closing and committed to making a cash earnout payment with a maximum amount payable based on exchange rates at the date of acquisition of \$8,156 subject to attainment of specified performance targets in the 12 months after the acquisition date. During the year ended December 31, 2019, the Company paid \$185 of net true-up payments which increased the purchase price. See Note 11 “Fair Value Measurements” for more information regarding the earnout payment.

test IO — On April 30, 2019, the Company acquired 100% of the equity interests of a crowdtesting company, test IO GmbH, and its subsidiary (“test IO”). In connection with the test IO acquisition, the Company paid \$17,323 of cash.

The following table summarizes the estimated fair values of the assets acquired and liabilities assumed as of the date of acquisition as updated for any changes as of December 31, 2019 for each respective acquisition:

	Continuum	Think	test IO
Cash and cash equivalents	\$ 2,251	\$ 2,344	\$ 663
Trade receivables and contract assets	9,139	2,637	688
Prepaid and other current assets	936	900	96
Goodwill	26,617	20,477	12,150
Intangible assets	14,450	6,882	6,219
Property and equipment and other noncurrent assets	8,902	1,214	151
Total assets acquired	\$ 62,295	\$ 34,454	\$ 19,967
Accounts payable, accrued expenses and other current liabilities	\$ 3,746	\$ 2,025	\$ 910
Long-term debt (Note 8)	3,220	—	—
Other noncurrent liabilities	490	—	1,734
Total liabilities assumed	\$ 7,456	\$ 2,025	\$ 2,644
Net assets acquired	\$ 54,839	\$ 32,429	\$ 17,323

During 2018, the Company adjusted initially recognized intangible assets acquired with Continuum and their useful lives, recognized an additional intangible asset in the form of a favorable lease, removed a noncurrent liability associated with an initially recognized unfavorable lease and revised the initial fair value of contingent consideration. The Company also finalized a working capital adjustment that resulted in cash collection in the amount of \$76 reducing the original amount of the net assets acquired. These adjustments resulted in a corresponding decrease to the originally recognized value of acquired goodwill. During the first quarter of 2019, the Company finalized the fair value of the assets acquired and liabilities assumed in the acquisition of Continuum and no additional adjustments were recorded.

During 2019, the Company recorded purchase price adjustments which increased the original purchase price for Think by \$185, with a corresponding adjustment to net assets acquired. In addition, the Company recorded a \$1,497 increase in deferred tax assets and other insignificant adjustments to other accounts with corresponding decreases to goodwill. During the fourth quarter of 2019, the Company finalized the fair value of the assets acquired and liabilities assumed in the acquisition of Think.

As of December 31, 2019, the Company finalized the valuation of intangible assets acquired in connection with the acquisition of test IO. For the acquisition of test IO, estimated fair values of the income tax-related assets acquired and liabilities assumed remain provisional and based on the facts and circumstances that existed as of the acquisition date. The Company expects to complete the purchase price allocation as soon as practicable but no later than one year from the acquisition date. During 2019, the Company recorded purchase price adjustments which increased the original purchase price for test IO and adjusted related working capital accounts increasing the original amount of the net assets acquired by \$119. In addition for the test IO acquisition, the Company reduced the value of acquired intangible assets by \$145 with a corresponding increase to goodwill.

The following table presents the estimated fair values and useful lives of intangible assets acquired from Continuum, Think, and test IO as of the date of acquisition and updated for any changes during the year ended December 31, 2019 for each respective acquisition:

	Continuum		Think		test IO	
	Weighted Average Useful Life (in years)	Amount	Weighted Average Useful Life (in years)	Amount	Weighted Average Useful Life (in years)	Amount
Customer relationships	6.5	\$ 5,800	7	\$ 6,117	7	\$ 2,456
Favorable lease	11.2	5,500	—	—	—	—
Software	—	—	—	—	6	3,461
Contract royalties	8	1,900	—	—	—	—
Trade names	5	1,250	5	765	4	302
Total		\$ 14,450		\$ 6,882		\$ 6,219

In connection with the adoption of Topic 842, effective January 1, 2019, the Company reclassified the favorable lease intangible asset to Operating lease right-of-use assets.

The goodwill recognized as a result of the acquisitions is attributable primarily to strategic and synergistic opportunities related to the consulting and design businesses, the assembled workforces acquired and other factors. The goodwill acquired as a result of the Continuum acquisition is expected to be deductible for income tax purposes while the goodwill acquired as a result of the Think and test IO acquisitions is not expected to be deductible for income tax purposes.

Revenues generated by test IO, acquired on April 30, 2019, totaled \$4,539 for the year ended December 31, 2019.

Pro forma results of operations have not been presented because the effect of the acquisitions on the Company's consolidated financial statements was not material individually or in the aggregate.

Other 2019 Acquisitions — During the year ended December 31, 2019, the Company completed four additional acquisitions with an aggregate cash purchase price of \$24,786 and committed to making cash earnout payments with a maximum amount payable of \$3,000 subject to attainment of specified performance targets ranging from 12 months to 24 months after the respective acquisition dates. These acquisitions increased EPAM's educational service and platform offerings and expanded the Company's geographical reach, as well as added \$7,488 in intangible assets, consisting mainly of customer relationships. Revenues generated by these other 2019 acquisitions totaled \$9,336 during the year ended December 31, 2019. Pro forma results of operations have not been presented because the effect of these acquisitions on the Company's consolidated financial statements was not material individually or in the aggregate.

During the year ended December 31, 2017, the Company completed acquisitions with aggregated purchase price of \$6,980. These acquisitions individually and in the aggregate are not material to the Company’s consolidated financial statements.

3. GOODWILL AND INTANGIBLE ASSETS, NET

Goodwill by reportable segment was as follows:

	North America	Europe	Russia	Total
Balance as of January 1, 2018	\$ 77,290	\$ 42,241	\$ —	\$ 119,531
Continuum acquisition (Note 2)	26,617	—	—	26,617
Think acquisition (Note 2)	—	22,482	—	22,482
Effect of currency translation	(365)	(1,433)	—	(1,798)
Balance as of December 31, 2018	103,542	63,290	—	166,832
test IO acquisition (Note 2)	3,301	8,849	—	12,150
Other 2019 acquisitions (Note 2)	6,503	9,546	738	16,787
Think purchase accounting adjustments	—	(2,043)	—	(2,043)
Effect of currency translation	\$ 80	\$ 1,231	\$ 6	1,317
Balance as of December 31, 2019	\$ 113,426	\$ 80,873	\$ 744	\$ 195,043

The Russia segment had accumulated goodwill impairment losses of \$2,241 as of December 31, 2019, 2018 and 2017. There were no accumulated goodwill impairment losses in the North America or Europe reportable segments as of December 31, 2019, 2018 or 2017.

Intangible assets other than goodwill as of December 31, 2019 and 2018 were as follows:

	As of December 31, 2019			
	Weighted average life at acquisition (in years)	Gross carrying amount	Accumulated amortization	Net carrying amount
Customer relationships	9	\$ 87,489	\$ (38,526)	\$ 48,963
Software	6	4,472	(486)	3,986
Trade names	5	6,439	(4,753)	1,686
Contract royalties	8	1,900	(435)	1,465
Assembled workforce	3	158	—	158
Total		\$ 100,458	\$ (44,200)	\$ 56,258

	As of December 31, 2018			
	Weighted average life at acquisition (in years)	Gross carrying amount	Accumulated amortization	Net carrying amount
Customer relationships	9.5	\$ 78,042	\$ (29,580)	\$ 48,462
Favorable lease	11.2	5,500	(410)	5,090
Trade names	5.3	6,111	(4,300)	1,811
Contract royalties	8	1,900	(198)	1,702
Total		\$ 91,553	\$ (34,488)	\$ 57,065

In connection with the adoption of Topic 842, effective January 1, 2019, the Company reclassified the favorable lease intangible asset to Operating lease right-of-use assets. See Note 7 “Leases” for further information regarding the Company’s operating leases.

All of the intangible assets other than goodwill have finite lives and as such are subject to amortization. Amortization of the other intangible assets is recognized in depreciation and amortization expense in the consolidated statements of income and comprehensive income.

The following table presents amortization expense recognized for the periods indicated:

	For the Years Ended December 31,		
	2019	2018	2017
Customer relationships	\$ 8,743	\$ 7,637	\$ 6,643
Software	486	—	—
Trade names	447	266	896
Contract royalties	238	198	—
Favorable lease	—	410	—
Non-competition agreements	—	—	23
Total	\$ 9,914	\$ 8,511	\$ 7,562

Based on the carrying value of the Company's existing intangible assets as of December 31, 2019, the estimated amortization expense for the future years is as follows:

Year ending December 31,	Amount
2020	\$ 11,322
2021	11,322
2022	11,126
2023	9,526
2024	7,023
Thereafter	5,939
Total	\$ 56,258

4. PROPERTY AND EQUIPMENT, NET

Property and equipment, net consisted of the following:

	Weighted Average Useful Life (in years)	As of December 31, 2019	As of December 31, 2018
Computer hardware	3	\$ 96,286	\$ 74,884
Buildings	47	51,300	34,458
Purchased computer software	3	32,115	10,406
Leasehold improvements	8	30,634	25,036
Furniture, fixture and other equipment	7	28,193	21,544
Office equipment	6	18,901	13,203
Land improvements	18	2,137	1,474
		259,566	181,005
Less accumulated depreciation and amortization		(94,307)	(78,359)
Total		\$ 165,259	\$ 102,646

Depreciation and amortization expense related to property and equipment was \$35,379, \$28,539 and \$21,000 during the years ended December 31, 2019, 2018 and 2017, respectively.

On November 1, 2019, the Company acquired an office building in Minsk, Belarus for \$18,904, excluding refundable VAT. The acquired building is intended to be used in the Company’s normal operations as office space for its employees; however, a portion of the building was leased to third parties under operating lease agreements prior to the Company’s purchase and the Company will continue leasing under those agreements (see Note 7 “Leases”). In addition to this building, the Company has other assets which generate lease income. The gross amount of such assets including the leased portion of the Minsk building was \$10,654 and the associated accumulated depreciation was \$101 as of December 31, 2019. Depreciation expense associated with these assets held under operating leases was \$42 for the year ended December 31, 2019. There were no material assets held under operating leases as of December 31, 2018.

5. ACCRUED EXPENSES AND OTHER CURRENT LIABILITIES

Accrued expenses and other current liabilities consisted of the following:

	As of December 31, 2019	As of December 31, 2018
Value added taxes payable	24,016	19,985
Contingent consideration, current (Note 11)	10,057	1,501
Deferred revenue	9,132	4,558
Other current liabilities and accrued expenses	39,271	24,209
Total	\$ 82,476	\$ 50,253

6. INCOME TAXES

Income/(Loss) Before Provision for Income Taxes

Income/(loss) before provision for income taxes based on geographic location is disclosed in the table below:

	For the Years Ended December 31,		
	2019	2018	2017
Income/(loss) before provision for income taxes:			
United States	\$ 65,370	\$ 44,527	\$ (6,595)
Foreign	234,156	205,246	180,900
Total	\$ 299,526	\$ 249,773	\$ 174,305

Provision for Income Taxes

The provision for income taxes consists of the following:

	For the Years Ended December 31,		
	2019	2018	2017
Current			
Federal	\$ 16,943	\$ 10,814	\$ 65,571
State	3,610	4,123	(204)
Foreign	25,680	42,580	23,617
Deferred			
Federal	(9,425)	(37,785)	7,235
State	(358)	(3,548)	(90)
Foreign	2,019	(6,667)	5,416
Total	\$ 38,469	\$ 9,517	\$ 101,545

The U.S. Tax Act significantly changed U.S. corporate income tax laws including a reduction of the U.S. corporate income tax rate from 35.0% to 21.0% effective January 1, 2018 and the creation of a territorial tax system with a one-time transition tax on accumulated foreign subsidiary earnings not previously subject to U.S. income tax. In addition, the U.S. Tax Act created new taxes on certain foreign-sourced earnings and certain related party payments, which are referred to as GILTI and the base erosion and anti-abuse tax (“BEAT”), respectively.

Due to the timing of the enactment and the complexity involved in applying the provisions of the U.S. Tax Act, the Company made reasonable estimates of the effects and recorded provisional amounts in its financial statements as of December 31, 2017. During the year ended December 31, 2018, the Company completed its analysis of the impact of the U.S. Tax Act and recorded the following adjustments to the recorded provisional amounts:

- The one-time transition tax on accumulated foreign subsidiary earnings not previously subject to U.S. income tax requires the Company to pay U.S. income tax at a rate of 15.5% to the extent of foreign cash and certain other net current assets and 8.0% on the remaining earnings. During the year ended December 31, 2017, the Company recorded a provisional income tax expense and corresponding income taxes payable of \$64,321 to be paid over the next 8 years associated with the one-time transition tax. During the year ended December 31, 2018, the Company completed its assessment and refined its estimate reducing the provisional charge by \$4,935. The total charge for the one-time transition tax now totals \$59,386.
- In 2017, the Company provisionally reduced its net deferred tax assets by \$10,311 reflecting the impact of the change in the U.S. statutory tax rate from 35.0% to 21.0% in the periods in which the net deferred tax assets are expected to be realized as a result of the U.S. Tax Act. In 2018, the Company completed its analysis, and consequently recorded an additional charge of \$926 to further reduce its net deferred tax assets for a total charge of \$11,237.

In 2017, the Company reassessed its accumulated foreign earnings in light of the U.S. Tax Act and determined \$97,000 of its accumulated earnings in Belarus were no longer indefinitely reinvested. As a result, the Company recorded a charge of \$4,850 in the provision for income taxes during the year ended December 31, 2017 for the withholding tax payable to Belarus when the earnings are distributed. In 2018, the Company remitted this full amount of accumulated earnings as dividends and also remitted as dividends certain earnings of its foreign subsidiaries in Canada, Cyprus, Ireland and Russia and additional earnings in Belarus. Based on proposed tax regulations issued by the U.S. Department of the Treasury during 2018, it was determined that an offsetting U.S. foreign tax credit could be claimed for the withholding tax paid to Belarus resulting in a net \$4,850 income tax benefit recognized during the year ended December 31, 2018.

As of December 31, 2019, the Company has determined that all accumulated undistributed foreign earnings of \$861,893 are expected to be indefinitely reinvested. Due to the enactment of the U.S. Tax Act and the one-time transition tax on accumulated foreign subsidiary earnings, these accumulated foreign earnings are no longer expected to be subject to U.S. federal income tax if repatriated but could be subject to state and foreign income and withholding taxes.

Effective Tax Rate Reconciliation

The reconciliation of the provision for income taxes at the federal statutory income tax rate to the Company's effective income tax rate is as follows:

	For the Years Ended December 31,		
	2019	2018	2017
Provision for income taxes at federal statutory rate	\$ 62,898	\$ 52,452	\$ 61,007
Increase/(decrease) in taxes resulting from:			
Impact from U.S. Tax Act	—	(4,009)	74,632
Entity classification election deferred tax asset impact	—	(25,962)	—
GILTI and BEAT U.S. taxes	(926)	1,526	—
Excess tax benefits relating to stock-based compensation	(28,385)	(17,370)	(9,307)
Subsidiary withholding tax liability and related foreign tax credit	—	(4,850)	4,850
Foreign tax expense and tax rate differential	(1,402)	(88)	(39,997)
Effect of permanent differences	3,264	2,724	3,205
State taxes, net of federal benefit	2,971	3,452	(116)
Change in valuation allowance	218	151	783
Stock-based compensation expense	571	652	6,908
Other	(740)	839	(420)
Provision for income taxes	\$ 38,469	\$ 9,517	\$ 101,545

The Company's worldwide effective tax rate for years ended December 31, 2019, 2018 and 2017 was 12.8%, 3.8% and 58.3%, respectively. The provision for income taxes in the year ended December 31, 2018 was favorably impacted by the recognition of \$25,962 of net deferred tax assets resulting from the Company's decision to change the tax status and to classify most of its foreign subsidiaries as disregarded for U.S. income tax purposes. This change subjects the income of the disregarded foreign subsidiaries to U.S. income taxation, resulting in a reduced foreign tax rate differential benefit in 2019 and 2018 as compared to 2017. In addition, the Company recorded excess tax benefits upon vesting or exercise of stock-based awards of \$28,385, \$17,370 and \$9,307 during the years ended December 31, 2019, 2018 and 2017, respectively.

In Belarus, member technology companies of High-Technologies Park, including the Company's local subsidiary, have a full exemption from Belarus income tax on qualifying income through January 2049. However, beginning February 1, 2018, the earnings of the Company's Belarus local subsidiary became subject to U. S. income taxation due to the Company's decision to change the tax status of the subsidiary. Consequently, there was less income tax benefit from the Belarus tax exemption for the year ended December 31, 2018 compared to the previous year. There was no aggregate dollar benefit derived from this tax holiday for the year ended December 31, 2019, and the aggregate dollar benefits derived from this tax holiday approximated \$1,352 and \$15,503 for the years ended December 31, 2018 and 2017, respectively. There was no impact on diluted net income per share for the year ended December 31, 2019. The benefit the tax holiday had on diluted net income per share approximated \$0.02 and \$0.28 for the years ended December 31, 2018 and 2017, respectively.

Deferred Income Taxes

Deferred income taxes reflect the net effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of the Company's deferred tax assets and liabilities are as follows:

	As of December 31, 2019	As of December 31, 2018
Deferred tax assets:		
Property and equipment	\$ 5,329	\$ 4,531
Intangible assets	574	1,262
Accrued expenses	41,457	32,067
Net operating loss carryforward	5,168	4,983
Deferred revenue	3,510	5,802
Stock-based compensation	29,596	27,558
Operating lease liabilities	7,438	—
Foreign tax credit	3,491	—
Foreign currency exchange	2,499	5,772
Other assets	1,533	782
Deferred tax assets	<u>\$ 100,595</u>	<u>\$ 82,757</u>
Less: valuation allowance	(3,877)	(3,189)
Total deferred tax assets	<u>\$ 96,718</u>	<u>\$ 79,568</u>
Deferred tax liabilities:		
Property and equipment	\$ 4,981	\$ 1,480
Intangible assets	11,364	5,582
Operating lease right-of-use assets	6,900	—
Accrued revenue and expenses	2,176	1,540
U.S. taxation of foreign subsidiaries	—	3,000
Other liabilities	812	933
Total deferred tax liabilities	<u>\$ 26,233</u>	<u>\$ 12,535</u>
Net deferred tax assets	<u>\$ 70,485</u>	<u>\$ 67,033</u>

As of December 31, 2019 and 2018, the Company classified \$4,530 and \$2,950, respectively, of deferred tax liabilities as Other noncurrent liabilities in the consolidated balance sheets.

Included in the stock-based compensation expense deferred tax asset at December 31, 2019 and 2018 is \$6,788 and \$7,561, respectively, that is related to acquisitions and is amortized for tax purposes over a 10 to 15-year period.

As of December 31, 2019, the Company's domestic and foreign net operating loss ("NOL") carryforwards for income tax purposes were approximately \$3,712 and \$25,487, respectively. If not utilized, the domestic NOL carryforwards will begin to expire in 2021. The foreign NOL carryforwards include \$9,311 from jurisdictions with no expiration date, with the remainder expiring as follows: \$274 in 2020, \$5,805 in 2021, \$6,273 in 2022, \$1,371 in 2023, \$2,204 in 2024, and \$249 beyond 2024. The Company maintains a valuation allowance primarily related to the net operating loss carryforwards in certain foreign jurisdictions that the Company believes are not likely to be realized, which totaled \$21,948 as of December 31, 2019.

Unrecognized Tax Benefits

As of December 31, 2019 and 2018, unrecognized tax benefits of \$2,904 and \$1,432, respectively, are included in Income taxes payable, noncurrent within the consolidated balance sheets. There were no significant new tax positions that resulted in unrecognized tax benefits or reversals of prior year tax positions during the years ended December 31, 2019, 2018 and 2017. There were no tax positions for which it was reasonably possible that unrecognized tax benefits will significantly increase or decrease within twelve months of the reporting date.

The Company files income tax returns in the United States and in various state, local and foreign jurisdictions. The Company's significant tax jurisdictions are the United States, Russia, Germany, Ukraine, the United Kingdom, Hungary, Switzerland, Netherlands, Poland and India. The tax years subsequent to 2015 remain open to examination by the United States Internal Revenue Service and generally, the tax years subsequent to 2015 remain open to examination by various state and local taxing authorities and various foreign taxing authorities.

7. LEASES

The Company leases office space, corporate apartments, office equipment, and vehicles. Many of the Company's leases contain variable payments including changes in base rent and charges for common area maintenance or other miscellaneous expenses. Due to this variability, the cash flows associated with these variable payments are not included in the minimum lease payments used in determining the RoU Assets and associated lease liabilities and are recognized in the period in which the obligation for such payments is incurred. The Company's leases have remaining lease terms ranging from 0.1 to 11.4 years. Certain lease agreements, mainly for office space, include options to extend or terminate the lease before the expiration date. The Company considers such options when determining the lease term when it is reasonably certain that the Company will exercise that option. The Company leases and subleases a portion of its office space to third parties. Lease income and sublease income were immaterial for the years ended December 31, 2019, 2018 and 2017.

During the year ended December 31, 2019, the components of lease expense were as follows:

	Income Statement Classification	Year Ended December 31, 2019
Operating lease cost	Selling, general and administrative expenses	\$ 62,740
Variable lease cost	Selling, general and administrative expenses	8,730
Short-term lease cost	Selling, general and administrative expenses	3,870
Total lease cost		\$ 75,340

Rent expense under operating lease agreements for the years ended December 31, 2018 and 2017 was \$46,924 and \$37,916, respectively.

Supplemental cash flow information related to leases was as follows:

	Year Ended December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows used for operating leases	\$ 59,952
Right-of-use assets obtained in exchange for lease obligations:	
Operating leases	\$ 107,822
Non-cash net increase due to lease modifications:	
Operating lease right-of-use assets	\$ 10,124
Operating lease liabilities	\$ 10,192

Weighted average remaining lease term and discount rate as of December 31, 2019, were as follows:

	As of December 31, 2019
Weighted average remaining lease term, in years:	
Operating leases	6.1
Weighted average discount rate:	
Operating leases	3.6%

As of December 31, 2019, operating lease liabilities will mature as follows:

Year ending December 31,	Lease Payments
2020	\$ 64,667
2021	54,343
2022	36,886
2023	27,018
2024	22,603
Thereafter	58,532
Total lease payments	264,049
Less: imputed interest	(25,660)
Total	\$ 238,389

There were no lease agreements that contained material restrictive covenants or material residual value guarantees as of December 31, 2019. There were no material lease agreements signed with related parties as of December 31, 2019.

As of December 31, 2019, the Company had committed to payments of \$37,559 related to operating lease agreements that had not yet commenced. These operating leases will commence during various dates during 2020 with lease terms ranging from 1.2 to 10.9 years. The Company did not have any material finance lease agreements that had not yet commenced.

8. LONG-TERM DEBT

Revolving Line of Credit — On September 12, 2014, the Company entered into a revolving loan agreement (the “2014 Credit Facility”) with PNC Bank, National Association; Santander Bank, N.A.; and Silicon Valley Bank (collectively the “2014 Lenders”). Under the 2014 Credit Facility, the Company’s borrowing capacity was set at \$100,000, with potential to increase it to \$200,000 if certain conditions were met.

Borrowings under the 2014 Credit Facility were denominated in U.S. dollars or, up to a maximum of \$50,000 in British pounds, Canadian dollars, euros and Swiss francs and other currencies as may be approved by the administrative agent and the 2014 Lenders. Borrowings under the 2014 Credit Facility bore interest at either a base rate or Euro-rate plus a margin based on the Company’s leverage ratio. The base rate was equal to the highest of (a) the Federal Funds Open Rate, plus 0.5%, (b) the Prime Rate, and (c) the Daily LIBOR Rate, plus 1.0%.

On May 24, 2017, the Company terminated the 2014 Credit Facility and entered into a new unsecured credit facility (the “2017 Credit Facility”), as may be amended from time to time, with PNC Bank, National Association; PNC Capital Markets LLC; Citibank N.A.; Wells Fargo Bank, National Association; Fifth Third Bank and Santander Bank, N.A. (collectively the “Lenders”). The 2017 Credit Facility provides for a borrowing capacity of \$300,000, with potential to increase the credit facility up to \$400,000 if certain conditions are met. The 2017 Credit Facility matures on May 24, 2022.

Borrowings under the 2017 Credit Facility may be denominated in U.S. dollars or up to a maximum of \$100,000 in British pounds, Canadian dollars, euros and Swiss francs and other currencies as may be approved by the administrative agent and the Lenders. Borrowings under the 2017 Credit Facility bear interest at either a base rate or Euro-rate plus a margin based on the Company’s leverage ratio. The base rate is equal to the highest of (a) the Overnight Bank Funding Rate, plus 0.5%, (b) the Prime Rate, or (c) the Daily LIBOR Rate, plus 1.0%. As of December 31, 2019, the Company’s outstanding borrowings are subject to a LIBOR-based interest rate, which resets regularly at issuance, based on lending terms.

The 2017 Credit Facility includes customary business and financial covenants that may restrict the Company’s ability to make or pay dividends (other than certain intercompany dividends) if a potential or an actual event of default has occurred or would be triggered. As of December 31, 2019, the Company was in compliance with all covenants contained in the 2017 Credit Facility.

The following table presents the outstanding debt and borrowing capacity of the Company under the 2017 Credit Facility:

	As of December 31, 2019	As of December 31, 2018
Outstanding debt	\$ 25,000	\$ 25,000
Interest rate	2.8%	3.5%
Irrevocable standby letters of credit	\$ 303	\$ 382
Available borrowing capacity	\$ 274,697	\$ 274,618
Current maximum borrowing capacity	\$ 300,000	\$ 300,000

As part of the acquisition of Continuum in 2018, the Company assumed \$3,448 of long-term debt associated with a leased facility and payable to Continuum’s landlord. The debt was payable in monthly installments through March 31, 2029 and bore interest at a rate of 8% per annum. In March 2018, the Company paid \$3,448 to settle this assumed long-term debt.

9. REVENUES

Disaggregation of Revenues

The following tables show the disaggregation of the Company’s revenues by major customer location, including a reconciliation of the disaggregated revenues with the Company’s reportable segments (Note 15 “Segment Information”) for the years ended December 31, 2019 and 2018:

	Year Ended December 31, 2019			
	Reportable Segments			Consolidated Revenues
	North America	Europe	Russia	
Customer Locations				
North America	\$ 1,344,040	\$ 45,859	\$ 116	\$ 1,390,015
Europe	27,042	719,548	276	746,866
CIS	8,583	143	91,745	100,471
APAC	1,279	55,167	—	56,446
Revenues	\$ 1,380,944	\$ 820,717	\$ 92,137	\$ 2,293,798

	Year Ended December 31, 2018			
	Reportable Segments			Consolidated Revenues
	North America	Europe	Russia	
Customer Locations				
North America	\$ 1,046,232	\$ 52,860	\$ 75	\$ 1,099,167
Europe	16,679	595,741	52	612,472
CIS	8,437	336	72,930	81,703
APAC	5,631	43,848	91	49,570
Revenues	\$ 1,076,979	\$ 692,785	\$ 73,148	\$ 1,842,912

The following tables show the disaggregation of the Company’s revenues by industry vertical, including a reconciliation of the disaggregated revenues with the Company’s reportable segments (Note 15 “Segment Information”) for the year ended December 31, 2019 and 2018:

	Year Ended December 31, 2019			
	Reportable Segments			Consolidated Revenues
	North America	Europe	Russia	
Industry Verticals				
Financial Services	\$ 184,469	\$ 244,284	\$ 72,119	\$ 500,872
Travel & Consumer	198,264	229,523	11,571	439,358
Software & Hi-Tech	354,023	77,377	1,998	433,398
Business Information & Media	262,448	157,844	631	420,923
Life Sciences & Healthcare	224,925	23,444	83	248,452
Emerging Verticals	156,815	88,245	5,735	250,795
Revenues	\$ 1,380,944	\$ 820,717	\$ 92,137	\$ 2,293,798

	Year Ended December 31, 2018			
	Reportable Segments			Consolidated Revenues
	North America	Europe	Russia	
Industry Verticals				
Financial Services	\$ 112,444	\$ 252,196	\$ 59,337	\$ 423,977
Travel and Consumer	177,910	208,266	7,467	393,643
Software & Hi-Tech	269,067	79,121	2,627	350,815
Business Information & Media	251,081	72,898	54	324,033
Life Sciences & Healthcare	151,418	20,272	13	171,703
Emerging Verticals	115,059	60,032	3,650	178,741
Revenues	\$ 1,076,979	\$ 692,785	\$ 73,148	\$ 1,842,912

The following tables show the disaggregation of the Company's revenues by contract type, including a reconciliation of the disaggregated revenues with the Company's reportable segments (Note 15 "Segment Information") for the year ended December 31, 2019 and 2018:

	Year Ended December 31, 2019			
	Reportable Segments			Consolidated Revenues
	North America	Europe	Russia	
Contract Types				
Time-and-material	\$ 1,247,979	\$ 688,605	\$ 54,069	\$ 1,990,653
Fixed-price	127,926	128,977	37,747	294,650
Licensing	3,626	1,230	225	5,081
Other revenues	1,413	1,905	96	3,414
Revenues	\$ 1,380,944	\$ 820,717	\$ 92,137	\$ 2,293,798

	Year Ended December 31, 2018			
	Reportable Segments			Consolidated Revenues
	North America	Europe	Russia	
Contract Types				
Time-and-material	\$ 983,436	\$ 628,707	\$ 40,754	\$ 1,652,897
Fixed-price	89,831	62,078	32,342	184,251
Licensing	2,748	1,332	17	4,097
Other revenues	964	668	35	1,667
Revenues	\$ 1,076,979	\$ 692,785	\$ 73,148	\$ 1,842,912

Timing of Revenue Recognition

The following tables show the timing of revenue recognition:

	Year Ended December 31, 2019			
	Reportable Segments			Consolidated Revenues
	North America	Europe	Russia	
Timing of Revenue Recognition				
Transferred over time	\$ 1,379,256	\$ 819,913	\$ 92,076	\$ 2,291,245
Transferred at a point of time	1,688	804	61	2,553
Revenues	\$ 1,380,944	\$ 820,717	\$ 92,137	\$ 2,293,798

	Year Ended December 31, 2018			
	Reportable Segments			Consolidated Revenues
	North America	Europe	Russia	
Timing of Revenue Recognition				
Transferred over time	\$ 1,076,084	\$ 692,023	\$ 73,135	\$ 1,841,242
Transferred at a point of time	895	762	13	1,670
Revenues	\$ 1,076,979	\$ 692,785	\$ 73,148	\$ 1,842,912

During the years ended December 31, 2019 and 2018 the Company recognized \$7,806 and \$5,736, respectively, of revenues from performance obligations satisfied in previous periods.

The following table includes the estimated revenues expected to be recognized in the future related to performance obligations that are partially or fully unsatisfied as of December 31, 2019. The Company applies a practical expedient and does not disclose the value of unsatisfied performance obligations for contracts that (i) have an original expected duration of one year or less and (ii) contracts for which it recognizes revenues at the amount to which it has the right to invoice for services provided:

	Less than 1 year	1 Year	2 Years	3 Years	Total
Contract Type					
Fixed-price	\$ 17,892	\$ 992	\$ 64	\$ —	\$ 18,948

The Company applies a practical expedient and does not disclose the amount of the transaction price allocated to the remaining performance obligations nor provide an explanation of when the Company expects to recognize that amount as revenue for certain variable consideration.

Contract Balances

The following table provides information on the classification of contract assets and liabilities in the consolidated balance sheets:

	As of December 31, 2019	As of December 31, 2018
Contract assets included in Trade receivables and contract assets	\$ 14,320	\$ 13,522
Contract liabilities included in Accrued expenses and other current liabilities	\$ 9,132	\$ 4,558
Contract liabilities included in Other noncurrent liabilities	\$ 5	\$ 224

Contract assets have increased from December 31, 2018 primarily due to new contracts entered into in 2019 where the Company's right to bill is contingent upon achievement of contractual milestones.

Contract liabilities comprise amounts collected from the Company's customers for revenues not yet earned. Such amounts are anticipated to be recorded as revenues when services are performed in subsequent periods. Contract liabilities have increased from December 31, 2018 due to an increase in advance billings largely attributable to the businesses acquired during 2019. During the year ended December 31, 2019, the Company recognized \$3,850 of revenues that were included in Accrued expenses and other current liabilities at December 31, 2018. During the year ended December 31, 2018, the Company recognized \$3,810 of revenues that were included in Accrued expenses and other current liabilities at January 1, 2018.

10. DERIVATIVE FINANCIAL INSTRUMENTS

The Company conducts a large portion of its operations in international markets that subject it to foreign currency fluctuations. To manage the risk of fluctuations in foreign currency exchange rates, during the year ended December 31, 2018, the Company implemented a hedging program whereby it enters into a series of foreign exchange forward contracts with durations of twelve months or less that are designated as cash flow hedges of forecasted Russian ruble, Polish zloty and Indian rupee transactions.

The Company measures derivative instruments and hedging activities at fair value and recognizes them as either assets or liabilities in its consolidated balance sheets. Accounting for the gains and losses resulting from changes in fair value depends on the use of the derivative and whether it is designated and qualifies for hedge accounting. To receive hedge accounting treatment, all hedging relationships are formally documented at the inception of the hedge, and the hedges must be highly effective in offsetting changes to future cash flows on hedged transactions. As of December 31, 2019, all of the Company's foreign exchange forward contracts were designated as hedges.

Derivatives may give rise to credit risks from the possible non-performance by counterparties. The Company has limited its credit risk by entering into derivative transactions only with highly-rated financial institutions and by conducting an ongoing evaluation of the creditworthiness of the financial institutions with which the Company does business. There is no financial collateral (including cash collateral) required to be posted by the Company related to the foreign exchange forward contracts.

The fair value of derivative instruments on the Company's consolidated balance sheets as of December 31, 2019 and December 31, 2018 were as follows:

	Balance Sheet Classification	As of December 31, 2019		As of December 31, 2018	
		Asset Derivatives	Liability Derivatives	Asset Derivatives	Liability Derivatives
Foreign exchange forward contracts - Designated as hedging instruments	Prepaid and other current assets	\$ 1,910		\$ 181	
	Accrued expenses and other current liabilities		\$ 243		\$ 3,475

The changes in the fair value of foreign currency derivative instruments in the Company's consolidated statements of income and comprehensive income for the years ended December 31, 2019, 2018 and 2017 were as follows:

	Year Ended December 31,		
	2019	2018	2017
Foreign exchange forward contracts - Designated as hedging instruments:			
Net gain/(loss) in fair value recognized in Accumulated other comprehensive loss	\$ 4,961	\$ (3,294)	\$ —
Net gain/(loss) reclassified from Accumulated other comprehensive loss into Cost of revenues (exclusive of depreciation and amortization)	\$ 2,028	\$ (4,161)	\$ —
Foreign exchange forward contracts - Not designated as hedging instruments:			
Net gain recognized in Foreign exchange (loss)/gain	\$ —	\$ 44	\$ 425

11. FAIR VALUE MEASUREMENTS

The Company carries certain assets and liabilities at fair value on a recurring basis on its consolidated balance sheets. The following table shows the fair values of the Company's financial assets and liabilities measured at fair value on a recurring basis as of December 31, 2019:

	As of December 31, 2019			
	Balance	Level 1	Level 2	Level 3
Foreign exchange derivative assets	\$ 1,910	\$ —	\$ 1,910	\$ —
Total assets measured at fair value on a recurring basis	\$ 1,910	\$ —	\$ 1,910	\$ —
Foreign exchange derivative liabilities	\$ 243	\$ —	\$ 243	\$ —
Contingent consideration	10,495	—	—	10,495
Total liabilities measured at fair value on a recurring basis	\$ 10,738	\$ —	\$ 243	\$ 10,495

The following table shows the fair values of the Company’s financial assets and liabilities measured at fair value on a recurring basis as of December 31, 2018.

	As of December 31, 2018			
	Balance	Level 1	Level 2	Level 3
Foreign exchange derivative assets	\$ 181	\$ —	\$ 181	\$ —
Total assets measured at fair value on a recurring basis	\$ 181	\$ —	\$ 181	\$ —
Foreign exchange derivative liabilities	\$ 3,475	\$ —	\$ 3,475	\$ —
Contingent consideration	7,468	—	—	7,468
Total liabilities measured at fair value on a recurring basis	\$ 10,943	\$ —	\$ 3,475	\$ 7,468

The foreign exchange derivatives are valued using pricing models and discounted cash flow methodologies based on observable foreign exchange data at the measurement date. See Note 10 “Derivative Financial Instruments” for additional information regarding derivative financial instruments.

The fair value of the contingent consideration is based on the expected future payments to be made to the sellers of the acquired businesses in accordance with the provisions outlined in the respective purchase agreements. Although there is significant judgment involved, the Company believes its estimates and assumptions are reasonable. In determining fair value, the Company considered a variety of factors, including future performance of the acquired business using financial projections developed by the Company and market risk assumptions that were derived for revenue growth and earnings before interest and taxes. The Company estimated future payments using the earnout formula and performance targets specified in the purchase agreements and adjusted those estimates to reflect the probability of their achievement. Those estimated future payments were then discounted to present value using a rate based on the weighted-average cost of capital of guideline companies. Changes in financial projections, market risk assumptions, discount rates or probability assumptions related to achieving the various earnout criteria would result in a change in the fair value of the recorded contingent liabilities. Such changes, if any, are recorded within Interest and other income, net in the Company’s consolidated statement of income and comprehensive income.

In connection with the Continuum acquisition, the Company committed to making a cash earnout payment subject to attainment of specified performance targets in the 12 months after the acquisition date. As of the acquisition date, the Company recorded a \$2,400 contingent consideration liability related to this earnout payment and, subsequently, reduced this liability by \$900 during the third quarter of 2018 and \$396 during the second quarter of 2019 due to the change in its fair value. The Company extinguished the earnout obligation during the second quarter of 2019 by paying \$1,104 in cash. In connection with the Think acquisition, the Company committed to making a cash earnout payment subject to attainment of specified performance targets in the 12 months after the acquisition date. As of the acquisition date, the Company recorded a \$5,990 liability related to this earnout payment as contingent consideration and, subsequently, increased this liability by \$2,172 during 2019 due to the change in its fair value. In connection with the Company’s other 2019 acquisitions, the Company committed to making cash earnout payments subject to attainment of specified performance targets ranging from 12 months to 24 months after the respective acquisition dates. See Note 2 “Acquisitions” in the consolidated financial statements for additional information regarding business acquisitions.

A reconciliation of the beginning and ending balances of acquisition-related contractual contingent liabilities using significant unobservable inputs (Level 3) for the years ended December 31, 2018 and December 31, 2019 are as follows:

	Amount
Contractual contingent liabilities as of January 1, 2018	\$ —
Acquisition date fair value of contingent consideration — Continuum acquisition (Note 2)	2,400
Acquisition date fair value of contingent consideration — Think acquisition (Note 2)	5,990
Changes in fair value of contingent consideration included in Interest and other income, net	(900)
Effect of net foreign currency exchange rate changes	(22)
Contractual contingent liabilities as of December 31, 2018	\$ 7,468
Payment of contingent consideration	(1,104)
Acquisition date fair value of contractual contingent consideration — Other 2019 acquisitions (Note 2)	2,100
Changes in fair value of contingent consideration included in Interest and other income, net	1,776
Effect of net foreign currency exchange rate changes	255
Contingent consideration liabilities as of December 31, 2019	\$ 10,495

The Company had no activity related to contractual contingent liabilities during the year ended December 31, 2017.

Estimates of fair value of financial instruments not carried at fair value on a recurring basis on the Company's consolidated balance sheets are generally subjective in nature, and are determined as of a specific point in time based on the characteristics of the financial instruments and relevant market information. The Company uses the following methods to estimate the fair values of its financial instruments:

- for financial instruments that have quoted market prices, those quoted prices are used to estimate fair value;
- for financial instruments for which no quoted market prices are available, fair value is estimated using information obtained from independent third parties, or by discounting the expected cash flows using an estimated current market interest rate for the financial instrument;
- for financial instruments for which no quoted market prices are available and that have no defined maturity, have a remaining maturity of 360 days or less, or reprice frequently to a market rate, the Company assumes that the fair value of these instruments approximates their reported value, after taking into consideration any applicable credit risk.

The generally short duration of certain of the Company's assets and liabilities results in a significant number of assets and liabilities for which fair value equals or closely approximates the amount recorded on the Company's consolidated balance sheets. The Company's financial assets and liabilities that are not carried at fair value on a recurring basis on the Company's consolidated balance sheets are as follows:

- cash equivalents;
- restricted cash;
- employee loans;
- long-term debt (Note 8 "Long-Term Debt")

The following tables present the reported amounts and estimated fair values of the financial assets and liabilities for which disclosure of fair value is required, as they would be categorized within the fair value hierarchy, as of the dates indicated:

	Balance	Estimated Fair Value	Fair Value Hierarchy		
			Level 1	Level 2	Level 3
December 31, 2019					
Financial Assets:					
Cash equivalents:					
Money market funds	\$ 407,817	\$ 407,817	\$ 407,817	\$ —	\$ —
Time deposits	10,002	10,002	—	10,002	—
Total cash equivalents	\$ 417,819	\$ 417,819	\$ 407,817	\$ 10,002	\$ —
Restricted cash	\$ 1,136	\$ 1,136	\$ 1,136	\$ —	\$ —
Employee loans	\$ 2,434	\$ 2,434	\$ —	\$ —	\$ 2,434
Financial Liabilities:					
Borrowings under 2017 Credit Facility	\$ 25,017	\$ 25,017	\$ —	\$ 25,017	\$ —
December 31, 2018					
Financial Assets:					
Cash equivalents:					
Money market funds	\$ 282,664	\$ 282,664	\$ 282,664	\$ —	\$ —
Total cash equivalents	\$ 282,664	\$ 282,664	\$ 282,664	\$ —	\$ —
Restricted cash	\$ 1,151	\$ 1,151	\$ 1,151	\$ —	\$ —
Employee loans	\$ 3,525	\$ 3,525	\$ —	\$ —	\$ 3,525
Financial Liabilities:					
Borrowings under 2017 Credit Facility	\$ 25,020	\$ 25,020	\$ —	\$ 25,020	\$ —

12. STOCK-BASED COMPENSATION

The following costs related to the Company's stock compensation plans were included in the consolidated statements of income and comprehensive income:

	For the Years Ended December 31,		
	2019	2018	2017
Cost of revenues (exclusive of depreciation and amortization)	\$ 37,580	\$ 27,245	\$ 20,868
Selling, general and administrative expenses	34,456	31,943	31,539
Total	\$ 72,036	\$ 59,188	\$ 52,407

Equity Plans

2015 Long-Term Incentive Plan — On June 11, 2015, the Company's stockholders approved the 2015 Long-Term Incentive Plan ("2015 Plan") to be used to issue equity awards to company personnel. As of December 31, 2019, 4,969,754 shares of common stock remained available for issuance under the 2015 Plan. All of the awards issued pursuant to the 2015 Plan expire 10 years from the date of grant.

2012 Non-Employee Directors Compensation Plan — On January 11, 2012, the Company approved the 2012 Non-Employee Directors Compensation Plan ("2012 Directors Plan") to be used to issue equity grants to its non-employee directors. The Company authorized 600,000 shares of common stock to be reserved for issuance under the plan. As of December 31, 2019, 528,441 shares of common stock remained available for issuance under the 2012 Directors Plan. The 2012 Directors Plan will expire after 10 years and is administered by the Company's Board of Directors.

2012 Long-Term Incentive Plan — On January 11, 2012, the Company approved the 2012 Long-Term Incentive Plan (“2012 Plan”) to be used to issue equity grants to Company personnel. In June 2015, the 2012 Plan was discontinued; however, outstanding awards remain subject to the terms of the 2012 Plan and any shares that are subject to an award that was previously granted under the 2012 Plan and that expire or terminate for any reason prior to exercise will become available for issuance under the 2015 Plan. All of the awards issued pursuant to the 2012 Plan expire 10 years from the date of grant.

2006 Stock Option Plan — Effective May 31, 2006, the Board of Directors of the Company adopted the 2006 Stock Option Plan (the “2006 Plan”) to grant stock options to directors, employees, and certain independent contractors. In January 2012, the 2006 Plan was discontinued; however, outstanding awards remain subject to the terms of the 2006 Plan and any shares that are subject to an option award that was previously granted under the 2006 Plan and that expire or terminate for any reason prior to exercise will become available for issuance under the 2015 Plan. All of the awards issued pursuant to the 2006 Plan expire 10 years from the date of grant.

Stock Options

Stock option activity under the Company’s plans is set forth below:

	Number of Options	Weighted Average Exercise Price	Aggregate Intrinsic Value	Weighted Average Remaining Contractual Term (in years)
Options outstanding as of January 1, 2017	6,637,239	\$ 37.20	\$ 179,936	
Options granted	261,373	\$ 73.40		
Options exercised	(1,789,434)	\$ 30.23		
Options forfeited/cancelled	(200,210)	\$ 57.09		
Options expired	(7,220)	\$ 4.63		
Options outstanding as of December 31, 2017	4,901,748	\$ 40.91	\$ 326,064	
Options granted	160,181	\$ 112.81		
Options exercised	(945,166)	\$ 36.69		
Options forfeited/cancelled	(32,569)	\$ 63.28		
Options expired	(1,250)	\$ 25.72		
Options outstanding as of December 31, 2018	4,082,944	\$ 44.54	\$ 291,846	
Options granted	131,849	\$ 169.13		
Options modified	17,871	\$ 163.55		
Options exercised	(899,033)	\$ 41.21		
Options forfeited/cancelled	(10,701)	\$ 97.83		
Options outstanding as of December 31, 2019	3,322,930	\$ 50.85	\$ 536,015	4.8
Options vested and exercisable as of December 31, 2019	2,908,237	\$ 41.53	\$ 496,226	4.3
Options expected to vest as of December 31, 2019	392,241	\$ 115.26	\$ 38,010	8.1

The fair value of each option award is estimated on the date of grant using the Black-Scholes option valuation model. The model incorporated the following weighted-average assumptions:

	For the Years Ended December 31,		
	2019	2018	2017
Expected volatility	33.5%	33.8%	30.5%
Expected term (in years)	6.25	6.25	6.25
Risk-free interest rate	2.3%	2.7%	2.1%
Expected dividends	—%	—%	—%

Effective January 1, 2018, the Company changed its methodology for estimating volatility used in the Black-Scholes option valuation model. Prior to January 1, 2018, the Company estimated the volatility of its common stock by using the historical volatility of peer public companies including the Company's historical volatility. In the first quarter of 2018, the Company began exclusively using its own historical volatility as it believes this is a more accurate estimate of future volatility of the price of the Company's common stock. The Company did not change the methodology for estimating any other Black-Scholes option valuation model assumptions.

The risk-free rate is based on the U.S. Treasury yield curve for periods equal to the expected term of the options in effect at the time of grant. The Company has not declared or paid any dividends on its common stock. The Company intends to retain any earnings to fund operations and future growth of its business and, therefore, does not anticipate paying any cash dividends in the foreseeable future.

The weighted-average grant-date fair value of stock options granted during the years ended December 31, 2019, 2018 and 2017 was \$63.12, \$43.42 and \$25.29, respectively. The total intrinsic value of options exercised during the years ended December 31, 2019, 2018 and 2017 was \$121,063, \$83,250 and \$91,148, respectively.

The Company recognizes the fair value of each option as compensation expense on a straight-line basis over the requisite service period, which is generally the vesting period. The options are typically scheduled to vest over four years from the time of grant, subject to the terms of the applicable plan and stock option agreement. In general, in the event of a participant's termination of service for any reason, unvested options are forfeited as of the date of such termination without any payment to the participant. The Company records share-based compensation expense only for those awards that are expected to vest and as such, the Company applies an estimated forfeiture rate at the time of grant and adjusts the forfeiture rate to reflect actual forfeitures quarterly.

As of December 31, 2019, \$12,262 of total remaining unrecognized compensation cost related to unvested stock options, net of estimated forfeitures, is expected to be recognized over a weighted-average period of 2.6 years.

Restricted Stock and Restricted Stock Units

The Company grants restricted stock units ("RSUs") to Company personnel and non-employee directors under the Company's 2015 Plan (and prior to its approval, under the 2012 Plan) and 2012 Directors Plan, respectively. Prior to 2017, awards to non-employee directors were in the form of restricted stock. In addition, the Company has issued in the past, and may issue in the future, its equity securities to compensate employees of acquired businesses for future services. Equity-based awards granted in connection with acquisitions of businesses are generally issued in the form of service-based awards (dependent on continuing employment only) and performance-based awards, which are granted and vest only if certain specified performance and service conditions are met. The awards issued in connection with acquisitions of businesses are subject to the terms and conditions contained in the applicable award agreements and acquisition documents.

Service-Based Awards

The table below summarizes activity related to the Company's equity-classified and liability-classified service-based awards for the years ended December 31, 2019, 2018 and 2017:

	Equity-Classified Equity-Settled Restricted Stock		Equity-Classified Equity-Settled Restricted Stock Units		Liability-Classified Cash-Settled Restricted Stock Units	
	Number of Shares	Weighted Average Grant Date Fair Value Per Share	Number of Shares	Weighted Average Grant Date Fair Value Per Share	Number of Shares	Weighted Average Grant Date Fair Value Per Share
Unvested service-based awards outstanding as of January 1, 2017	154,125	\$ 40.89	485,188	\$ 67.69	204,501	\$ 70.53
Awards granted	—	\$ —	424,623	\$ 73.89	170,295	\$ 74.21
Awards modified	—	\$ —	(2,570)	\$ 26.85	2,570	\$ 73.27
Awards vested	(152,285)	\$ 43.39	(140,043)	\$ 66.54	(52,004)	\$ 70.56
Awards forfeited/cancelled	—	\$ —	(79,186)	\$ 70.30	(10,533)	\$ 71.72
Unvested service-based awards outstanding as of December 31, 2017	1,840	\$ 54.37	688,012	\$ 71.60	314,829	\$ 72.50
Awards granted	—	\$ —	380,864	\$ 115.84	85,380	\$ 112.65
Awards modified	—	\$ —	(3,110)	\$ 80.27	3,110	\$ 120.18
Awards vested	(1,047)	\$ 47.76	(217,800)	\$ 70.10	(91,684)	\$ 72.69
Awards forfeited/cancelled	—	\$ —	(50,063)	\$ 86.97	(8,668)	\$ 81.40
Unvested service-based awards outstanding as of December 31, 2018	793	\$ 63.10	797,903	\$ 92.13	302,967	\$ 83.99
Awards granted	9,394	\$ 167.18	284,269	\$ 170.29	55,923	\$ 170.13
Awards modified	—	\$ —	6,897	\$ 170.74	668	\$ 168.36
Awards vested	(396)	\$ 63.10	(286,654)	\$ 87.79	(110,643)	\$ 80.51
Awards forfeited/cancelled	—	\$ —	(43,630)	\$ 114.45	(6,627)	\$ 94.77
Unvested service-based awards outstanding as of December 31, 2019	9,791	\$ 162.96	758,785	\$ 122.48	242,288	\$ 105.40

The fair value of vested service-based awards (measured at the vesting date) for the years ended December 31, 2019, 2018 and 2017 was as follows:

	For the Years Ended December 31,		
	2019	2018	2017
Equity-classified equity-settled			
Restricted stock	\$ 73	\$ 142	\$ 12,607
Restricted stock units	48,111	24,987	10,620
Liability-classified cash-settled			
Restricted stock units	18,449	10,349	3,811
Total fair value of vested service-based awards	\$ 66,633	\$ 35,478	\$ 27,038

As of December 31, 2019, \$1,413 of total remaining unrecognized stock-based compensation costs related to service-based equity-classified restricted stock is expected to be recognized over the weighted-average remaining requisite service period of 2.7 years. During the year ended December 31, 2019, the Company issued 9,394 shares of service-based restricted stock in connection with an acquisition of a business. See Note 2 "Acquisitions" for additional information regarding business acquisitions.

As of December 31, 2019, \$63,588 of total remaining unrecognized stock-based compensation costs related to service-based equity-classified RSUs, net of estimated forfeitures, is expected to be recognized over the weighted-average remaining requisite service period of 2.5 years. During the years ended December 31, 2019 and 2018, in connection with business acquisitions, the Company issued 21,933 and 88,578 equity-classified RSUs. See Note 2 “Acquisitions” for additional information regarding business acquisitions.

As of December 31, 2019, \$27,538 of total remaining unrecognized stock-based compensation costs related to service-based liability-classified RSUs, net of estimated forfeitures, is expected to be recognized over the weighted-average remaining requisite service period of 2.1 years. During the year ended December 31, 2019, the Company issued 7,280 shares of service-based liability-classified cash-settled RSUs in connection with a business acquisition. See Note 2 “Acquisitions” for additional information regarding business acquisitions.

The liability associated with the Company’s service-based liability-classified RSUs as of December 31, 2019 and 2018 was \$21,902 and \$9,920, respectively, and is classified as Accrued compensation and benefits expenses in the consolidated balance sheets.

Performance -Based Awards

The table below summarizes activity related to the Company’s performance-based awards for the years ended December 31, 2019, 2018 and 2017:

	Equity-Classified Equity-Settled Restricted Stock		Liability-Classified Equity-Settled Restricted Stock		Equity-Classified Equity-Settled Restricted Stock Units	
	Number of Shares	Weighted Average Grant Date Fair Value Per Share	Number of Shares	Weighted Average Grant Date Fair Value Per Share	Number of Shares	Weighted Average Grant Date Fair Value Per Share
Unvested performance-based awards outstanding as of January 1, 2017	5,573	\$ 33.47	105,602	\$ 38.86	4,667	\$ 70.22
Awards granted	—	\$ —	—	\$ —	—	\$ —
Awards vested	(5,573)	\$ 33.47	(105,602)	\$ 38.86	—	\$ —
Awards forfeited/cancelled	—	\$ —	—	\$ —	(4,667)	\$ 70.22
Unvested performance-based awards outstanding as of December 31, 2017	—	\$ —	—	\$ —	—	\$ —
Awards granted	—	\$ —	—	\$ —	45,375	\$ 121.75
Awards vested	—	\$ —	—	\$ —	(8,769)	\$ 121.75
Awards forfeited/cancelled	—	\$ —	—	\$ —	(7,014)	\$ 121.75
Unvested performance-based awards outstanding as of December 31, 2018	—	\$ —	—	\$ —	29,592	\$ 121.75
Awards granted	9,393	\$ 165.87	—	\$ —	—	\$ —
Awards modified	—	\$ —	—	\$ —	(29,592)	\$ 121.75
Unvested performance-based awards outstanding as of December 31, 2019	9,393	\$ 165.87	—	\$ —	—	\$ —

During the year ended December 31, 2019, the Company issued 9,393 shares of performance-based equity-classified restricted stock, in connection with an acquisition of a business. Vesting of these awards are subject to attainment of specified performance targets in the 12 months after the acquisition date. See Note 2 “Acquisitions” for additional information regarding business acquisitions. As of December 31, 2019, \$1,002 of total remaining unrecognized stock-based compensation cost related to performance-based equity-classified restricted stock is expected to be recognized over the weighted-average remaining requisite service period of 3.7 years.

Performance-based equity-classified RSUs were granted during the year ended December 31, 2018 in connection with the acquisition of Continuum and have a variable vesting period, subject to satisfaction of the applicable performance conditions with each vesting portion having its own service inception date. Compensation is recognized over the vesting period and adjusted each period for the probability of achievement of the performance criteria for each vesting portion separately. During the fourth quarter of 2018, the Company accelerated the recognition of \$835 of expense due to vesting of performance-based equity-classified RSUs in accordance with the terms of the award agreement. During the year ended December 31, 2019, the Company and holders of the unvested performance-based equity-classified RSUs mutually agreed to cancel these awards and the Company issued service-based stock option and equity-classified RSU awards with four-year vesting terms to those same recipients. As of December 31, 2019, there is no remaining unrecognized stock-based compensation cost related to performance-based equity-classified RSUs.

As part of an acquisition completed during the year ended December 31, 2019, the Company recognized \$348 stock-based compensation expense related to stock awards that had not yet been formally issued as of December 31, 2019. These awards were considered to be granted for accounting purposes as all key terms were communicated to the employees. On January 3, 2020, the Company formally issued 5,793 service-based RSUs and 24,836 performance-based equity-classified RSUs to these employees.

The fair value of vested performance-based awards (measured at the vesting date) for the years ended December 31, 2019, 2018 and 2017 was as follows:

	For the Years Ended December 31,		
	2019	2018	2017
Equity-classified equity-settled			
Restricted stock	\$ —	\$ —	\$ 452
Restricted stock units	—	1,046	—
Liability-classified equity-settled			
Restricted stock	—	—	8,633
Total fair value of vested performance-based awards	\$ —	\$ 1,046	\$ 9,085

13. EARNINGS PER SHARE

Basic earnings per share is computed by dividing net income available to common shareholders by the weighted-average number of shares of common stock outstanding during the period. For purposes of computing basic earnings per share, any nonvested shares of restricted stock that have been issued by the Company and are contingently returnable to the Company are excluded from the weighted-average number of shares of common stock outstanding during the period. Diluted earnings per share is computed by dividing net income available to common shareholders by the weighted-average number of shares of common stock outstanding during the period increased to include the number of additional shares of common stock that would have been outstanding if the potentially dilutive securities had been issued. Potentially dilutive securities include outstanding stock options, unvested restricted stock and unvested equity-settled RSUs. The dilutive effect of potentially dilutive securities is reflected in diluted earnings per share by application of the treasury stock method.

The following table sets forth the computation of basic and diluted earnings per share of common stock as follows:

	For the Years Ended December 31,		
	2019	2018	2017
Numerator for basic and diluted earnings per share:			
Net income	\$ 261,057	\$ 240,256	\$ 72,760
Numerator for basic and diluted earnings per share	\$ 261,057	\$ 240,256	\$ 72,760
Denominator:			
Weighted average common shares for basic earnings per share	54,719,414	53,622,989	52,077,011
Net effect of dilutive stock options, restricted stock units and restricted stock awards	2,948,375	3,049,687	2,907,162
Weighted average common shares for diluted earnings per share	57,667,789	56,672,676	54,984,173
Net Income per share:			
Basic	\$ 4.77	\$ 4.48	\$ 1.40
Diluted	\$ 4.53	\$ 4.24	\$ 1.32

The number of shares underlying equity-based awards that were excluded from the calculation of diluted earnings per share as their effect would be anti-dilutive was 120,021, 138,639 and 883,350 for the years ended December 31, 2019, 2018 and 2017, respectively.

14. COMMITMENTS AND CONTINGENCIES

Indemnification Obligations — In the normal course of business, the Company is a party to a variety of agreements under which it may be obligated to indemnify the other party for certain matters. These obligations typically arise in contracts with customers where the Company customarily agrees to hold the other party harmless against losses arising from a breach of representations or covenants for certain matters, infringement of third party intellectual property rights, data privacy violations, and certain tortious conduct in the course of providing services. The duration of these indemnifications varies, and in certain cases, is indefinite.

The Company is unable to reasonably estimate the maximum potential amount of future payments under these or similar agreements due to the unique facts and circumstances of each agreement and the fact that certain indemnifications provide for no limitation to the maximum potential future payments under the indemnification. Management is not aware of any such matters that would have a material effect on the consolidated financial statements of the Company.

Litigation — From time to time, the Company is involved in litigation, claims or other contingencies arising in the ordinary course of business. The Company accrues a liability when a loss is considered probable and the amount can be reasonably estimated. When a material loss contingency is reasonably possible but not probable, the Company does not record a liability, but instead discloses the nature and the amount of the claim, and an estimate of the loss or range of loss, if such an estimate can be made. Legal fees are expensed as incurred. In the opinion of management, the outcome of any existing claims and legal or regulatory proceedings, if decided adversely, is not expected to have a material effect on the Company’s business, financial condition, results of operations or cash flows.

Building Acquisition Commitment —During the year ended December 31, 2019, the Company entered into agreements to purchase office space in Ukraine intended to support the global delivery centers in that country. The agreement is subject to completion of construction and other ordinary closing conditions and requires the Company to pay approximately \$48,900 in cash including VAT to the sellers, \$12,000 of which has been paid as of December 31, 2019 and is classified as Other noncurrent assets in the consolidated balance sheets.

15. SEGMENT INFORMATION

The Company determines its business segments and reports segment information in accordance with how the Company’s chief operating decision maker (“CODM”) organizes the segments to evaluate performance, allocate resources and make business decisions. Segment results are based on the segment’s revenues and operating profit, where segment operating profit is defined as income from operations before unallocated costs. Expenses included in segment operating profit consist principally of direct selling and delivery costs as well as an allocation of certain shared services expenses. Certain corporate expenses are not allocated to specific segments as these expenses are not controllable at the segment level. Such expenses include certain types of professional fees, non-corporate taxes, compensation to non-employee directors and certain other general and administrative expenses, including compensation of specific groups of non-production employees. In addition, the Company does not allocate stock-based compensation expenses, amortization of purchased intangible assets, other acquisition-related expenses and other unallocated costs. These unallocated amounts are combined with total segment operating profit to arrive at consolidated income from operations as reported below in the reconciliation of segment operating profit to consolidated income before provision for income taxes. Additionally, management has determined that it is not practical to allocate identifiable assets by segment since such assets are used interchangeably among the segments.

The Company manages its business primarily based on the managerial responsibility for its client base and market. As managerial responsibility for a particular customer relationship generally correlates with the customer’s geographic location, there is a high degree of similarity between customer locations and the geographic boundaries of the Company’s reportable segments. In some cases, managerial responsibility for a particular customer is assigned to a management team in another region and is usually based on the strength of the relationship between customer executives and particular members of EPAM’s senior management team. In such cases, the customer’s activity would be reported through the management team’s reportable segment.

During the fourth quarter of 2019, the Company changed its management reporting of segment revenue to exclude other income. Prior year amounts presented below have been changed to conform to the new presentation.

Revenues from external customers and operating profit, before unallocated expenses, by reportable segments were as follows:

	For the years ended December 31,		
	2019	2018	2017
Segment revenues:			
North America	\$ 1,380,944	\$ 1,076,979	\$ 796,040
Europe	820,717	692,785	591,450
Russia	92,137	73,148	62,958
Total revenues	\$ 2,293,798	\$ 1,842,912	\$ 1,450,448
Segment operating profit:			
North America	\$ 293,757	\$ 221,846	\$ 169,340
Europe	114,863	115,876	92,080
Russia	17,347	11,377	13,906
Total segment operating profit	\$ 425,967	\$ 349,099	\$ 275,326

Intersegment transactions were excluded from the above on the basis that they are neither included in the measure of a segment’s profit and loss results, nor considered by the CODM during the review of segment results.

There were no customers individually exceeding 10% of our total segment revenues for the years ended December 31, 2019, 2018 and 2017.

Reconciliation of segment operating profit to consolidated income before provision for income taxes is presented below:

	For the Years Ended December 31,		
	2019	2018	2017
Total segment operating profit:	\$ 425,967	\$ 349,099	\$ 275,326
Unallocated costs:			
Stock-based compensation expense	(72,036)	(59,188)	(52,407)
Amortization of purchased intangibles	(9,914)	(8,101)	(7,562)
Other acquisition-related expenses	(3,774)	(916)	(1,500)
Other unallocated costs	(37,393)	(35,130)	(40,911)
Income from operations	302,850	245,764	172,946
Interest and other income, net	8,725	3,522	4,601
Foreign exchange (loss)/gain	(12,049)	487	(3,242)
Income before provision for income taxes	\$ 299,526	\$ 249,773	\$ 174,305

During the year ended December 31, 2018, the Company began to allocate certain staff recruitment and development expenses into segment operating profit as these expenses became part of the evaluation of segment management’s performance. These costs were not previously allocated to segments and were included in other unallocated costs in the reconciliation of segment operating profit to consolidated income before provision for income taxes above. The effect of this reclassification was not material to segment operating profit and had no impact on total income from operations for the year end December 31, 2018.

Geographic Area Information

Long-lived assets include property and equipment, net of accumulated depreciation and amortization, and management has determined that it is not practical to allocate these assets by segment since such assets are used interchangeably among the segments. Physical locations and values of the Company’s long-lived assets are presented below:

	As of December 31, 2019	As of December 31, 2018	As of December 31, 2017
Belarus	\$ 75,984	\$ 50,085	\$ 49,866
Ukraine	24,652	8,433	6,995
Russia	17,980	9,902	9,617
United States	15,637	13,101	3,371
India	7,443	7,019	2,698
Hungary	5,201	3,168	3,901
Poland	5,029	2,637	2,893
China	3,036	2,651	2,608
Other	10,297	5,650	4,470
Total	\$ 165,259	\$ 102,646	\$ 86,419

The table below presents the Company's revenues by customer location for the years ended December 31, 2019, 2018 and 2017:

	For the Years Ended December 31,		
	2019	2018	2017
United States	\$ 1,321,662	\$ 1,029,327	\$ 783,563
United Kingdom	290,039	200,918	188,995
Switzerland	152,710	144,398	123,281
Russia	89,941	71,181	61,222
Netherlands	88,488	70,274	51,556
Germany	82,441	80,787	60,158
Canada	68,304	69,836	57,129
Other locations	200,213	176,191	124,544
Revenues	\$ 2,293,798	\$ 1,842,912	\$ 1,450,448

16. QUARTERLY FINANCIAL DATA (UNAUDITED)

Summarized quarterly results for the years ended December 31, 2019 and 2018 were as follows:

2019	Three Months Ended					Full Year
	March 31	June 30	September 30	December 31		
Revenues	\$ 521,333	\$ 551,587	\$ 588,103	\$ 632,775	\$ 2,293,798	
Operating expenses:						
Cost of revenues (exclusive of depreciation and amortization)	344,689	355,915	377,525	410,069	1,488,198	
Selling, general and administrative expenses	101,786	111,762	118,886	124,999	457,433	
Depreciation and amortization expense	10,200	11,028	11,127	12,962	45,317	
Income from operations	64,658	72,882	80,565	84,745	302,850	
Interest and other income, net	3,076	1,190	2,509	1,950	8,725	
Foreign exchange loss	(3,484)	(3,562)	(3,105)	(1,898)	(12,049)	
Income before provision for income taxes	64,250	70,510	79,969	84,797	299,526	
Provision for income taxes	3,496	11,733	12,967	10,273	38,469	
Net income	\$ 60,754	\$ 58,777	\$ 67,002	\$ 74,524	\$ 261,057	
Comprehensive income	\$ 66,797	\$ 62,934	\$ 54,725	\$ 86,741	\$ 271,197	
Basic net income per share ⁽¹⁾	\$ 1.12	\$ 1.07	\$ 1.22	\$ 1.35	\$ 4.77	
Diluted net income per share ⁽¹⁾	\$ 1.06	\$ 1.02	\$ 1.16	\$ 1.29	\$ 4.53	

(1) Earnings per share amounts for each quarter may not necessarily total to the yearly earnings per share due to the weighting of shares outstanding on a quarterly and year to date basis.

2018	Three Months Ended					Full Year
	March 31	June 30	September 30	December 31		
Revenues	\$ 424,148	\$ 445,647	\$ 468,186	\$ 504,931	\$ 1,842,912	
Operating expenses:						
Cost of revenues (exclusive of depreciation and amortization)	277,634	289,175	301,081	319,031	1,186,921	
Selling, general and administrative expenses	89,641	93,273	93,226	97,447	373,587	
Depreciation and amortization expense	8,176	8,962	9,319	10,183	36,640	
Income from operations	48,697	54,237	64,560	78,270	245,764	
Interest and other income/(expense), net	(551)	1,052	1,941	1,080	3,522	
Foreign exchange gain/(loss)	(247)	1,830	(514)	(582)	487	
Income before provision for/(benefit from) income taxes	47,899	57,119	65,987	78,768	249,773	
Provision for/(benefit from) income taxes	(16,519)	6,864	369	18,803	9,517	
Net income	\$ 64,418	\$ 50,255	\$ 65,618	\$ 59,965	\$ 240,256	
Comprehensive income	\$ 67,796	\$ 32,345	\$ 63,426	\$ 52,798	\$ 216,365	
Basic net income per share ⁽¹⁾	\$ 1.21	\$ 0.94	\$ 1.22	\$ 1.11	\$ 4.48	
Diluted net income per share ⁽¹⁾	\$ 1.15	\$ 0.89	\$ 1.15	\$ 1.05	\$ 4.24	

(1) Earnings per share amounts for each quarter may not necessarily total to the yearly earnings per share due to the weighting of shares outstanding on a quarterly and year to date basis.

17. SUBSEQUENT EVENTS

On February 3, 2020, the Company acquired 100% of Deltix and its affiliates, a provider of software and services for quantitative research to the financial sector. The Company paid approximately \$10,620 in cash at closing and could pay up to \$18,975 in earn-out consideration based on achievement of certain revenue and earnings targets. In addition, the Company granted to Deltix employees 17,981 service-based RSUs and performance and service-based equity-settled awards that could pay up to \$13,915 based on achievement of certain revenue and earnings targets.

SCHEDULE II
VALUATION AND QUALIFYING ACCOUNTS
FOR THE YEARS ENDED DECEMBER 31, 2019, 2018 AND 2017
(In thousands)

	Balance at Beginning of Year	Additions	Deductions/ Write offs	Balance at End of Year
Year Ended December 31, 2019				
Allowance for doubtful accounts for trade receivables and contract assets	\$ 1,557	2,072	(419)	\$ 3,210
Valuation allowance on deferred tax assets	\$ 3,189	688	—	\$ 3,877
Year Ended December 31, 2018				
Allowance for doubtful accounts for trade receivables and contract assets	\$ 1,186	2,722	(2,351)	\$ 1,557
Valuation allowance on deferred tax assets	\$ 924	2,265	—	\$ 3,189
Year Ended December 31, 2017				
Allowance for doubtful accounts for trade receivables and contract assets	\$ 2,014	998	(1,826)	\$ 1,186
Valuation allowance on deferred tax assets	\$ —	924	—	\$ 924

Description of the Registrant's Securities Registered Under Section 12 of the Securities Exchange Act of 1934

The following description is a summary of the material terms of the EPAM Systems, Inc. (referred to as "we," "us," and "our") Third Amended and Restated Certificate of Incorporation ("Certificate"), Amended and Restated Bylaws ("Bylaws"), and applicable provisions of law. The summary is not complete and is subject to, and is qualified in its entirety by, express reference to the provisions of our Certificate and Bylaws, each of which is filed as an exhibit to, or incorporated by reference in, the Annual Report on Form 10-K of which this Exhibit 4.4 is a part. Unless a different date is referenced elsewhere herein, this summary is effective as of the end of the period covered by the Annual Report on Form 10-K with which this exhibit is filed or incorporated by reference.

General

Our authorized capital stock consists of 160,000,000 shares of common stock, par value \$.001 per share, and 40,000,000 shares of preferred stock, par value \$.001 per share. Our common stock is registered under Section 12 of the Securities Exchange Act of 1934.

Common Stock

The number of shares of common stock outstanding, the date that such number of shares were outstanding, and the stock exchange where our common stock is traded are set forth on the cover page of the Annual Report on Form 10-K of which this Exhibit 4.4 is a part. The number of stockholders of record is set forth in "Part II., Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities" of the Annual Report on Form 10-K of which this Exhibit 4.4 is a part.

The holders of common stock are entitled to one vote per share on all matters which stockholders generally are entitled to vote, except on matters relating solely to terms of preferred stock. Subject to preferences that may be applicable to any outstanding preferred stock, the holders of common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by the board of directors out of funds legally available therefor.

In the event of our liquidation, dissolution or winding up, the holders of common stock are entitled to share ratably in all assets remaining after payment of liabilities, subject to prior distribution rights of preferred stock, if any, then outstanding.

The common stock has no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and non-assessable.

Transfer Agent and Registrar

The name and address of our transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC, 6201 15th Avenue, Brooklyn, NY 11219.

Preferred Stock

Our board of directors has the authority to issue preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof, including dividend rights, dividend rates, conversion rights, voting rights, terms of redemption, redemption prices, liquidation preferences and the number of shares constituting any series or the designation of such series, without further vote or action by the stockholders.

The issuance of preferred stock may have the effect of delaying, deferring or preventing a change in control without further action by the stockholders and may adversely affect the voting and other rights of the holders of common stock. As of the date of Annual Report on Form 10-K of which this Exhibit 4.4 is a part, no shares of preferred stock are outstanding.

Election and Removal of Directors

Our board of directors consists of not less than 3 directors, excluding any directors elected by holders of preferred stock pursuant to the resolution or resolutions adopted by the board pursuant to the issuance of preferred stock, if any. The exact number of directors will be fixed from time to time by resolution of the board. Our board of directors will be divided into three classes. The directors in each class will serve for a three-year term, one class being elected each year by our stockholders. This system of electing and removing directors may discourage a third party from making a tender offer or otherwise attempting to obtain control of us because it generally makes it more difficult for stockholders to replace a majority of our directors. Our Certificate and Bylaws do not provide for cumulative voting in the election of directors.

Limits on Written Consents

Any action required or permitted to be taken by the stockholders must be taken at a duly called annual or special meeting of stockholders and may not be taken by any consent in writing in lieu of a meeting of such stockholders.

Stockholder Meetings

Special meetings of the stockholders may be called at any time only by the board of directors acting pursuant to a resolution adopted by a majority of the whole board, subject to the rights of the holders of any series of preferred stock.

Amendments to Our Governing Documents

Generally, the amendment of our Certificate requires approval by our board of directors and a majority vote of stockholders. However, certain material amendments (including amendments with respect to provisions governing board composition, actions by written consent, and special meetings) require the approval of at least 66 ²/₃% of the votes entitled to be cast by the outstanding capital stock in the elections of our board of directors. Any amendment to our amended and restated bylaws requires the approval of either a majority of our board of directors or approval of at least 66 ²/₃% of the votes entitled to be cast by the holders of our outstanding capital stock in elections of our board of directors.

Requirements for Advance Notification of Stockholder Nominations and Proposals

Our Bylaws establish advance notice procedures with respect to stockholder proposals and nomination of candidates for election as directors.

Limitation of Liability of Directors and Officers

Our Certificate provides that no director will be personally liable to us or our stockholders for monetary damages for breach of fiduciary duty as a director, except as required by applicable Delaware law.

As a result, neither we nor our stockholders have the right, through stockholders' derivative suits on our behalf, to recover monetary damages against a director for breach of fiduciary duty as a director, including breaches resulting from grossly negligent behavior, except as permitted by applicable Delaware law.

Our Certificate provides that, to the fullest extent permitted by Delaware law, we will indemnify any officer or director of our company against all damages, claims and liabilities arising out of the fact that the person is or was our director or officer, or served any other enterprise at our request as a director or officer. Amending this provision will not reduce our indemnification obligations relating to actions taken before an amendment.

Anti-takeover Effects of Some Provisions

Some provisions of our Certificate and Bylaws could make the following more difficult:

- acquisition of control of us by means of a proxy contest or otherwise, or
- removal of our incumbent officers and directors.

These provisions, as well as our ability to issue preferred stock, are designed to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of increased protection give us the potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us, and that the benefits of this increased protection outweigh the disadvantages of discouraging those proposals, because negotiation of those proposals could result in an improvement of their terms.

Delaware Business Combination Statute

We are subject to Section 203 of the Delaware General Corporation Law ("DGCL"), which regulates corporate acquisitions. Section 203 generally prevents an "interested stockholder," which is defined generally as a person owning 15% or more of a corporation's voting stock, or any affiliate or associate of that person, from engaging in a broad range of "business combinations" with the corporation for three years after becoming an interested stockholder. Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. Unless another exception applies, an interested stockholder may engage in a business combination under the following conditions:

- the board of directors of the corporation had previously approved either the business combination or the transaction that resulted in the stockholder's becoming an interested stockholder;

- upon completion of the transaction that resulted in the stockholder's becoming an interested stockholder, that person owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, other than statutorily excluded shares of common stock; or
- following the transaction in which that person became an interested stockholder, the business combination is approved by the board of directors of the corporation and holders of at least two-thirds of the outstanding voting stock not owned by the interested stockholder.

Under Section 203, the restrictions described above also do not apply to specific business combinations proposed by an interested stockholder following the announcement or notification of designated extraordinary transactions involving the corporation and a person who had not been an interested stockholder during the previous three years or who became an interested stockholder with the approval of a majority of the corporation's directors, if such extraordinary transaction is approved or not opposed by a majority of the directors who were directors prior to any person becoming an interested stockholder during the previous three years or were recommended for election or elected to succeed such directors by a majority of such directors.

Section 203 may make it more difficult for a person who would be an interested stockholder to effect various business combinations with a corporation for a three-year period. Section 203 also may have the effect of preventing changes in our management and could make it more difficult to accomplish transactions, which our stockholders may otherwise deem to be in their best interests.

Forum Selection Clause

Under our Certificate, the Court of Chancery of the State of Delaware is exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting that any director, officer or other employee breached his or her fiduciary duty owed to us or our stockholders; any action asserting a claim arising pursuant to any provision of the DGCL; or any action asserting a claim governed by Delaware's internal affairs doctrine.

Unless and until the Board resolves otherwise or as otherwise agreed between the Company and the Board, each member of the Board of Directors (the "**Board**") of EPAM Systems, Inc. (the "**Company**") that is not an employee of the Company or any of its subsidiaries (each, a "**Non-Employee Director**") shall be entitled to receive the compensation set forth below during the term of his or her service on the Board. Capitalized terms used but not defined in this policy shall have the meanings set forth in the Company's 2012 Non-Employee Directors Compensation Plan (as amended from time to time, the "**Plan**") or in the Company's 2017 Non-Employee Directors Deferral Plan (the "**Deferral Plan**"), as the case may be.

Annual Cash Retainers

Frequency and Pro-Ration of Payments: Each of the retainer payments described below shall be payable in cash in arrears in equal quarterly installments on March 31, June 30, September 30 and December 31 (or, if any such date is not a business day, the business day immediately preceding such date) (each such payment date, a "**Quarterly Payment Date**") in respect of the calendar quarter that includes such Quarterly Payment Date, or, at the Non-Employee Director's election given by written notice to the Company no later than March 15 of any calendar year, in one cash payment in arrears on December 31 (or if such date is not a business day, the business day immediately preceding such date) (such payment date, an "**Annual Payment Date**") in respect of the calendar year that includes such Annual Payment Date. Any Non-Employee Director who becomes eligible for any of the following retainer payments on a date that is not the first day of a calendar quarter (or year) shall receive a pro-rated Retainer for his or her service in the applicable role on the Board for such quarter (or year) based on the number of days of such service during such quarter (or year).

Service as Non-Employee Director: Each Non-Employee Director shall receive an annual retainer (a "**Retainer**") in the amount of \$55,000 payable in cash in arrears.

Service as Lead Independent Director: The Non-Employee Director who serves as Lead Independent Director of the Board shall receive an additional annual retainer in the amount of \$25,000 payable in cash in arrears.

Service as a Committee Member: Each Non-Employee Director who serves as a member (but not as a Chairperson) of one or more of the Audit, Compensation or Nominating and Corporate Governance Committees (each, a "**Committee**") of the Board shall receive an additional annual retainer in the amount of \$10,000, \$7,500 and/or \$6,000 for his or her service on each such Committee, respectively, payable in cash in arrears.

Service as Chairperson of a Committee of the Board: Any Non-Employee Director who serves as a Chairperson of one or more of the Committees shall receive an additional annual retainer in the amount of \$20,000, \$15,000 and/or \$10,000 for his

or her service as the Chairperson of one or more of the Audit, Compensation or Nominating and Corporate Governance Committees, respectively, payable in cash in arrears.

Additional Non-Employee Director Compensation

Any Non-Employee Director who attends more than ten (10) meetings of the Board, or more than ten (10) meetings of the same Committee on which such Non-Employee Director serves, in any calendar year shall receive an additional cash payment of \$2,000 for each such additional meeting thereof that such Non-Employee Director attends in person and \$1,000 for each such additional meeting that such Non-Employee Director attends telephonically.

Election to Receive Stock

A Non-Employee Director may elect to receive all or a portion of his or her Retainer in shares of Common Stock by executing and submitting to the Company's Corporate Secretary (the "**Secretary**") an election form, pursuant to a form provided by the Company, which indicates the percentage of such Retainer that such director elects to receive in shares. A Non-Employee Director who wishes to revoke or amend a previously submitted election form may do so by executing and submitting to the Secretary a subsequent election form, pursuant to a form provided by the Company. An election form, whether initial or subsequent, shall be effective only with respect to Quarterly Payment Dates (or if applicable, the Annual Payment Date) that occur after the date on which the Secretary receives such form.

As of each Quarterly Payment Date (or if so elected, the Annual Payment Date), a Non-Employee Director who has validly elected to receive all or a portion of his or her Retainer in shares of Common Stock will receive a number of shares of Common Stock determined by dividing the amount of the Retainer that otherwise would have been payable to such director in cash on such date by the closing price of a share of Common Stock on the day prior to such Quarterly Payment Date (or if so elected, the Annual Payment Date); *provided* that any fractional share shall be paid in cash.

Equity Grants

Initial Restricted Stock Unit Grants to Directors: On the date that a Non-Employee Director commences service on the Board, such director shall receive under the Plan an initial grant (the "**Initial Grant**") of Restricted Stock Units. The number of Restricted Stock Units awarded in the Initial Grant shall be determined by dividing \$100,000 by the closing price of a share of Common Stock on the day prior to the grant date. Unless a Non-Employee Director elects otherwise pursuant to the Deferral Plan, the Initial Grant will vest 25% on each of the first four anniversaries of the grant date.

Annual Restricted Stock Unit Grants to Directors: On the date of the Company's annual public stockholder meeting, each Non-Employee Director who at such meeting is elected to serve on the Board or whose term is scheduled to continue at least through the date of the next such meeting shall receive under the Plan an annual grant (each, an "**Annual Grant**") of Restricted Stock Units. The number of Restricted Stock Units awarded in the Annual Grant shall be determined by dividing \$130,000 by the closing price of a share of Common Stock on the day prior to the grant date. Any Non-Employee Director who commences service on the Board on a date other than the date of the Company's annual public stockholder meeting shall receive on such start date a pro-rated Annual Grant, with the number of Restricted Stock Units awarded in such grant determined by dividing (i) the product of \$130,000 and a fraction, the numerator of which is 365 minus the number of days that have elapsed between the date of such meeting and such start date, and the denominator of which is 365, by (ii) the closing price of a share of Common Stock on the day prior to such start date. Unless a Non-Employee Director elects otherwise pursuant to the Deferral Plan, each Annual Grant will vest 100% on the first anniversary of the grant date.

SECOND AMENDMENT TO CREDIT AGREEMENT

THIS SECOND AMENDMENT TO CREDIT AGREEMENT (the "Amendment"), dated as of December 10, 2019, is made by and among EPAM SYSTEMS, INC. (the "Borrower"), the Guarantors party hereto, the Lenders party hereto, and PNC BANK, NATIONAL ASSOCIATION, as Administrative Agent (hereinafter referred to in such capacity as the "Agent").

WITNESSETH:

WHEREAS, the Borrower and Guarantors are parties to that certain \$300,000,000 Credit Agreement, dated as of May 24, 2017, by and among the Borrower, the Guarantors, the Lenders party thereto and the Agent (as amended, restated or otherwise modified in accordance with its terms, the "Credit Agreement");

WHEREAS, the Borrower has requested certain amendments and modifications to the terms of the Credit Agreement, as more fully set forth herein; and

WHEREAS, the Agent and Lenders party hereto are willing to so amend the Credit Agreement, on the terms and conditions hereinafter provided.

NOW, THEREFORE, the parties hereto, in consideration of their mutual covenants and agreements hereinafter set forth and intending to be legally bound hereby, covenant and agree as follows:

1. **Definitions.** Capitalized terms used herein unless otherwise defined herein shall have the meanings ascribed to them in the Credit Agreement as amended by this Amendment. **Amendments to Credit Agreement.** Section 1.1 [Certain Definitions] of the Credit Agreement is hereby amended by adding the following new definition thereto in the appropriate alphabetical order:

"LIBOR Termination Date has the meaning specified in Section 3.6 [Successor LIBOR Rate Index]."

2.2 The reference in clause (xiii) of Section 7.2.4 [Loans and Investments] of the Credit Agreement to "\$20,000,000 outstanding at any time" is hereby deleted and replaced with reference to "\$100,000,000 outstanding at any time (provided that the amount of any single investment pursuant to this clause (xiii) shall not exceed \$25,000,000 outstanding at any time)."

2.3 A new Section 3.6 is hereby added to the Credit Agreement to read as follows:

"3.6 Successor LIBOR Rate Index.

(i) If the Administrative Agent determines (which determination shall be final and conclusive, absent manifest error) that either (a) (i) the circumstances set forth in Section 3.4 [Rates Unascertainable, Etc.] have arisen and are unlikely to be temporary, or (ii) the circumstances set forth in Section 3.4 [Rates Unascertainable, Etc.] have not arisen but the applicable supervisor or administrator (if any) of the LIBOR Rate or an Official Body having jurisdiction over the Administrative Agent has made a public statement identifying the specific date after which the LIBOR Rate shall no longer be used for determining interest rates for loans (either such date, a "**LIBOR Termination Date**"), or (b) a rate other than the LIBOR Rate has become a widely recognized benchmark rate for newly originated loans in Dollars in the U.S. market, then the Administrative Agent may (in consultation with the Borrower) choose a replacement index for the LIBOR Rate and make adjustments to applicable margins and related amendments to this Agreement as referred to below such that, to the extent practicable, the all-in interest rate based on the replacement index will be substantially equivalent to the all-in LIBOR Rate-based interest rate in effect prior to its replacement.

(ii) The Administrative Agent and the Loan Parties shall enter into an amendment to this Agreement to reflect the replacement index, the adjusted margins and such other related amendments as may be appropriate, in the discretion of the Administrative Agent, for the implementation and administration of the replacement index-based rate. Notwithstanding anything to the contrary in this Agreement or the other Loan Documents (including, without limitation, Section 10.1 [Modifications, Amendments or Waivers]), such amendment shall become effective without any further action or consent of any other party to this Agreement at 5:00 p.m. on the tenth (10th) Business Day after the date a draft of the amendment is provided to the Lenders, unless the Administrative Agent receives, on or before such tenth (10th) Business Day, a written notice from the Required Lenders stating that such Lenders object to such amendment.

(iii) Selection of the replacement index, adjustments to the applicable margins, and amendments to this Agreement (a) will be determined with due consideration to the then-current market practices for determining and

implementing a rate of interest for newly originated loans in the United States and loans converted from a LIBOR Rate-based rate to a replacement index-based rate, and (b) may also reflect adjustments to account for (i) the effects of the transition from the LIBOR Rate to the replacement index and (ii) yield- or risk-based differences between the LIBOR Rate and the replacement index.

(iv) Until an amendment reflecting a new replacement index in accordance with this Section 3.6 is effective, each advance, conversion and renewal of a Loan under the LIBOR Rate Option will continue to bear interest with reference to the LIBOR Rate; provided however, that if the Administrative Agent determines (which determination shall be final and conclusive, absent manifest error) that a LIBOR Termination Date has occurred, then following the LIBOR Termination Date, all Loans as to which the LIBOR Rate Option would otherwise apply shall automatically be converted to the Base Rate Option until such time as an amendment reflecting a replacement index and related matters as described above is implemented.

(v) Notwithstanding anything to the contrary contained herein, if at any time the replacement index is less than zero, at such times, such index shall be deemed to be zero for purposes of this Agreement.”

3. Conditions of Effectiveness. The effectiveness of the amendments to the Credit Agreement set forth in Section 2 of this Amendment are expressly conditioned upon satisfaction of the following conditions precedent:

(a) Agent shall have received (i) a counterpart of this Amendment, executed and delivered by a duly authorized officer of each Loan Party and (ii) signature pages to this Amendment, executed and delivered by Lenders constituting the Required Lenders; and

(b) Both before and after giving effect to this Amendment, the representations and warranties of the Borrower and the other Loan Parties contained in Section 5 of the Credit Agreement and in each of the other Loan Documents shall be true and accurate in all material respects (except that those representations and warranties already referencing materiality shall be true and accurate) as of the date hereof with the same effect as though such representations and warranties had been made on and as of such date (except representations and warranties which relate solely to an earlier date or time, which representations and warranties shall be true and correct on and as of the specific dates or times referred to therein), and the Loan Parties shall have performed and complied with all covenants and conditions hereof, and no Event of Default or Potential Default under the Credit Agreement and the other Loan Documents shall have occurred and be continuing or shall exist.

4. Miscellaneous.

(a) Force and Effect; Reaffirmation. Any reference to the Credit Agreement in any Loan Document or any other document, instrument, or agreement shall hereafter mean and include the Credit Agreement as amended hereby, and this Amendment shall be considered a Loan Document. The Credit Agreement (as amended hereby) and each of the other Loan Documents are hereby ratified and confirmed and are in full force and effect, and the Borrower and Guarantors hereby reaffirm all of their obligations under the Credit Agreement (as amended hereby) and other Loan Documents to which they are party.

(b) Counterparts. This Amendment may be signed in any number of counterpart copies and by the parties to this Amendment on separate counterparts, but all such copies shall constitute one and the same instrument. Delivery of an executed counterpart of a signature page to this Amendment by facsimile transmission shall be effective as delivery of a manually executed counterpart. Upon written request by the other party (which may be made by electronic mail), any party so executing this Amendment by facsimile transmission shall promptly deliver a manually executed counterpart, provided that any failure to do so shall not affect the validity of the counterpart executed by facsimile transmission.

(c) Governing Law. This Amendment shall, pursuant to New York General Obligations Law Section 5-1401, for all purposes be governed by and construed and enforced in accordance with the laws of the State of New York.

(d) Counterparts. This Amendment may be signed in any number of counterparts each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

(e) Payment of Fees and Expenses. The Loan Parties unconditionally agree to pay and reimburse the Agent and save the Agent harmless against liability for the payment of all costs and expenses of the Agent including, without limitation, the reasonable fees and expenses of counsel incurred by the Agent in connection with the development, preparation, execution, administration, interpretation or performance of this Amendment, and all other documents or instruments to be delivered in connection herewith.

[Signatures begin on following page]

IN WITNESS WHEREOF, and intending to be legally bound hereby, the parties hereto have executed this Amendment as of the date first above written.

BORROWER:

EPAM SYSTEMS, INC.

By: _____

Name: _____

Title: _____

GUARANTORS:

VESTED DEVELOPMENT, INC.

By: _____
Name: _____
Title: _____

EPAM SYSTEMS, LLC

By: _____
Name: _____
Title: _____

NAVIGATION ARTS, LLC

By: _____
Name: _____
Title: _____

NAVIGATIONARTS, INC.

By: _____
Name: _____
Title: _____

ALLIANCE GLOBAL SERVICES, LLC

By: _____
Name: _____
Title: _____

ALLIANCE GLOBAL SERVICES, INC.

By: _____
Name: _____
Title: _____

ALLIANCE CONSULTING GLOBAL HOLDINGS, INC.

By: _____
Name: _____
Title: _____

PNC BANK, NATIONAL ASSOCIATION, as a Lender and as Administrative Agent

By: _____

Name: _____

Title: _____

CITIBANK, N.A., as a Lender

By: _____

Name: _____

Title: _____

WELLS FARGO BANK, NATIONAL ASSOCIATION, as a Lender

By: _____

Name: _____

Title: _____

FIFTH THIRD BANK, as a Lender

By: _____

Name: _____

Title: _____

SANTANDER BANK, N.A., as a Lender

By: _____

Name: _____

Title: _____

SUBSIDIARIES OF THE REGISTRANT

Entity	State or Country of Incorporation
Danika Limited	Cyprus
EPAM Information Corporate Systems FPUE	Belarus
EPAM Solutions Ltd.	Russia
EPAM Solutions LLC	Ukraine
EPAM Systems ApS	Denmark
EPAM Systems Canada, Ltd.	Canada
EPAM Systems (Cyprus) Limited	Cyprus
EPAM Systems GmbH	Germany
EPAM Systems (Switzerland) GmbH	Switzerland
EPAM Systems Kft	Hungary
EPAM Systems, LLC	New Jersey LLC USA
EPAM Systems Ltd.	U.K.
EPAM Systems Nordic AB	Sweden
EPAM Systems Ltd.	Russia
EPAM Systems LLC	Ukraine
EPAM Systems FLLC	Belarus
EPAM Systems (Poland) sp. z o.o.	Poland
EPAM Systems PTE Ltd.	Singapore
EPAM Systems SARL	Luxembourg
EPAM Systems SRL	Moldova
LLP EPAM Kazakhstan	Kazakhstan
Vested Development, Inc.	Delaware Corp. USA
EPAM Systems (Hong Kong) Limited	Hong Kong
EPAM Systems Netherlands B.V.	Netherlands
EPAM Systems Netherlands B.V.	ITALY - branch of Netherlands
EPAM Systems Belgium	Belgium - branch of Netherlands
EPAM Systems (Australia) Pty. Ltd.	Australia
EPAM Systems Bulgaria EOOD	Bulgaria
EPAM Sistemas, UAB	Lithuania
EPAM Systems (Czech Republic) s.r.o.	Czech Republic
EPAM Systems International SRL	Romania
EPAM Systems (Asia) Limited	Hong Kong
EPAM Systems (Shenzhen) Co. Ltd.	China
J8 Corp	British Virgin Islands
EPAM Systems LLC	Armenia
EPAM Systems (Ireland) Limited	Ireland
Great Fridays Limited	UK
Great Fridays Inc.	Delaware Corp. USA
EPAM Systems (Malaysia) S.D.N.B.H.D.	Malaysia
EPAM Systems Mexico SrL	Mexico
EPAM Systems Austria GmbH	Austria
Navigationarts, Inc.	Delaware Corp. USA
Navigation Arts, LLC	Delaware LLC USA
EPAM Systems Spain SL	Spain
Alliance Consulting Global Holdings, Inc.	Delaware Corp. USA

Alliance Global Services, Inc.	Delaware Corp. USA
Alliance Global Services, LLC	Delaware LLC USA
EPAM Systems India Private Limited	India
EPAM Systems (Suzhou) Co., Ltd.	China
Shanghai EPAM Systems Co., Ltd.	China
Guangzhou EPAM Systems Ltd.	China
EPAM Systems Philippines	Philippines
EPAM Systems FZ-LLC	UAE
EPAM Systems FZ-LLC	UAE - non-free zone branch office
EPAM Consulting BV	Netherlands
Continuum Innovation LLC	Delaware LLC USA
Continuum LLC	Massachusetts LLC USA
Continuum SrL	Italy
Design Continuum	China
EPAM Systems Japan G.K.	Japan
Think Limited	U.K.
test IO, Inc	Delaware Corp. USA
test IO GmbH	Germany
EPAM Systems FE LLC	Uzbekistan
Competentum-USA Ltd.	Delaware Corp. USA
Shareknowledge Inc.	Delaware Corp. USA
Codeweb, LLC	Russia
EPAM Systems France	France
Naya P.A.I.Technologies Ltd.	Israel
Naya P.A.I. Technologies Inc.	Delaware Corp. USA
EPAM Systems (Vietnam) Company Limited	Vietnam

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-179409 and 333 205421 on Form S-8 of our reports dated February 28, 2020, relating to the financial statements of EPAM Systems, Inc. and subsidiaries and the effectiveness of EPAM Systems, Inc. and subsidiaries' internal control over financial reporting appearing in this Annual Report on Form 10-K for the year ended December 31, 2019.

/s/ DELOITTE & TOUCHE LLP

Philadelphia, PA
February 28, 2020

CERTIFICATION

I, Arkadiy Dobkin, certify that:

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

Date: February 28, 2020

/s/ Arkadiy Dobkin

Arkadiy Dobkin

Chief Executive Officer and President (principal executive officer)

CERTIFICATION

I, Jason Peterson, certify that:

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

Date: February 28, 2020

/s/ Jason Peterson

Jason Peterson

Senior Vice President, Chief Financial
Officer and Treasurer
(principal financial officer)

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

In connection with the Annual Report on Form 10-K of EPAM Systems, Inc. for the year ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, in the capacities and on the date indicated below, hereby 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 EPAM Systems, Inc.

Date: February 28, 2020

/s/ Arkadiy Dobkin

Arkadiy Dobkin

Chairman, Chief Executive Officer
and President
(principal executive officer)

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

In connection with the Annual Report on Form 10-K of EPAM Systems, Inc. for the year ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, in the capacities and on the date indicated below, hereby 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 EPAM Systems, Inc.

Date: February 28, 2020

/s/ Jason Peterson

Jason Peterson

Senior Vice President, Chief
Financial Officer and Treasurer
(principal financial officer)