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As confidentially submitted to the Securities and Exchange Commission on January 10, 2020.
This draft registration statement has not been filed publicly with the Securities and Exchange Commission, and all information herein remains strictly confidential.

Registration No. 333-

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

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

BENTLEY SYSTEMS, INCORPORATED
(Exact name of registrant as specified in its charter)

Delaware	**7372**	**95-3936623**
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

685 Stockton Drive
Exton, PA 19341
(610) 458-5000
(Address, including zip code and telephone number, including area code, of registrant's principal executive offices)

David R. Shaman
Chief Legal Officer and Corporate Secretary
Bentley Systems, Incorporated
685 Stockton Drive
Exton, PA 19341
(610) 458-5000
(Name, address, including zip code and telephone number, including area code, of agent for service)

Copies to:

Arthur D. Robinson **Richard A. Fenyes** **Jonathan R. Ozner** **Simpson Thacher & Bartlett LLP** **425 Lexington Avenue** **New York, New York 10017** **(212) 455-2000**	**Gregory S. Bentley** **David J. Hollister** **685 Stockton Drive** **Exton, PA 19341** **(610) 458-5000**

Approximate date of commencement of proposed sale to the public:
As soon as practicable after this registration statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☒

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

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 o   Accelerated filer o   Non-accelerated filer ☒   Smaller reporting company o
Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. o

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	**Amount to be Registered**	**Proposed Maximum Offering Price Per Share**	**Proposed Maximum Aggregate Offering Price[(1)]**	**Amount of Registration Fee**
Class B Common Stock, $0.01 par value per share		Not applicable		

(1) Estimated solely for purposes of calculating the registration fee pursuant to Rule 457(a) of the Securities Act of 1933, as amended. Given that there is no proposed maximum offering price per share of Class B common stock, the registrant calculates the proposed maximum aggregate offering price, by analogy to Rule 457(f)(2), based on the book value of the Class B common stock the registrant registers, which will be calculated from its audited balance sheet as of December 31, 2019. Given that the registrant's shares of Class B common stock are not traded on an exchange or over-the-counter, the registrant did not use the market prices of its ordinary shares in accordance with Rule 457(c).

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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The information in this prospectus is not complete and may be changed The securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and we are not soliciting offers to buy these securities in any state where the offer or sale is not permitted.

Subject to Completion, dated , 2020

BENTLEY SYSTEMS, INCORPORATED

Shares of Class B Common Stock

This prospectus relates to the registration of the resale of up to shares of our Class B common stock by our stockholders identified in this prospectus (the "Registered Stockholders"). Unlike an initial public offering, the resale by the Registered Stockholders is not being underwritten by any investment bank. The Registered Stockholders may, or may not, elect to sell their shares of Class B common stock covered by this prospectus, as and to the extent they may determine. Such sales, if any, will be made through brokerage transactions on The Nasdaq Global Select Market, or other public exchanges or registered alternative trading venues. See the section titled "Plan of Distribution." If the Registered Stockholders choose to sell their shares of Class B common stock, we will not receive any proceeds from the sale of shares of Class B common stock by the Registered Stockholders.

We have two classes of authorized common stock: Class A common stock and Class B common stock. Upon the effectiveness of the registration statement of which this prospectus forms a part, the rights of the holders of our Class A common stock and our Class B common stock will be identical, except with respect to voting and conversion rights. Each share of our Class B common stock will be entitled to one vote per share. Each share of our Class A common stock will be entitled to votes per share and is convertible at any time into one share of our Class B common stock. Our Class A common stock will automatically convert into our Class B common stock upon certain transfers. The beneficial owners of our Class A common stock consist primarily of the Bentleys (as defined herein). As of December 31, 2019 after giving effect to the Charter Amendments (as defined herein), our Class A common stock accounted for approximately % of the voting power of our outstanding capital stock and the Bentleys held, or had the ability to control, approximately % of the voting power of our outstanding capital stock. This ownership means that, for the foreseeable future, holders of our Class B common stock will not have a meaningful voice in our corporate affairs and that the control of our company will be concentrated with the Bentleys. See the section titled "Risk Factors—Risks Related to Ownership of Our Class B Common Stock" for additional information.

No public market for our Class B common stock currently exists. However, our shares of Class B common stock have a history of trading in private transactions. Based on information available to us, the sales price per share of Class B common stock for such private transactions during the year ended December 31, 2019 was $7.24, and we are not aware of any private transactions in our common stock during the period from January 1, 2020 through , 2020. For more information, see the section titled "Sale Price History of our Capital Stock." Our recent trading prices in private transactions may have little or no relation to the opening public price of shares of our Class B common stock on The Nasdaq Global Select Market or the subsequent trading price of shares of our Class B common stock on The Nasdaq Global Select Market. Further, the listing of our Class B common stock on The Nasdaq Global Select Market without underwriters is a novel method for commencing public trading in shares of our Class B common stock, and consequently, the trading volume and price of shares of our Class B common stock may be more volatile than if shares of our Class B common stock were initially listed in connection with an underwritten initial public offering.

Based on information provided by The Nasdaq Global Select Market, at market open on the day that shares of our Class B common stock are initially listed on The Nasdaq Global Select Market, The Nasdaq Stock Market LLC (the "Nasdaq Stock Market"), will begin accepting, but not executing, orders. Once , in its capacity as our financial advisor, has notified the Nasdaq Stock Market that our Class B common stock is ready to trade, the Nasdaq Stock Market will calculate the Current Reference Price (as defined below) for our Class B common stock, in accordance with the Nasdaq Marketplace Rules (the "Nasdaq Listing Rules"). If then approves proceeding at the Current Reference Price, the applicable orders that have been entered will be executed at such price and regular trading of our Class B common stock on The Nasdaq Global Select Market will commence, subject to the Nasdaq Stock Market conducting validation checks in accordance with the Nasdaq Listing Rules. Under the Nasdaq Listing Rules, the "Current Reference Price" means: (i) the single price at which the maximum number of orders to buy or sell our Class B common stock can be paired; (ii) if more than one price exists under (i), then the price that minimizes the number of our Class B common stock for which orders cannot be matched; (iii) if more than one price exists under (ii), then the entered price at which our Class B common stock will remain unexecuted in the cross; and (iv) if more than one price exists under (iii), a price determined by the Nasdaq Stock Market after consultation with in its capacity as our financial advisor. will determine when our Class B common stock is ready to trade and approve proceeding at the Current Reference Price primarily based on consideration of volume, timing and price. In particular, will determine when a reasonable amount of volume will cross on the opening trade such that sufficient price discovery has been made to open trading at the Current Reference Price. For more information, see the section titled "Plan of Distribution."

We intend to list our Class B common stock on The Nasdaq Global Select Market under the symbol "BSY." We expect our Class B common stock to begin trading on The Nasdaq Global Select Market on or about , 2020.

We are an "emerging growth company" as defined under the federal securities laws and, as such, we have elected to comply with reduced reporting requirements for this prospectus and may elect to do so in future filings.

We will be a "controlled company" under the corporate governance rules of the Nasdaq Listing Rules, and therefore we will be permitted to, and we intend to, elect not to comply with certain corporate governance requirements thereunder. For more information, see the section titled "Management—Controlled Company."

Investing in our Class B common stock involves risks that are described in the section titled "Risk Factors" beginning on page 17 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

, 2020

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You should rely only on the information contained in this prospectus or contained in any free writing prospectus filed with the Securities and Exchange Commission (the "SEC"). Neither we nor any of the Registered Stockholders have authorized anyone to provide any information or make any representations other than those contained in this prospectus or in any free writing prospectus we have prepared. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The Registered Stockholders are offering to sell, and seeking offers to buy, shares of their Class B common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of the Class B common stock. Our business, financial condition, results of operations, and prospects may have changed since such date.

For investors outside of the United States: Neither we nor any of the Registered Stockholders have done anything that would permit the use of or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. You are required to inform yourselves about, and to observe any restrictions relating to, the offering of Class B common stock by the Registered Stockholders and the distribution of this prospectus outside of the United States.

Except as otherwise indicated herein or as the context otherwise requires, references to "Bentley Systems," "the Company," "we," "us," "our" and similar references refer to Bentley Systems, Incorporated and, where appropriate, its direct and indirect wholly-owned subsidiaries. References to the "Bentleys" refer to Barry J. Bentley, Gregory S. Bentley, Keith A. Bentley, and Raymond B. Bentley, and, where context requires, certain of their family members and family trusts, collectively.

ABOUT THIS PROSPECTUS

This prospectus is a part of a registration statement on Form S-1 that we filed with the SEC using a "shelf" registration or continuous offering process. Under this shelf process, the Registered Stockholders may, from time to time, sell the Class B common stock covered by this prospectus in the manner described in the section titled "Plan of Distribution." Additionally, we may provide a prospectus supplement to add information to, or update or change information contained in, this prospectus, including the section titled "Plan of Distribution." You may obtain this information without charge by following the instructions under the section titled "Where You Can Find More Information" appearing elsewhere in this prospectus. You should read this prospectus, any prospectus supplement and any free writing prospectus before deciding to invest in our Class B common stock.

TRADEMARKS

This prospectus contains references to our trademarks and service marks and to those belonging to other entities. Solely for convenience, trademarks and trade names referred to in this prospectus may appear without the ® or ™ symbols, but such references are not intended to indicate, in any way, that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. We do not intend our use or display of other companies' trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

This prospectus contains references to certain data derived from external publications:

- A report prepared by Oxford Economics. The report is copyrighted by the Global Infrastructure Hub Ltd (the "GI Hub"), and is licensed from the GI Hub under a Creative Commons Attribution 3.0 Australia License. To the extent permitted by law, the GI Hub disclaims liability to any person or organization in respect of anything done, or omitted to be done, in reliance upon information contained in the publication. See the section titled "Market and Industry Data;" and

- Market analyses prepared by the ARC Advisory Group. All information in the report is proprietary and copyrighted by ARC Advisory Group.

PROSPECTUS SUMMARY

This summary highlights selected information that is presented in greater detail elsewhere in this prospectus and does not contain all of the information that you should consider in making your investment decision. This summary does not contain all of the information you should consider before investing in our Class B common stock. You should read this entire prospectus carefully, including the sections titled "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and the related notes included elsewhere in this prospectus, before making an investment decision. Some of the statements in this prospectus constitute forward-looking statements. See the section titled "Cautionary Note Regarding Forward-Looking Statements."

Our Mission

Bentley Systems' mission is to provide innovative software to advance the design, construction, and operations of the world's infrastructure—sustaining both the global economy and environment, for improved quality of life.

Bentley Systems: The Infrastructure Engineering Software Company

We are a leading global provider of software for infrastructure engineering, enabling the work of civil, structural, geotechnical, and plant engineering practitioners, their project delivery enterprises, and owner-operators of infrastructure assets. We were founded in 1984 by the Bentley brothers. Our enduring commitment is to develop and support the most comprehensive portfolio of integrated software offerings across professional disciplines, project and asset lifecycles, infrastructure sectors, and geographies. Our software enables digital workflows across engineering disciplines, distributed project teams, from offices to the field, and across computing form factors, including desktops, on-premises servers, cloud-native services, mobile devices, and web browsers. We deliver our solutions via on-premise, cloud, and hybrid environments. Our users engineer, construct, and operate projects and assets across infrastructure sectors:

- *public works* (including roads, rail, airports, ports, and water and wastewater networks) */ utilities* (including electric, gas, water, and communications). We estimate that this sector represents 52% of the net infrastructure asset value of the global top 500 infrastructure owners based on the 2019 edition of the *Bentley Infrastructure 500 Top Owners*, our annual compilation of the world's largest infrastructure owners ranked by net depreciated value of their tangible fixed assets;

- *industrial* (including discrete and process manufacturing, power generation, and water treatment plants) */ resources* (including oil and gas, mining, and offshore), which we estimate represents 38% of the global top 500 infrastructure owners' net infrastructure asset value; and

- *commercial/facilities* (including office buildings, hospitals, and campuses), which we estimate represents 10% of the global top 500 infrastructure owners' net infrastructure asset value.

Infrastructure assets are among the world's largest and longest-lived investments, vital to both economic prosperity and environmental health. The quality of a region's infrastructure directly affects the region's capacity to meet constituents' essential needs for water, sanitation, energy, transport, and productive industries. Moreover, infrastructure considerations can affect the rate of global climate change and communities' vulnerability and resilience to negative climate change outcomes.

Infrastructure is complex due both to its physical scale and to its need for information connectedness at and between every stage of its lifecycle. Infrastructure design requires the structured collaboration of many engineering disciplines, often requiring globally dispersed teams. Infrastructure construction requires a distributed supply chain to reach an often remote location to realize a unique design. Infrastructure operations are mission critical, and require maintaining performance throughput and fitness-for-purpose for multiple generations. The design, construction, and operations of

infrastructure require comprehensive solutions that can support and integrate rigorous workflows across professional disciplines in concert over the infrastructure lifecycle.

Our business, comprised of more than 3,500 colleagues, includes a "success force" of more than 900 colleagues with experience and credentials in infrastructure engineering. Our success force, coupled with 35 years of singular focus, has enabled us to create what we believe to be the most comprehensive infrastructure engineering software portfolio available today. Our comprehensiveness creates a formidable competitive advantage by providing our users integrated solutions for infrastructure projects and assets of nearly any type, scale, and complexity.

We address both the project and asset lifecycle phases of infrastructure, each with applications and enterprise information systems. Our project lifecycle solutions encompass conception, planning, surveying, design, engineering, simulation, and construction, as well as the collaboration offerings required to coordinate and share the work of interdisciplinary and/or distributed project teams. Our asset lifecycle solutions span the operating life of commissioned infrastructure assets, allowing our accounts to manage engineering changes for safety and compliance and to model performance and reliability to support operating and maintenance decisions.

Our revenues are balanced and diversified between engineering and construction contracting firms who work together to deliver the design and construction of capital projects (representing 54% of our 2018 revenues), and their clients, public and private infrastructure asset owners and operators (representing 46% of our 2018 revenues). While engineering and construction contracting firms typically use our project lifecycle solutions, owner-operators are often involved in engineering and management for many of their own projects, and so can be users of our project lifecycle as well as our asset lifecycle solutions.

Our company's "Advancing Infrastructure" tagline reflects our enduring track record in successfully leveraging new technologies to improve and integrate the design, construction, and operations of infrastructure, leading to our infrastructure digital twins. An infrastructure digital twin is a cloud-native 4D digital representation of a physical project and resulting asset, incorporating its underlying engineering information, that is applied to model, simulate, analyze, chronicle, and predict its performance over time. By adding digital twin services to our existing solutions, our users can more fully extend digital workflows across project delivery and asset performance, increasing the value of infrastructure engineers' work.

We are the only infrastructure engineering software vendor to lead in market share in categories related to both the project and the asset lifecycle phases in the most recent rankings by The ARC Advisory Group ("ARC"). In August 2019, for *Engineering Design Tools for Plants, Infrastructure, and BIM* (building information modeling), ARC ranked us #2 overall, as well as #1 in each of Electric Transmission & Distribution and Communications and Water/Wastewater Distribution. In August 2019, ARC ranked us #1 in its inaugural market share study for Collaborative BIM. In December 2019, for *Asset Reliability Software & Services*, ARC ranked us #1 overall for software, as well as #1 in each of Transportation, Oil and Gas, and Electric Power Transmission and Distribution.

During the last two years, Microsoft recognized us as its 2019 "CityNext Partner of the Year" (citing our Azure-hosted *ProjectWise* for the Mumbai Trans Harbour Sea Link in India), its 2018 "CityNext Partner of the Year" (citing our Azure-hosted *ProjectWise* and *AssetWise* for the Klang Valley MRT in Kuala Lumpur, Malaysia), and a Finalist for the 2019 "Mixed Reality Partner of the Year Award" (citing our SYNCHRO XR 4D construction modeling application for the new HoloLens 2 device). Also, according to Microsoft, in 2019 we were one of the top 25 companies in terms of Azure usage globally.

We have spent decades cultivating trusted relationships with the largest global infrastructure engineering firms, including 454 of the *2019 Engineering News Record (615) Top Design* firms and 319 of

the *2019 Bentley Infrastructure 500 Top Owners*. Our solutions are, in many cases, mission critical both for our accounts and for our professional users and foster a high degree of loyalty, with 80% of our 2018 revenues coming from accounts of more than ten years' standing.

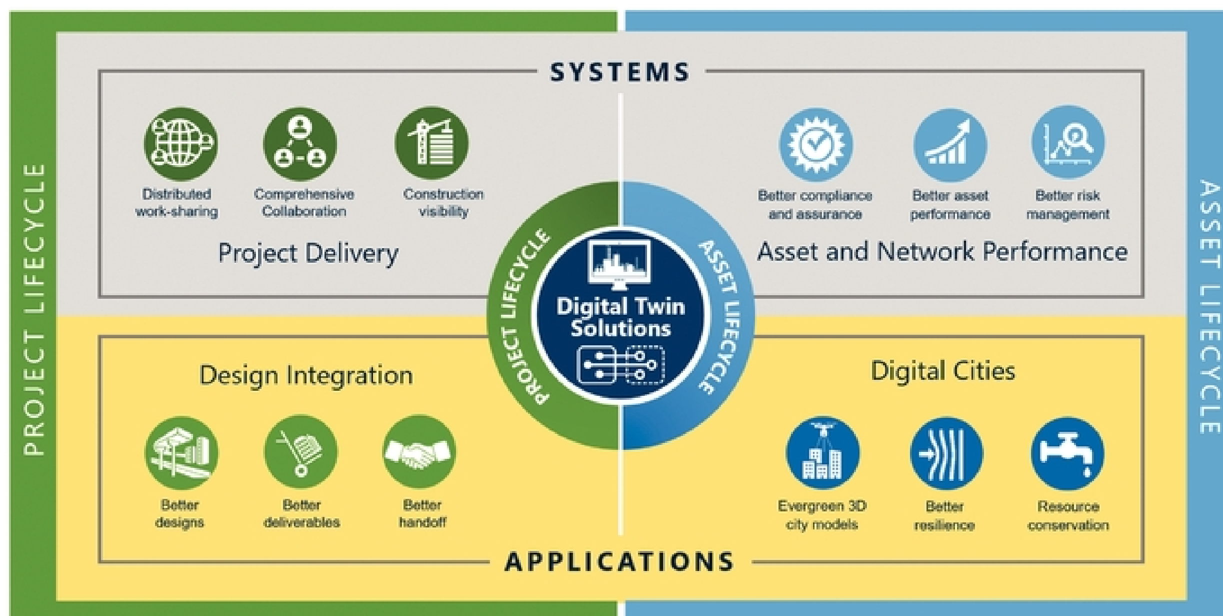
We are a significant software vendor to major infrastructure engineering organizations. In 2018, 88 accounts each contributed over $1 million to our revenues. 50% of our 2018 revenues came from 376 accounts each spending over $250,000. We serve over 35,000 accounts in total, and no single account provided more than 2% of our 2018 revenues.

Our business is comprehensively global. In 2018, the majority of our revenues were generated across 171 countries outside the United States, with 33% from EMEA and 19% from APAC. We have purposefully invested and are fully established in developing international markets where rapid infrastructure growth will continue to present compelling opportunities for us to scale efficiently. In particular, China, where we now have over 200 colleagues, has become one of our largest (among our top five) and fastest growing countries as measured by revenue.

In 2018, we generated subscription revenues of $557 million, total revenues of $692 million, net income of $142 million, and Adjusted EBITDA of $172 million. For additional information on our financial results, key metrics, and non-GAAP financial metrics, see the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Business Metrics."

Our Solutions

We offer solutions for enterprises and professionals across the infrastructure lifecycle. Our Project Delivery and Asset and Network Performance solutions are systems provided via cloud and hybrid environments, developed respectively to extend enterprise collaboration during project delivery, and to manage and leverage engineering information during operations and maintenance. Our Design Integration and Digital Cities solutions are primarily desktop applications and cloud-provisioned solutions for professional practitioners and workgroups.



Project Lifecycle Solutions. Our Project Lifecycle solutions span conception, planning, surveying, design, simulation, and construction, as well as the collaboration software services required to coordinate and share the work of interdisciplinary and/or distributed project teams.

Design Integration. Our Design Integration solutions consist of modeling and simulation applications. Our modeling applications are domain-specific authoring tools used by professionals for the 3D design and documentation of infrastructure assets. Our simulation applications enable engineers to analyze the functional performance of the designs created with our modeling applications (or those of competitive vendors), preferably in iterative digital workflows, to improve engineering outcomes and to ensure compliance with design codes.

Benefits of our Design Integration applications to infrastructure engineers include:

- *Better designs.* Our modeling and simulation applications work together to improve infrastructure engineering quality, for instance to eliminate "clashes" across respective disciplines' work. Each application is for a specific purpose (asset-type or discipline; for example, OpenRoads for roadway design) and supports corresponding asset-specific engineering workflows (for example, the workflow a civil engineer would use in designing a road);

- *Better deliverables.* Our applications share a common modeling environment to enable streamlined coordination and production of multi-discipline documentation; and

- *Better handoff.* Our comprehensive modeling environment and our supplemental cloud services enable projects to enrich information sharing (and to minimize problematic translations) across project delivery processes.

Project Delivery. Our Project Delivery solutions support information and document management, engineering-specific collaboration and work-sharing for distributed project teams and enterprises, and construction planning, modeling and execution. The scope of these solutions is not limited to users of only our own design applications.

Our 4D construction modeling software spatially and temporally integrates a project's 3D engineering models into its construction schedules to assess sequencing strategies and to visualize and understand planned and actual progress over the project timeline. Our solutions also enable project delivery teams to optimally define and manage discrete engineering, construction, and installation work packages, including the construction trades' "workface planning," which considers crafts and materials by day and zone. For work packages which increasingly take advantage of modular offsite fabrication and manufacturing, our software manages and enables 4D visualization of the necessary spatial and logistical interfaces.

Benefits of our Project Delivery solutions to project delivery enterprises include:

- *Distributed work-sharing*: Our solutions incorporate the rigorous workflow protocols required for structured coordination across engineering and construction supply chains, enabling global sourcing for integrated project delivery, while maximizing economics, quality, and safety;

- *Comprehensive collaboration*: Our software leverages cloud and hybrid environments to streamline the aggregation, distribution, and interaction for project deliverables, ensuring that the right project participants have the right information in the right format at the right time, including at the project site and on every device; and

- *Construction visibility*: Our solutions' broad span and continuous detail across design integration, construction modeling and work packaging, and mixed-reality 4D visualization, advances predictability, accountability, and safety throughout the construction process.

Asset Lifecycle Solutions. Our asset lifecycle solutions span the operating life of commissioned infrastructure assets, capturing and managing changes to engineering models and enterprise information for compliance and safety, and to model performance and reliability to support operating and maintenance decisions.

Asset and Network Performance. Our Asset and Network Performance Solutions are used to manage engineering information and geospatial relationships for operating and provisioning infrastructure across all sectors, including linear networks for transportation and energy transmission and distribution. Our asset performance modeling provides the needed analytical context for "right-time" data, including from Internet of Things ("IoT") sensor capabilities, to yield actionable insights.

Benefits of our Asset and Network Performance solutions for owner-operators include:

- *Better compliance and assurance*: Our systems intrinsically enforce the rigor appropriate for operating infrastructure assets in order to provide dependable visibility into the impact of changes;

- *Better asset performance*: Our solutions include operational dashboards that provide decision support insights to maintain and improve throughput and reliability; and

- *Better risk management*: Our solutions include predictive analytics that identify potential problems before they occur, and ensure the accessibility of best-available engineering information and models for mitigation and resilience.

Digital Cities. Our Digital Cities solutions incorporate reality modeling (leveraging drone and mobile mapping "survey" inputs) and geospatial context to continuously capture as-operated infrastructure conditions at city and regional scale. Our offerings support department-level applications for municipal engineering, such as simulation of pedestrian and vehicle traffic, and water and drainage systems.

Benefits of our Digital Cities solutions to cities, regions, and their constituents include:

- *Evergreen 3D city models*: Our reality modeling software maintains engineering-ready 3D models, incorporating incrementally updated surveys, and thus ensures that engineering departments can rely on up-to-date geospatial context for digital workflows;

- *Better resilience*: Our solutions can integrate geotechnical, structural/seismic, and hydrological engineering modeling with evergreen 3D city models to harden infrastructure from flood and other natural hazards, and to apply engineering simulations for mitigation and emergency response; and

- *Resource conservation*: Taking full advantage of our solutions can significantly increase efficiency and reduce waste. For instance, our water network modeling tools, applied to compare as-designed specifications to observed flows and pressures, can help to non-invasively locate subsurface water network leaks.

Infrastructure Digital Twins.

Our digital twins offerings enable our users to create and curate cloud-native 4D digital representations of physical projects and resulting assets, incorporating underlying engineering information, and then to model, simulate, analyze, chronicle, and predict performance over time. Using digital twins, our users can more fully extend digital workflows across project delivery and asset performance, increasing the value of infrastructure engineers' work.

Benefits of our digital twins solutions to project delivery firms and owner-operators include:

- *Advanced insights.* For project delivery, digital twins can reveal insights beyond what would be visible with traditional workflows; for example, a digital twin can show 3D heat maps highlighting where changes in a design have been unusually pervasive, indicating possible design flaws. For asset performance, such insights from digital twins can be used to evaluate different strategies for optimizing operational efficiencies and throughput;

- *Predictive analytics.* For project delivery, digital twins and machine learning can compare the progress of a current project with similar projects that have been previously completed, and identify in advance potential bottlenecks, in time to take corrective action. For asset performance, a digital twin can track observations from various operational inputs against design intelligence to predict future failures and recommend maintenance actions to minimize downtime;

- *Continuous and comprehensive design reviews.* For project delivery, digital twins can aggregate and align design models and data from all sources "on the fly" (without interruptions for translations, and without specialized software) to present immersive 3D status visualization in a web browser for any authorized stakeholder to participate in ongoing interactive design reviews; and

- *Convergence of OT, IT, and now "ET."* Infrastructure owner-operators are increasingly able to instrument their assets with IoT sensors, producing torrents of Operational Technology ("OT") data that are difficult to interpret. Software advances in Information Technology ("IT") can in turn make data from enterprise transaction systems, such as maintenance work order history, accessible for analytics. But even OT and IT together cannot inform decisions for improved asset performance as sufficiently as when combined with accessibility to comparable analytics from the assets' engineering models, which we refer to as the Engineering Technology ("ET"). Infrastructure digital twins notably enable the convergence of ET with OT and IT. With infrastructure digital twins, the design intent (the "digital DNA" captured in the digital twins' engineering models and simulations) can serve as a baseline for comparison to IoT-monitored "as-operated" performance, in light of the asset's operations and maintenance history stored in IT systems, to enable integrated analytics to provide timely insights and recommended actions to optimize safety and performance.

Comprehensiveness of Our Offerings

Our offerings are comprehensive across professional disciplines, lifecycle stages, infrastructure sectors, and geographies, resulting in what we believe to be durable competitive advantages:

Professional Disciplines. Each infrastructure project requires seamless and deep collaboration among professional disciplines, which can include civil, structural, geotechnical, and process engineers, architects, geospatial professionals, city and regional planners, contractors, fabricators, and operations and maintenance engineers. Our open modeling and open simulation applications facilitate iterative interactions between disciplines and coordination across project participants. Additionally, we believe our collaboration systems lead the market in managing infrastructure engineering firms' preferred work-in-progress workflows.

Lifecycle Stages. Both project delivery enterprises and owner-operators benefit from our solutions which enable digital workflows to extend between project and asset lifecycles, from design to construction and ultimately asset management. This capability allows our users' digital engineering models to be leveraged as the context for real-time condition monitoring to achieve better and safer operations and maintenance.

Infrastructure Sectors. Most major engineering and project delivery firms pursue an ever-changing mix of projects across the public works/utilities, industrial/resources, and commercial/facilities sectors and for flexibility tend to favor an infrastructure engineering software vendor whose portfolio correspondingly spans their full breadth. This comprehensiveness provides diversification for our own business, as an incidental advantage. For example, when there have been cyclical downturns in the primarily privately-financed industrial/resources and commercial/facilities sectors, we have historically witnessed offsetting counter-cyclical government investment in public works/utilities.

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Geographies. While design codes may vary by country, infrastructure purposes and engineering practices are fundamentally the same throughout the world, which makes it possible for our infrastructure modeling applications to be used globally. Our offerings are available in most major languages, supporting country-specific standards and conventions. Our development teams are also globally dispersed, due in part to acquisitions made in various countries, but also to provide any needed last mile localization of our applications. Our global comprehensiveness enables our project delivery accounts to compete more efficiently across geographic markets, thus also providing global supply-chain sourcing choices for owners.

Our Opportunity

We believe we are successful and well-established in enterprise-level relationships with the world's largest infrastructure engineering organizations, including both project-delivery contracting firms and owner-operators. Today, we address a significant market opportunity, which we refer to as our serviceable addressable market ("SAM"). We estimate our global SAM is approximately $9.5 billion, $6.1 billion of which is attributable to project delivery firms and $3.4 billion of which is attributable to owner-operators. Further, of our $9.5 billion SAM, approximately $1.6 billion is in Greater China.

We also view our market opportunity in terms of the total addressable market ("TAM"), which we believe we can address over the long term. We estimate our TAM is approximately $. We believe that digital progress in infrastructure advancement has to date lagged behind other economic domains. Over time, as project delivery firms and owner-operators increasingly recognize the value of going digital and increase their spend on solutions such as digital twins, we believe our SAM will approach our TAM.

Our Growth Strategies

We employ the following growth strategies to address the infrastructure engineering software market opportunities:

- ***Accretion within existing accounts.*** We believe we can further penetrate our existing accounts by broadening their use of our portfolio. There are three primary mechanisms for this expansion:

  - *New commercial formulations.* We continually innovate with new commercial formulations to align the use of our software to the needs of our users. We believe the flexibility in our commercial models and deployment options will allow our accounts to grow usage continuously;

  - *Automating user engagement.* We employ various technologies to drive user engagement. We will continue to leverage these interactive technologies to virtually assist our users and drive engagement across our software offerings; and

  - *Adding new offerings.* We have a history of building and maintaining leadership in infrastructure software engineering comprehensiveness and intend to continue to innovate and develop our software offerings. We intend to continue to develop and integrate new products and capabilities over time;

- ***Focusing on Asia.*** We believe Asia represents a large market opportunity and will continue to do so over the foreseeable future. We intend to continue investing in strategies to enhance our market position in Asia;

- ***Increasing inside sales.*** We will continue to expand our global inside sales resources and to multiply their reach and effectiveness with superior digital tools to convert leads and to provide the self-service administration that engineering practitioners prefer; and

- ***Digital co-ventures.*** We have forged substantial alliances with other major participants in the infrastructure engineering supply chain (for example, Topcon, Siemens, and Microsoft), primarily to jointly develop and offer digital twin cloud services that extend the scope of our software.

Risk Factor Summary

Investing in our Class B common stock involves a high degree of risk. You should carefully consider all information in this prospectus prior to investing in our Class B common stock. These risks are discussed more fully in the section titled "Risk Factors." These risks and uncertainties include, but are not limited to, the following:

- Demand for our software solutions is subject to volatility in our accounts' underlying businesses, which includes infrastructure projects that typically have long timelines;
- The majority of our revenues and an increasing percentage of our operations are attributable to operations outside the United States, and our results of operations therefore may be materially affected by the legal, regulatory, social, political, economic and other risks of foreign operations;
- Recent and potential tariffs imposed by the U.S. government or a global trade war could increase the cost of our products and services and the cost of conducting our business, which could harm our business, financial condition and results of operations;
- Global economic conditions may negatively impact our business, financial results and financial condition;
- Decreased investment by APAC, including China, may have a negative effect on our business;
- The sales cycle for some of our solutions can be long and unpredictable and requires considerable time and expense, which may cause our results of operations to fluctuate;
- If we do not keep pace with technological changes, and effectively market our new product solutions, our solutions may become less competitive and our business may suffer;
- Interruptions in the availability of server systems or communications with Internet, third-party hosting facilities or cloud-based services, or failure to maintain the security, confidentiality, accessibility or integrity of data stored on such systems, could harm our business or impair the delivery of our managed services;
- If our security measures or those of our third-party cloud data hosts, cloud computing platform providers, or third-party service partners, are breached, and unauthorized access is obtained to an account's data, our data or our information technology ("IT") systems, our services may be perceived as not being secure, accounts may curtail or stop using our services, and we may incur significant legal and financial exposure and liabilities;
- We face intense competition;
- Our revenue recognition policy and other factors may create volatility in our financial results in any given period and make them difficult to predict;
- Failure to protect our intellectual property rights could impair our ability to protect our proprietary technology and our brand;
- We depend on our senior management team and other key personnel, and we could be subject to substantial risk of loss if any of them terminate their relationship with us;
- Our listing differs significantly from an underwritten initial public offering;

- The public price of our Class B common stock may be volatile, and could, upon listing on The Nasdaq Global Select Market, decline significantly and rapidly. Market volatility may affect the value of an investment in our Class B common stock and could subject us to litigation;
- None of our stockholders are party to any contractual lock-up agreement or other contractual restrictions on transfer. Following our listing, sales of substantial amounts of our Class B common stock in the public markets or the perception that sales might occur, could cause the market price of our Class B common stock to decline; and
- The dual class structure of our common stock has the effect of concentrating voting control with the Bentleys and their affiliates.

Channels for Disclosure of Information

Investors, the media, and others should note that, following the effectiveness of the registration statement of which this prospectus forms a part, we intend to announce material information to the public through filings with the SEC, the investor relations page on our website, press releases, public conference calls and webcasts.

The information disclosed by the foregoing channels could be deemed to be material information. As such, we encourage investors, the media, and others to follow the channels listed above and to review the information disclosed through such channels.

Any updates to the list of disclosure channels through which we will announce information will be posted on the investor relations page on our website.

Corporate Information

Bentley Systems, Incorporated was incorporated in Delaware in 1987. We were originally incorporated in California in 1984 upon our founding. Our principal offices are located at 685 Stockton Drive, Exton, PA 19341, and our telephone number is (610) 458-5000. Our website address is www.bentley.com. Information contained on or that can be accessed through our website does not constitute part of this prospectus and the inclusion of our website address in this prospectus is an inactive textual reference only.

Emerging Growth Company

The Jumpstart Our Business Startups Act (the "JOBS Act") was enacted in April 2012 with the intention of encouraging capital formation in the United States and reducing the regulatory burden on newly-public companies that qualify as "emerging growth companies." We are an "emerging growth company" within the meaning of the JOBS Act. As an "emerging growth company," we intend to take advantage of certain exemptions from various public reporting requirements, including the requirement that our internal control over financial reporting be audited by our independent registered public accounting firm pursuant to Section 404 of the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act"), certain requirements related to the disclosure of executive compensation in this prospectus and in our periodic reports and proxy statements, and the requirement that we hold a non-binding advisory vote on executive compensation and any golden parachute payments. Additionally, as an "emerging growth company" we are required to have only two years of audited financial statements and only two years of related selected financial data and Management's Discussion and Analysis of Financial Condition and Results of Operations disclosure. We may take advantage of these exemptions until we are no longer an "emerging growth company."

In addition, under the JOBS Act, "emerging growth companies" can delay adopting new or revised accounting standards until such time as those standards apply to private companies. We intend to avail ourselves of this exemption from new or revised accounting standards. Accordingly, we will not be

subject to the same new or revised accounting standards as other public companies that are not "emerging growth companies."

We will remain an "emerging growth company" until the earliest to occur of: (i) the last day of the fiscal year in which we have more than $1.07 billion in annual revenue; (ii) the date we qualify as a "large accelerated filer," with at least $700 million of equity securities held by non-affiliates; (iii) the date on which we have issued, in any three-year period, more than $1.0 billion in non-convertible debt securities; and (iv) the last day of the fiscal year ending after the fifth anniversary of the listing of our Class B common stock on The Nasdaq Global Select Market.

For certain risks related to our status as an "emerging growth company," see the section titled "Risk Factors—Risks Related to Our Business and Industry—We are an 'emerging growth company,' and the reduced disclosure requirements applicable to 'emerging growth companies' may make our Class B common stock less attractive to investors."

Controlled Company Status

We will be a "controlled company" within the meaning of the corporate governance rules of the Nasdaq Listing Rules. Under these rules, a company for which more than 50% of the voting power for the election of directors is held by an individual, group or another company is a "controlled company" and may elect not to comply with certain of the Nasdaq Listing Rules' corporate governance requirements, including: (i) the requirement that a majority of our board of directors consist of "independent directors" as defined under the Nasdaq Listing Rules; (ii) the requirement that we have a compensation committee that is composed entirely of independent directors; and (iii) the requirement that we have a nominating and corporate governance committee that is composed entirely of independent directors. We intend to use these exemptions upon our listing. As a result, we will not have a majority of independent directors on our board of directors. Additionally, upon our listing, we do not intend to have a compensation committee, nor do we intend to have a nominating and corporate governance committee or an independent nominating function. Instead, our full board of directors will be directly responsible for reviewing and approving compensation and benefit arrangements for our executive officers and directors, as well as for nominating members of our board. Accordingly, in the future our stockholders may not have the same protections afforded to stockholders of companies that are subject to all of the Nasdaq Listing Rules' corporate governance requirements.

Capitalization

As of December 31, 2019, we had 11,601,757 shares of Class A common stock outstanding and 243,241,192 shares of Class B common stock outstanding, including 476,466 restricted shares of Class B common stock. Except as otherwise indicated, the number of outstanding shares of Class B common stock excludes: (i) 19,602,042 shares of Class B common stock issuable upon exercise of stock options outstanding at a weighted-average exercise price of $5.90 per share of Class B common stock, (ii) 54,771 shares of Class B common stock issuable upon the settlement of restricted stock units outstanding, (iii) 28,101,504 shares of Class B common stock reserved for issuance under our 2015 Equity Incentive Plan, and (iv) 30,756,936 shares of Class B common stock held by colleagues and directors as phantom shares under our nonqualified deferred compensation plans.

SUMMARY CONSOLIDATED FINANCIAL DATA

The following tables set forth summary consolidated financial data. The summary consolidated statement of operations data for the year ended December 31, 2018 has been derived from our audited consolidated financial statements included elsewhere in this prospectus. The summary consolidated statement of operations data for the year ended December 31, 2017 has been derived from our audited consolidated financial statements not included in this prospectus, which were audited in accordance with the auditing standards of the American Institute of Certified Public Accountants rather than the auditing standards of the Public Company Accounting Oversight Board. The consolidated statements of operations data for the nine months ended September 30, 2018 and 2019 and the consolidated balance sheet data as of September 30, 2019 have been derived from our unaudited consolidated financial statements included elsewhere in this prospectus. The unaudited consolidated financial statements include all adjustments, consisting of normal recurring accruals, that we consider necessary for a fair presentation of the financial position and the results of operations for these periods. You should read this summary consolidated financial data in conjunction with the sections titled "Selected Consolidated Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results to be expected in the future, and our results of operations for the nine months ended September 30, 2019 are not necessarily indicative of the results that may be expected for the entire year ended December 31, 2019.

All amounts presented in this summary consolidated financial data, except share and per share amounts, are presented in thousands. Additionally, many of the amounts and percentages have been rounded for convenience of presentation.

Consolidated Statements of Operations Data:

	Year Ended December 31,		Nine Months Ended September 30,		
	2017	2018	2018	2019	2019
	Topic 605		Topic 605[1]		Topic 606
Revenues:					
Subscriptions	$ 501,098	$ 557,421	$ 414,701	$ 449,957	$ 445,338
Perpetual licenses	61,661	61,065	46,149	38,899	38,255
Subscriptions and licenses	562,759	618,486	460,850	488,856	483,593
Services	66,164	73,224	54,110	49,244	50,139
Total revenues	628,923	691,710	514,960	538,100	533,732
Cost of revenues:					
Cost of subscriptions and licenses	53,662	55,113	40,796	48,129	48,201
Cost of services	66,928	76,211	57,467	56,048	56,048
Total cost of revenues	120,590	131,324	98,263	104,177	104,249
Gross profit	508,333	560,386	416,697	433,923	429,483
Operating expenses:					
Research and development	151,194	175,032	127,598	136,617	136,617
Selling and marketing	139,259	160,635	113,168	111,985	111,889
General and administrative	87,467	89,328	66,491	71,415	71,415
Amortization of purchased intangibles	9,014	14,000	9,961	10,402	10,402
Total operating expenses	386,934	438,995	317,218	330,419	330,323
Income from operations	121,399	121,391	99,479	103,504	99,160
Interest expense, net	(10,320)	(8,765)	(6,363)	(6,503)	(6,503)
Other income (expense), net	(5,773)	236	(1,966)	(14,053)	(14,053)
Income before income taxes	105,306	112,862	91,150	82,948	78,604
Provision for income taxes	46,141	(29,250)	11,375	11,285	11,759
Net income	$ 59,165	142,112	79,775	71,663	66,845
Less: Net income attributable to participating securities		(4)	(7)	(10)	(10)
Net income per share attributable to Class A and Class B common shares		$ 142,108	$ 79,768	$ 71,653	$ 66,835
Net income per share:					
Basic		$ 0.50	$ 0.28	$ 0.25	$ 0.23
Diluted		$ 0.49	$ 0.27	$ 0.24	$ 0.23
Weighted average shares outstanding, basic		285,805,096	285,684,596	286,024,263	286,024,263
Weighted average shares outstanding, diluted		292,624,496	291,845,931	294,586,354	294,586,354

(1) The Topic 605 unaudited amounts presented for the nine months ended September 30, 2019 give effect to revenue adjustments as if the adoption of Topic 606 had not occurred on January 1, 2019. For a reconciliation of the impact of adopting Topic 606 on our unaudited consolidated financial statements for the nine months ended September 30, 2019, see Note 2 to our consolidated financial statements included elsewhere in this prospectus.

Revenue Comparison—Topic 605 versus Topic 606:

On January 1, 2019, we adopted ASU No. 2014-09, *Revenue from Contracts with Customers*, and related amendments ("Topic 606"), which supersedes substantially all existing revenue recognition

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guidance under accounting principles generally accepted in the United States ("U.S. GAAP"). We adopted Topic 606 using the modified retrospective method, under which the cumulative effect of initially applying Topic 606 was recorded as a reduction to the opening balance of *Accumulated deficit* of $125,464 ($101,489, net of tax) as of January 1, 2019. We applied the standard only to contracts that were not completed as of the date of initial application. The comparative information in our consolidated financial statements included elsewhere in this prospectus has not been adjusted and continues to be reported under Accounting Standards Codification ("ASC") 985-605, *Software-Revenue Recognition*, and Topic 605 (together referred to as Topic 605).

The below table presents a comparison of our revenues as recognized under Topic 605 and Topic 606. We believe that an understanding of the impact of the revenue recognition guidance under Topic 606 on our revenues and revenue trends is useful in evaluating our operating performance.

	Year Ended December 31,		Nine Months Ended September 30,	
	2017	**2018**	**2018**	**2019**
Topic 605:(1)				
Subscriptions	$ 501,098	$ 557,421	$ 414,701	$ 449,957
Perpetual licenses	61,661	61,065	46,149	38,899
Services	66,164	73,224	54,110	49,244
Total Revenues	$ 628,923	$ 691,710	$ 514,960	$ 538,100
Topic 606:(2)				
Subscriptions	$ 505,720	$ 560,485	$ 413,237	$ 445,338
Perpetual licenses	49,983	57,353	38,438	38,255
Services	66,164	73,224	54,110	50,139
Total Revenues	$ 621,867	$ 691,062	$ 505,785	$ 533,732

(1) The Topic 605 unaudited amounts presented for the nine months ended September 30, 2019 give effect to revenue adjustments as if the adoption of Topic 606 had not occurred on January 1, 2019. For a reconciliation of the impact of adopting Topic 606 on our unaudited consolidated financial statements for the nine months ended September 30, 2019, see Note 2 to our consolidated financial statements included elsewhere in this prospectus.

(2) The Topic 606 unaudited amounts presented for the years ended December 31, 2017 and 2018, and the nine months ended September 30, 2018 give effect to revenue adjustments as if the adoption of Topic 606 had occurred as of January 1, 2017 rather than January 1, 2019. For a reconciliation of the impact of adopting Topic 606 as if it had occurred as of January 1, 2017 on our audited consolidated statements of operations data for the years ended December 31, 2017 and 2018 and the unaudited consolidated statement of operations data for the nine months ended September 30, 2018, see the section titled "Selected Consolidated Financial Data—Non-GAAP Financial Measures."

Key Business Metrics

We regularly review the following key metrics to evaluate our business, measure our performance, identify trends in our business, prepare financial projections, and make strategic decisions.

	As of and Year Ended December 31,		As of and Period Ended September 30,	
	2017	2018	2018	2019
Last twelve-months recurring revenues	$ 523,502	$ 583,403	$ 571,559	$ 616,753
Constant Currency:				
Annualized recurring revenues (ARR) growth rate	8.6%	10.4%	10.3%	11.6%
Account retention rate	98%	98%	98%	98%
Recurring revenues dollar-based net retention rate	105%	107%	106%	107%

Last twelve-months recurring revenues. Last twelve-months recurring revenues is calculated as recurring revenues recognized over the preceding twelve-month period. We define recurring revenues as subscriptions revenues that recur monthly, quarterly, or annually with specific or automatic renewal clauses and professional services revenues in which the underlying contract is based on a fixed fee and contains automatic annual renewal provisions. Last twelve-months recurring revenues is calculated using revenues recognized pursuant to Topic 605 for all periods in order to enhance comparability during our transition to Topic 606. We believe that last twelve-months recurring revenues is an important indicator of our performance during the immediately preceding twelve-month time period. We believe that we will continue to experience favorable growth in recurring revenues due to our strong account retention and recurring revenues dollar-based net retention rates as well as the addition of new accounts with recurring revenues. The last twelve-months recurring revenues under Topic 605 for the periods ended December 31, 2018 and September 30, 2019, compared to the last twelve-months of the preceding twelve-month period for each period, increased by $59,901 and $45,194, respectively. This increase was primarily due to growth in annualized recurring revenue ("ARR") during the prior and current periods for each period, which is primarily the result of consistent performance in our account retention rate and in our recurring revenues dollar-based net retention rate, as well as additional recurring revenues resulting from new accounts and acquisitions. For the last twelve-month period ended September 30, 2019, 86% of our total revenues were recurring revenues. Prospectively, we expect that this percentage is likely to remain consistent or modestly increase as we continue to target shifting episodic professional services revenues to subscriptions classified as recurring revenues.

Constant currency metrics. In reporting period-over-period results, we calculate the effects of foreign currency fluctuations and constant currency information by translating current period results using prior period average foreign currency exchange rates. Our definition of constant currency may differ from other companies reporting similarly named measures, and these constant currency performance measures should be viewed in addition to, and not as a substitute for, our operating performance measures calculated in accordance with U.S. GAAP.

ARR growth rate. Our ARR growth rate is the growth rate of our ARR, measured on a constant currency basis. Our ARR is defined as the sum of the annualized value of our portfolio of contracts that produce recurring revenue as of the last day of the reporting period, and the annualized value of the last three months of recognized revenues for our consumption-based software. ARR is inclusive of the ARR of acquired companies as of the date they are acquired. We believe that ARR and ARR growth are important metrics indicating the scale and growth of our business. Furthermore, we believe ARR, considered in connection with our account retention rate and our recurring revenues dollar-based net retention rate, is a leading indicator of revenue growth. Our ARR as of September 30, 2019 was $647.0 million, calculated using the spot foreign exchange rates as of September 30, 2019. Our ARR growth rate was favorably impacted by acquisitions during 2018 and 2019 and as a result was higher in these periods than in prior periods.

Account retention rate. Our account retention rate for any given twelve-month period is calculated using the average currency exchange rates for the prior period, as follows: the prior period recurring revenues from all accounts with recurring revenues in the current and prior period, divided by total recurring revenues from all accounts during the prior period. The account retention rate is calculated using revenues recognized pursuant to Topic 605 for all periods in order to enhance comparability during our transition to Topic 606. Our account retention rate is an important indicator that provides insight into the long-term value of our account relationships and our ability to retain our account base. We believe that our consistent and high account retention rates during 2017 and 2018 and the first nine months of 2019 illustrate our ability to retain and cultivate long-term relationships with our accounts.

Recurring revenues dollar-based net retention rate. Our recurring revenues dollar-based net retention rate is calculated using the average exchange rates for the prior period, as follows: the recurring revenues for the current period, including any growth or reductions from existing accounts, but excluding recurring revenues from any new accounts added during the current period, divided by the total recurring revenues from all accounts during the prior period. A period is defined as any trailing twelve months. The recurring revenues dollar-based net retention rate is calculated using revenues recognized pursuant to Topic 605 for all periods in order to enhance comparability during our transition to Topic 606. We believe our recurring revenues dollar-based net retention rate is a key indicator of our success in growing our revenues within our existing accounts. Given that for the last twelve-month period ended September 30, 2019 recurring revenues represented 86% of our total revenues, this metric helps explain our revenue performance as primarily growth into existing accounts. We believe our 105%, 107%, and 107% recurring revenues dollar-based net retention rate for the twelve-month periods ended December 31, 2017, December 31, 2018, and September 30, 2019, respectively, illustrates our ability to consistently retain accounts and grow them.

Our calculation of these metrics may not be comparable to other companies with similarly-titled metrics.

For additional information about our key metrics, see the sections titled "Selected Consolidated Financial Data—Key Business Metrics" and "Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Business Metrics."

Non-GAAP Financial Measures

In addition to our results determined in accordance with U.S. GAAP, we believe the below non-GAAP measures are useful in evaluating our operating performance. We use the below non-GAAP financial information, collectively, to evaluate our ongoing operations and for internal planning and forecasting purposes.

	Year Ended December 31,		Nine Months Ended September 30,	
	2017	2018	2018	2019
Topic 605:[1]				
Adjusted EBITDA	$ 160,886	$ 171,768	$ 130,907	$ 136,577
Adjusted Net Income	$ 115,389	$ 132,246	$ 100,407	$ 104,167
Topic 606:[2]				
Adjusted EBITDA	$ 153,830	$ 171,120	$ 121,732	$ 132,156
Adjusted Net Income	$ 109,398	$ 131,697	$ 92,377	$ 99,278

(1) The Topic 605 unaudited amounts presented for the nine months ended September 30, 2019 give effect to revenue adjustments as if the adoption of Topic 606, had not occurred on January 1, 2019. For a reconciliation of the impact of adopting Topic 606 on our

unaudited consolidated financial statements for the nine months ended September 30, 2019, see Note 2 to our consolidated financial statements included elsewhere in this prospectus.

(2) The Topic 606 unaudited amounts presented for the years ended December 31, 2017 and 2018 and the nine months ended September 30, 2018 give effect to revenue adjustment as if the adoption of Topic 606 had occurred as of January 1, 2017 rather than January 1, 2019. For a reconciliation of the impact of adopting Topic 606 as if it had occurred as of January 1, 2017 on our audited consolidated statements of operations data for the years ended December 31, 2017 and 2018 and the unaudited consolidated statement of operations data for the nine months ended September 30, 2018, see the section titled "Selected Consolidated Financial Data—Non-GAAP Financial Measures."

For additional information, including the limitations of using non-GAAP financial measures, and reconciliations of the non-GAAP financial measures to the most directly comparable financial measures stated in accordance with U.S. GAAP, see the section titled "Selected Consolidated Financial Data—Non-GAAP Financial Measures."

Consolidated Balance Sheet Data:

The following table presents summary consolidated balance sheet data as of September 30, 2019:

	September 30, 2019
Cash and cash equivalents	$ 125,997
Working capital, excluding deferred revenues	143,991
Total assets	908,601
Deferred revenues, current and long-term	169,724
Total debt	248,000
Total stockholders' equity	306,583

RISK FACTORS

Investing in our Class B common stock involves a high degree of risk. You should carefully consider the risks and uncertainties described below, together with all of the other information in this prospectus, including the consolidated financial statements and the related notes and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations," before deciding whether to invest in shares of our Class B common stock. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties that we are unaware of, or that we currently believe are not material, may also become important factors that adversely affect our business. If any of the following risks, or other risks and uncertainties that are not yet identified or that we currently think are immaterial, actually occur, our business, financial condition, results of operations and future prospects could be materially and adversely affected. In that event, the market price of our Class B common stock could decline, and you could lose part or all of your investment.

Risks Related to Our Business and Industry

Demand for our software solutions is subject to volatility in our accounts' underlying businesses, which includes infrastructure projects that typically have long timelines.

Our sales are based significantly on accounts' demand for software solutions in the following infrastructure sectors: (i) public works/utilities; (ii) industrial/resources; and (iii) commercial/facilities. Although these sectors are typically countercyclical to one another in nature, each periodically experiences economic declines and may be exacerbated by other economic factors. If participants in any of these sectors reduce spending or allocate future funding in a manner that results in fewer infrastructure improvement or expansion projects, then our accounts' underlying business may be impacted and demand for our software solutions may decrease or our rate of contract renewals may decrease. A prolonged decrease in such spending may harm our results of operations. Our accounts may request discounts or extended payment terms on new arrangements or seek to extend payment terms on existing arrangements due to lower levels of infrastructure spending or for other reasons, all of which may reduce revenue. We may not be able to adjust our operating expenses to offset such discounts or other arrangements because a substantial portion of our operating expenses is related to personnel, facilities and marketing programs. The level of personnel and related expenses may not be able to be adjusted quickly and is based, in significant part, on our expectations for future revenues and demand.

Infrastructure projects typically have long timelines and we may invest in building capacity based on expected demand for our software solutions that takes longer to develop than we expect or fails to develop at all. Additionally, government spending on infrastructure may decrease, which could decrease the demand for our software solutions and have a negative impact on our results of operations. We may not be successful in forecasting future demand levels and could fail to win business at the expected rates. If we underestimate the demand for our software solutions, we may be unable to fulfill the increased demand in a timely fashion or at all. If we overestimate the demand for our software solutions, we may incur additional expenses for which we would not have corresponding revenues, negatively impacting our results of operations.

The majority of our revenues and an increasing percentage of our operations are attributable to operations outside the United States, and our results of operations therefore may be materially affected by the legal, regulatory, social, political, economic and other risks of foreign operations.

Approximately 60% and 58% of our total revenues were from outside the United States in the year ended December 31, 2018 and the nine months ended September 30, 2019, respectively. We anticipate that revenues from accounts outside the United States will continue to comprise a majority of our total revenues for the foreseeable future.

Our international revenues, including from emerging economies, are subject to general economic and political conditions in foreign markets and our revenues are impacted by the relative geographical and country mix of our revenues over time. These factors could adversely impact our international revenues and, consequently, our business. Our dependency on international revenues also makes us more exposed to global economic and political trends, which can negatively impact our financial results. Further, our operations outside the United States are subject to certain legal, regulatory, social, political, economic and other risks inherent in international business operations, including, without limitation:

- local product preference and product requirements;
- different consumer demand dynamics, which may make the products and services we offer less successful compared to the United States;
- more stringent regulations relating to privacy and data security and access to, or use of, commercial and personal information, such as the European Union's General Data Protection Regulation (the "GDPR"), and the Cybersecurity Law of the People's Republic of China;
- data privacy laws that require that account data be stored and processed in a designated territory or that certain transfers of account data outside of the country be notified to or registered with regulatory authorities;
- competition from local incumbents that understand the local market and may operate more effectively;
- trade protection measures, sanctions, quotas, embargoes, import and export licensing requirements, duties, tariffs or surcharges;
- changes in foreign regulatory requirements and tax laws;
- unexpected changes in foreign regulatory requirements;
- difficulty in establishing, staffing and managing non-U.S. operations;
- differing labor regulations where labor laws may be more advantageous to colleagues as compared to the United States, as well as increased labor costs;
- political and economic instability;
- fluctuating currency exchange rates, currency controls and inflation, recession or interest rate fluctuations;
- longer-term receivables than are typical in the United States and greater difficulty of collecting receivables in certain foreign jurisdictions;
- alleged or actual violations of anti-bribery and anti-corruption laws, rules and regulations in the foreign jurisdictions in which we do business;
- restrictions on the export of critical technology, software and services;
- complex tax and cash management issues;
- potentially adverse tax consequences, including the complexities of foreign value added tax systems, restrictions on the repatriation of earnings and changes in tax rates;
- the burdens of complying with a wide variety of foreign laws and different legal standards;
- longer sales and accounts receivable payment cycles in some countries;
- increased financial accounting and reporting burdens and complexities;

- terrorist attacks and security concerns in general;
- less rigorous or varied protection for intellectual property rights in some countries; and
- providing our solutions to accounts from different cultures, which may require us to adapt to sales practices, modify our solutions or products, and provide features necessary to effectively serve the local market.

The occurrence of any one of these risks could negatively affect our international business and, consequently, our business, financial condition and results of operations. Additionally, operating in international markets requires significant management attention and financial resources. We cannot be certain that the investment and additional resources required to operate in other countries will produce desired levels of revenue or profitability.

Recent and potential tariffs imposed by the U.S. government or a global trade war could increase the cost of our products and services and the cost of conducting our business, which could harm our business, financial condition and results of operations.

Recent and potential tariffs imposed by the U.S. government or a global trade war could increase the cost of our products and services and the cost of conducting our business, which could harm our business, financial condition and results of operations. The U.S. government has threatened substantial changes to trade agreements and has raised the possibility of imposing significant increases on tariffs on goods imported into the United States, particularly from China. The imposition of additional tariffs by the United States could result in the adoption of tariffs by other countries, leading to a global trade war. In addition, certain of these risks may be heightened as a result of changing political climates. For example, throughout 2018 and 2019, the United States and China have been levying tariffs on their respective imports. Such tariffs could have a significant impact on our business and the business of our accounts. While we may attempt to renegotiate prices with suppliers or diversify our supply chain in response to tariffs, such efforts may not yield immediate results or may be ineffective. We might also consider increasing prices to the end consumer; however, this could reduce the competitiveness of our products and services and adversely affect revenue. If we fail to manage these dynamics successfully, our gross margins and profitability could be adversely affected.

In addition, increases in the extent to which global trade is limited by tariffs or other trade barriers could negatively affect decisions to invest in infrastructure projects due to decreasing confidence in future profitability of such projects. Such resulting decreases in infrastructure spending could negatively affect demand for our software solutions, which could harm our business, financial condition, and results of operations.

Global economic conditions may negatively impact our business, financial condition, and results of operations.

Our operations and performance depend significantly on foreign and domestic economic conditions. Uncertainty regarding economic conditions may negatively impact us as accounts defer spending or postpone infrastructure projects in response to tighter credit, higher unemployment, financial market volatility, government austerity programs, negative financial news, escalations of hostilities or the threat of hostilities, declining valuations of investments and other factors. In addition, certain of our accounts' budgets may be constrained and they may be unable to procure our solutions at the same level as in prior periods. Our accounts' ability to pay for our software solutions and services may also be impaired, which may lead to an increase in our allowance for doubtful accounts and write-offs of accounts receivable. Since we are exposed to the majority of major world markets, uncertainty in any significant market may negatively impact our performance and results, particularly with respect to our largest geographic accounts. Our accounts include government entities, including the U.S. government, and if spending cuts impede the ability of governments to purchase our products and services, our revenues could decline. In addition, a number of our accounts rely, directly and

indirectly, on government spending. We are unable to predict economic conditions or the likelihood of additional economic uncertainty arising in any of our key markets. Changes in economic conditions could result in us not meeting our revenue growth objectives, and could harm our cash flows, business, financial condition and results of operations.

Geopolitical trends toward nationalism and protectionism and the weakening or dissolution of international trade pacts may increase the cost of, or otherwise interfere with, conducting our business. These trends have increased levels of political and economic unpredictability globally, and may increase the volatility of global financial markets; the impact of such developments on the global economy remains uncertain. Political instability or adverse political developments in any of the countries in which we do business could harm our business, financial condition and results of operations.

Decreased investment by APAC, including China, may have a negative effect on our business.

Approximately 19% of our revenues in the year ended December 31, 2018 relate to infrastructure projects in APAC, including China. We cannot assure you that spending in these countries on infrastructure projects will continue at historical levels or increase in the future, or that demand for our software solutions in APAC in general will not be negatively affected by reductions in spending or other limitations.

The sales cycle for some of our solutions can be long and unpredictable and requires considerable time and expense, which may cause our results of operations to fluctuate.

The sales cycle for some of our solutions, from initial contact with a potential lead to contract execution and implementation, varies widely by brand and account, and can be lengthy. Some of our accounts undertake a significant evaluation process that frequently involves not only our solution, but also solutions of our competitors, which may result in extended sales cycles. Our sales efforts involve educating our accounts and prospective accounts about the use, technical capabilities and benefits of our solutions. We also put a significant amount of time into discussing with our accounts the value and importance of migrating to the latest versions of our software solutions. We have no assurance that the substantial time and money spent on our sales efforts will increase sales or cause existing accounts to migrate to the latest versions of our software solutions. Furthermore, our sales and marketing efforts in a given period may only result in sales in subsequent periods, or not at all. If we do not realize sales in the time period expected or at all, our business, financial condition, and results of operations could be adversely affected.

If we do not keep pace with technological changes, and effectively market our new product solutions, our solutions may become less competitive and our business may suffer.

We operate in an industry generally characterized by rapidly changing technology and frequent new software introductions, which can render existing software obsolete or unmarketable. A major factor in our future success will be our ability to anticipate technological changes and to develop and introduce, in a timely manner, enhancements to our existing software solutions, new software solutions and software solutions acquired in acquisitions to meet those changes. In particular, the software industry has undergone a transition from developing and selling perpetual licenses and on-premises products to cloud, mobile, and social applications. If we are unable to adapt our software solutions to the changing needs of our accounts and infrastructure engineers and to respond quickly to sector changes, our business, financial condition, results of operations, and cash flows could be harmed.

The introduction and marketing of new or enhanced software solutions require us to manage the transition from existing software to minimize disruption in account use and purchasing patterns. There can be no assurance that we will be successful in developing and marketing, on a timely basis, new software or enhancements, that our new software solutions will adequately address the changing needs

of the marketplace or that we will successfully manage the transition from existing software solutions. In addition, our future software solutions may require a higher level of sales and support expertise. Any inability of our sales team, including our channel partners, to obtain this expertise and to sell the new software offerings effectively could have an adverse impact on our sales in future periods. Any of these problems may result in the loss of or delay in account acceptance, decreased demand for or usage of our software solutions, damage to our reputation, or increased service and warranty costs, any of which could harm our business, financial condition, results of operations, and cash flows.

We must act quickly, continuously, and with vision, given the rapidly changing expectations and technology advancements inherent in the software industry, the extensive and complex efforts required to create useful and widely accepted products and the rapid evolution of cloud computing, mobile devices, new computing platforms, and other technologies. Although we have articulated a strategy that we believe will fulfill these challenges, if we fail to execute properly on that strategy or adapt that strategy as market conditions evolve, we may fail to meet our accounts' expectations, fail to compete with our competitors' products and technology, and lose the confidence of our channel partners and colleagues, which in turn could adversely affect our business and financial performance.

Interruptions in the availability of server systems or communications with Internet, third-party hosting facilities or cloud-based services, or failure to maintain the security, confidentiality, accessibility, or integrity of data stored on such systems, could harm our business or impair the delivery of our managed services.

A significant portion of our software development personnel, source code, and computer equipment is located at operating facilities outside the United States. We also depend on data maintained on servers running third-party enterprise resource planning, account relationship management, and other business operations systems. We further rely upon a variety of Internet service providers, third-party hosting facilities, and cloud computing platform providers, such as Microsoft Azure, as well as local service providers to support project teams and users in most regions and countries throughout the world, particularly with respect to our cloud service solutions. Failure to maintain the security, confidentiality, accessibility, or integrity of data stored on such systems could damage our reputation in the market and our relationships with our accounts, cause us to lose revenue or market share, increase our service costs, cause us to incur substantial costs, cause us to lose accounts, subject us to liability for damages and divert our resources from other tasks, any one of which could adversely affect our business, financial condition, results of operations, and prospects. Any damage to, or failure of, such systems, or communications to and between such systems, could result in interruptions in our operations, managed services and software development activities. Such interruptions may reduce our revenue, delay billing, cause us to issue credits or pay penalties, cause accounts to terminate their subscriptions or adversely affect our attrition rates and our ability to attract new accounts. Our business would also be harmed if our accounts and potential accounts believe our products or services are unreliable.

If our security measures or those of our third-party cloud data hosts, cloud computing platform providers, or third-party service partners, are breached, and unauthorized access is obtained to an account's data, our data or our IT systems, our services may be perceived as not being secure, accounts may curtail or stop using our services, and we may incur significant legal and financial exposure and liabilities.

As we digitize and use cloud and web-based technologies to leverage account data to deliver a more complete account experience, we are exposed to increased security risks and the potential for unauthorized access to, or improper use of, our and our accounts' information. Certain of our services involve the storage and transmission of accounts' proprietary information, and security breaches could expose us to a risk of loss of this information, litigation and possible liability. Although we devote resources to maintaining our security and integrity, we may not prevent security incidents.

The risk of a security breach or disruption, particularly through cyber attack or cyber intrusion, including by computer hackers, foreign governments and cyber terrorists, has increased as the number, intensity, and sophistication of attempted attacks and intrusions from around the world have increased. These threats include but are not limited to identity theft, unauthorized access, domain name system attacks, wireless network attacks, viruses and worms, advanced persistent threat, application centric attacks, peer-to-peer attacks, phishing, backdoor trojans, and distributed denial of service attacks. Any of the foregoing could attack our accounts' data (including their employees' personal data), our data (including colleagues' personal data) or our IT systems. It is virtually impossible for us to entirely eliminate this risk. Like all software, our software is vulnerable to cyber attacks. The impact of cyber attacks could disrupt the proper functioning of our software solutions or services, cause errors in the output of our accounts' work, allow unauthorized access to sensitive, proprietary or confidential information of ours or our accounts, and other destructive outcomes.

Additionally, third parties may attempt to fraudulently induce colleagues or accounts into disclosing sensitive information such as user names, passwords or other information in order to gain access to our accounts' data, our data or our IT systems. Malicious third parties may also conduct attacks designed to temporarily deny accounts access to our services. Any security breach could result in a loss of confidence in the security of our products and services, damage our reputation, negatively impact our future sales, disrupt our business and lead to regulatory inquiry and legal liability.

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

We sell our solutions in 172 countries, primarily through a direct salesforce located throughout the world. Approximately 60% and 58% of our total revenues were derived from outside of the United States in the year ended December 31, 2018 and in the nine months ended September 30, 2019, respectively. As we continue to expand our presence in international regions, the portion of our revenue, expenses, cash, accounts receivable and payment obligations denominated in foreign currencies continues to increase. Further, we anticipate that revenues from accounts outside of the United States will continue to comprise the majority of our total revenues for the foreseeable future.

Because of our international activities, we have revenue, expenses, cash, accounts receivable and payment obligations denominated in foreign currencies. In the year ended December 31, 2018 and the nine months ended September 30, 2019, 49% and 47% of our total revenues, respectively, were denominated in a currency other than the U.S. Dollar. As a result, we are subject to currency exchange risk. Our revenues and results of operations are adversely affected when the U.S. Dollar strengthens relative to other currencies and are positively affected when the U.S. Dollar weakens. As a result, changes in currency exchange rates will affect our financial position, results of operations and cash flows. In the event that there are economic declines in countries in which we conduct transactions, the resulting changes in currency exchange rates may affect our financial condition, results of operations, and cash flows. We are most impacted by movements in and among the Euro, British Pound, Australian Dollar, Canadian Dollar and Chinese Yuan Renminbi. For example, the Chinese Yuan Renminbi has fluctuated against the U.S. Dollar, at times significantly and unpredictably, due to changes in foreign exchange for a wide variety of reasons, including actions instituted by China. Because of changes in trade between the United States and China and Renminbi internationalization, the China may in the future announce further changes to the exchange rate system, and we cannot assure you that the Renminbi will not appreciate or depreciate significantly in value against the U.S. Dollar in the future.

In addition, countries in which we operate may be classified as highly inflationary economies, requiring special accounting and financial reporting treatment for such operations, or such countries' currencies may be devalued, or both, which may harm our business, financial condition, and results of operations.

We cannot predict the impact of foreign currency fluctuations and we may not be successful in minimizing the risks of these fluctuations. In addition, the fluctuation and volatility of currencies, even when it increases our revenues or decreases our expenses, impacts our ability to accurately predict our future results and earnings.

The results of the United Kingdom's referendum on withdrawal from the European Union may have a negative effect on global economic conditions, financial markets and our business.

The United Kingdom's intended withdrawal from the European Union ("Brexit"), has created political and economic uncertainty, particularly in the United Kingdom and the European Union, and this uncertainty may last for years. Demand for our software solutions or services could be affected during this period of uncertainty, and perhaps longer, by the impact of Brexit. The impending Brexit has caused and may continue to cause delays in purchasing decisions by our potential and current accounts affected by this transition and there is considerable uncertainty as to when the long-term nature of the United Kingdom's relationship with the European Union will be agreed and implemented. Any exit by the United Kingdom from the European Union may result in new regulatory and cost challenges to our U.K. and global operations. In addition, our and channel partners' business could be negatively affected by new trade agreements between the United Kingdom and other countries, including the United States and by the possible imposition of trade or other regulatory barriers in the United Kingdom. The outcome of the referendum has also created uncertainty with regard to the regulation of data protection in the United Kingdom. In particular, it is unclear how the United Kingdom's vote to leave the European Union will affect the United Kingdom's enactment of the GDPR, and how data transfers to and from the United Kingdom will be regulated. Depending on the terms reached regarding any exit from the European Union, it is possible that there may be adverse practical or operational implications on our business.

We face intense competition.

We continue to experience competition across all markets for our software solutions and services. Our competitors include large, global, publicly-traded companies, small, specialty or geographically-focused firms and organizations who develop their own solutions internally. Some of our current and possible future competitors have greater financial, technical, sales, marketing and other resources than us, some specialize in developing niche software solutions and some have well-established relationships with our current and potential accounts. There is no assurance that we will be able to continue to compete effectively. Parties among our current or future strategic alliances may diminish or sever technical, software development and marketing relationships with us for competitive purposes. These competitive pressures may result in decreased sales volumes, price reductions and/or increased operating costs, and could result in lower revenues, margins and net income.

We may not be able to increase the number of new subscription-based accounts or cause existing accounts to renew their subscriptions, which could have a negative impact on our future revenues and results of operations.

We may not be able to increase demand for our subscription-based services in line with our growth strategy. Our accounts are not obligated to renew their subscriptions for our offerings, and they may elect not to renew. We cannot assure renewal rates, or the mix of subscriptions renewals. Account renewal rates may decline or fluctuate due to a number of factors, including offering pricing, competitive offerings, account satisfaction, and reductions in account spending levels or account activity due to economic downturns or financial markets uncertainty. If our accounts do not renew their subscriptions or if they renew on less favorable terms, our revenues may decline, which could harm our business, financial condition, and results of operations.

Our revenue recognition policy and other factors may create volatility in our financial results in any given period and make them difficult to predict.

As described in Note 3 to our consolidated financial statements for the year ended December 31, 2018 and the nine months ended September 30, 2019 and September 30, 2018 included elsewhere in this prospectus, we adopted ASC 606 effective January 1, 2019. The new revenue guidance significantly impacts our timing of subscriptions and perpetual licenses revenue. Under previous revenue guidance, we historically maintained stable recurring revenue from the sale of software subscriptions and perpetual licenses. Under ASC 606, perpetual licenses and the license component of applicable subscriptions are recognized up front. The maintenance portion of subscription contracts continues to be recognized over the contract term.

The adoption of the new revenue recognition guidance creates the likelihood for subscriptions and licenses revenue volatility to increase across quarterly periods, particularly as compared to our results under the previous revenue recognition standard. Annual and trailing twelve-months subscription revenues will be more consistent between periods, and as compared to our results under the previous revenue recognition standard, due to the annual, recurring nature of our subscription agreements. However, annual results are still subject to volatility due to the timing of renewals between periods, timing of new sales contracts, changes in contract term and length, changes in perpetual license sales, and conversion of existing subscription users to other commercial offerings, particularly consumption-based offerings

Our quarterly results of operations have fluctuated in the past and may fluctuate in the future, which could cause the price of our Class B common stock to decline or become volatile. These potential fluctuations can make our future results difficult to predict and cause our results of operations to fall below analyst or investor expectations.

Our quarterly results of operations have fluctuated in the past and may fluctuate in the future as a result of a variety of factors, many of which are outside of our control. If our quarterly results of operations or guidance fall below the expectations of research analysts or investors, the price of our Class B common stock could decline substantially. The following factors, among others, could cause fluctuations in our quarterly results of operations:

- our success in selling our subscription and services offerings;
- our ability to attract new accounts and retain existing accounts, including in connection with consolidation activities among, or management changes at, our accounts;
- our ability to accurately forecast revenues and appropriately plan our expenses;
- our ability to introduce new features, including ensuring inter-operational ability with our existing solutions and with third-party software and devices;
- our receiving milestone payments in respect of the projects for which our software is providing solutions;
- the actions of our competitors, including consolidation within the industry, pricing changes or the introduction of new solutions;
- our ability to effectively manage our growth;
- our ability to successfully manage any future acquisitions of businesses, solutions or technologies;
- the timing and cost of developing or acquiring technologies or businesses;
- the timing, operating costs and capital expenditures related to the operation, maintenance and expansion of our business;

- service outages or security breaches and any related occurrences that could impact our reputation;
- the impact of worldwide economic, industry and market conditions, including disruptions in financial markets and the deterioration of the underlying economic conditions in some countries;
- trade protection measures, such as tariffs and duties, and import or export licensing requirements;
- fluctuations in currency exchange rates;
- changes in government regulation affecting our business; and
- costs associated with defending intellectual property infringement and other claims.

Our quarterly revenues and results of operations may vary in the future, and period-to-period comparisons of our results of operations may not be meaningful. Any one or more of the factors above may result in significant fluctuations in our quarterly results of operations. You should not rely on the results of one quarter as an indication of future performance.

The variability and unpredictability of our quarterly results of operations or other operating metrics could result in our failure to meet our expectations or those of analysts that cover us or investors with respect to revenues or other key metrics for a particular period. If we fail to meet or exceed such expectations for these or any other reasons, the market price of our Class B common stock could fall, and we could face costly lawsuits, including securities class action suits.

Failure to protect our intellectual property rights could impair our ability to protect our proprietary technology and our brand.

Our future success and competitive position depend in large part on our ability to protect our intellectual property and proprietary technologies. We rely on a combination of copyright, patent, trademark and trade secret laws, as well as confidentiality procedures and contractual restrictions, to secure and protect our intellectual property rights, all of which provide only limited protection and may not currently or in the future provide us with a competitive advantage. Patents or trademarks may not issue from any of our pending or future patent or trademark applications. Patents or trademarks that do issue from such applications may not give us the protection that we seek, and such patents or trademarks may be challenged, invalidated, or circumvented. Any patents or trademarks that may issue in the future from our pending or future patent and trademark applications may not provide sufficiently broad protection and may not be enforceable in actions against alleged infringers.

The steps we take may not be adequate to protect our technologies and intellectual property, our patent and trademark applications may not lead to issued patents or registered trademarks, others may develop or patent similar or superior technologies or solutions, and our patents, trademarks, and other intellectual property may be challenged, invalidated, designed around or circumvented by others. Furthermore, effective copyright, patent, trademark and trade secret protection may not be available in every country in which our solutions are available or where we do business.

The steps we have taken, and will take, may not prevent unauthorized use, reverse engineering, or misappropriation of our technologies and we may not be able to detect any of the foregoing. Others may independently develop technologies that infringe on our intellectual property rights. In addition, we cannot control the use of our open source components, which could allow third parties to create products or solutions that compete with our offerings or that contain errors, defects or other performance problems that could hurt our reputation and reduce the adoption of our solutions in new and existing accounts. Defending and enforcing our intellectual property rights may result in litigation or other contentious actions, any such litigation may not be successful, and even if successful, such litigation can be costly and divert management attention and resources. Further, if we are unsuccessful

in asserting our intellectual property rights, an adverse decision could place limitations on the scope of our rights. If our efforts to protect our technologies and intellectual property are inadequate, the value of these intangible assets may be diminished and competitors may be able to replicate our solutions and methods of operations. Any of these events could harm our business, financial condition, and results of operations.

Although copyright protection is available for works of authorship such as computer code, we primarily rely on trade secrets laws to protect our proprietary software code, and have chosen not to register copyrights for the code. Under the United States Copyright Act, copyrights must be registered before the copyright owner may bring an infringement suit in the United States, and if a copyright is not registered within three months of publication of the underlying work, there are limitations on the damages that the copyright owner may be awarded for infringement. Accordingly, because we have chosen not to register the copyrights in our software, the causes of action, remedies and damages available to us in an enforcement action may be limited.

Consolidation among our accounts and other enterprises in the markets in which we operate may result in loss of business.

It is likely that some of our existing accounts will consolidate, be acquired or experience a change in management, which could lead to a decrease in the size of our account base. We expect consolidation among our accounts as they attempt to strengthen or maintain their market positions. If two or more of our accounts consolidate, they may also wish to consolidate the software solutions and services that we provide to them. If an existing account is acquired by another company that uses the solutions of one of our competitors, we may lose business in that account to our competitor. In addition, if an account experiences a change in management, the new management team may be accustomed to the software of one of our competitors, and we could lose that account. Any such consolidation, acquisition or management change could lead to pricing pressure, erosion of our margins, loss of accounts and loss of market share, all of which could harm our business, financial condition, and results of operations.

We have in the past and expect to continue in the future to seek to grow our business through acquisitions of or investments in new or complementary businesses, software solutions or technologies, and the failure to manage acquisitions or investments, or the failure to integrate them with our existing platform and business, could harm us.

Since our founding, we have strategically acquired and integrated numerous software assets and businesses. We may, however, be unable to identify suitable acquisition candidates in the future or, if suitable candidates are identified, we may be unable to complete the business combination on commercially acceptable terms. The process of exploring and pursuing acquisition opportunities may result in devotion of significant management and financial resources.

Even if we are able to consummate acquisitions that we believe will be successful, these transactions present many risks including, among others:

- failing to achieve anticipated synergies and revenue increases;
- difficulty incorporating and integrating the acquired technologies or software solutions with our offerings, and existing applications;
- difficulties managing an acquired company's technologies or lines of business or entering new markets where we have limited prior experience or where competitors may have stronger market positions;
- maintaining the quality standards that are consistent with our brand and reputation;

- difficulty in coordinating, establishing or expanding sales, distribution and marketing functions, as necessary;
- disruption of our ongoing business and diversion of management's attention to transition or integration issues;
- the potential that due diligence of the acquired business or product does not identify significant problems;
- exposure to litigation or other claims in connection with, or inheritance of claims or litigation risk as a result of, an acquisition, including but not limited to, claims from terminated colleagues, accounts, or other third parties;
- unanticipated and unknown liabilities, including for intellectual property infringement;
- increases in our interest expense, leverage and debt service requirements if we incur additional debt to pay for an acquisition;
- if we were to issue a significant amount of equity securities in connection with future acquisitions, dilution to existing stockholders and potential decreases in earnings per share;
- the loss of key colleagues, accounts and channel partners of ours or of the acquired company; and
- difficulties implementing and maintaining sufficient controls, policies and procedures over the systems, software and processes of the acquired company.

We may also incur unanticipated costs, expenses or other liabilities as a result of an acquisition target's violation of applicable laws, such as the Foreign Corrupt Practices Act ("FCPA") or similar worldwide anti-bribery and anti-corruption laws in foreign jurisdictions, as well as data security and privacy laws such as the GDPR. If we do not achieve the anticipated benefits of our acquisitions as rapidly or to the extent anticipated by management and financial or industry analysts, or if we are subject to unanticipated costs, expenses or other liabilities in connection with our acquisitions, there could be an adverse effect on our stock price, business, financial position, results of operations or cash flows.

We may not be successful in overcoming such risks, and such acquisitions may negatively impact our business. In addition, such acquisitions may contribute to potential fluctuations in our quarterly financial results. These fluctuations could arise from transaction-related costs and charges associated with eliminating redundant expenses or write-offs of impaired assets recorded in connection with acquisitions. These costs or charges could negatively impact our financial results for a given period, cause quarter to quarter variability in our financial results or negatively impact our financial results for several future periods.

Increasingly stringent and growing data protection and privacy laws with respect to cloud computing, cross-border data transfer restrictions and other restrictions may apply to our business and non-compliance with such rules may limit the use and adoption of our services and adversely affect our business.

As a global software and service provider, we collect and process personal data and other data from our users and prospective users. We use this information to provide solutions and applications to our accounts, to validate user identity, to fulfill contractual duties and administer billing and support, to expand and improve our business, and to communicate and recommend products and services through our marketing and advertising efforts. We may also share accounts' personal data with certain third parties as described in the privacy policy provided to each account. As a result, we are required to comply with local laws and regulations, including data protection requirements in the countries where we do business.

Globally, new and evolving regulations regarding data protection and privacy and other standards governing the collection, processing, storage and use of personal data impose additional burdens for us due to increasing compliance standards that could restrict the use and adoption of our solutions and applications (in particular cloud services).

We have significant business operations in the European Union ("E.U.") and European Economic Area ("EEA"), where the GDPR went into effect on May 25, 2018. The GDPR harmonized data protection regulations across the E.U. and EEA, implementing stringent requirements for the protection of E.U. and EEA individuals' ("data subjects") personal data. These requirements include expanded requirements for our users as E.U. and EEA data subjects, new obligations on us as data controllers and processors, and mandatory breach notification to affected individuals and data protection supervisory authorities. Non-compliance with GDPR could result in fines and penalties up to the greater of €20 million or 4% of global turnover for the preceding financial year. Moreover, individuals can claim damages resulting from infringement of the GDPR. As a result of the GDPR, as a personal data processor for our business-to-business accounts we must commit to detailed contractual obligations, including to ensure we only process such data on our accounts' instructions, keep it secure, require our sub-processors to commit to similar commitments, delete data when the contract ends and let our accounts audit our compliance.

In addition, E.U. and EEA data protection rules regulate the transfers of E.U. and EEA individuals' personal data to other countries that have been deemed by the European Commission not to provide adequate protection to personal data. The United States is not deemed to have adequate laws to protect personal data. The E.U. and the United States formally entered into a new framework in July 2016 that provides a mechanism for companies to lawfully transfer personal data from E.U. member states to the United States. This framework, called the Privacy Shield, was developed as a means to address shortcomings identified by the European Court of Justice in a predecessor mechanism. In July 2017, the Privacy Shield was also adopted by the EEA. The Privacy Shield and other mechanisms for transfer of personal data outside the E.U. and EEA are currently subject to challenges in European courts, which may lead to uncertainty about the legal basis for data transfers from the E.U. and EEA to the United States. The Privacy Shield and other potential rules on the flow of data across borders could increase the cost and complexity of delivering our products and services in some markets and may lead to governmental enforcement actions, litigation, fines and penalties or adverse publicity, which could have an adverse effect on our reputation and business.

Further, laws such as the E.U.'s Privacy and Electronic Communications Directive 2002 ("ePrivacy Directive"), national legislation across the E.U. implementing the ePrivacy Directive and the proposed ePrivacy Regulation are increasingly aimed at the use of personal data for marketing purposes, and the tracking of individuals' online activities. These existing or proposed laws and regulations are subject to differing interpretations and may be inconsistent among jurisdictions and member states. These and other requirements may have a negative effect on businesses, including ours, that collect and use online usage information for consumer acquisition and marketing. As the text of the ePrivacy Regulation is still under development, and as further guidance is issued and interpretation of both the ePrivacy Regulation and GDPR develop, we could incur costs to comply with these regulations.

In the Asia-Pacific region, where we have significant business operations, changes in privacy and cybersecurity regulation, some of which is similar to changes effected by the GDPR, have come into effect in 2018 and 2019, and similar significant regulatory changes are expected across the Asia-Pacific region in the future. These changes introduce more stringent requirements, including that we register our data processing activities in certain jurisdictions, appoint local representatives in-country, restrict the cross-border transfer of personal, confidential and commercially sensitive information in some cases, provide expanded disclosures to tell our accounts about how we use their personal information, and obtain detailed consents from accounts to processing of personal information. There are also increased rights for accounts to access, control and delete their personal information. In addition, there

are mandatory data breach notification requirements that differ depending on the jurisdiction as well as increases to penalties and expanded enforcement powers for regulators.

We also expect that there will continue to be new proposed laws, regulations and industry standards concerning privacy, data protection and information security in the United States, the E.U., the EEA, and other jurisdictions, and we cannot yet determine the impact such future laws, regulations and standards may have on our business. For example, in June 2018 California enacted the California Consumer Privacy Act (the "CCPA"), which took effect on January 1, 2020. The CCPA broadly defines personal information, gives California residents expanded privacy rights and protections and provides for civil penalties for violations and a private right of action for data breaches. In addition to government activity, privacy advocacy groups and technology and other industries are considering various new, additional or different self-regulatory standards that may place additional burdens on us. Future laws, regulations, standards and other obligations, and changes in the interpretation of existing laws, regulations, standards and other obligations could impair our ability to collect, use or disclose personally identifiable information, increase our costs and impair our ability to maintain and grow our account base and increase our revenue. New laws, amendments to or re-interpretations of existing laws and regulations, industry standards, contractual obligations and other obligations may require us to incur additional costs and restrict our business operations. Such laws and regulations may require companies to implement privacy and security policies, permit users to access, correct and delete personal data stored or maintained by such companies, inform individuals of security breaches that affect their personal data, and, in some cases, obtain individuals' consent to use personal data for certain purposes. If we, or the third parties on which we rely, fail to comply with federal, state and international data privacy laws and regulations, our ability to successfully operate our business and pursue our business goals could be harmed.

Our failure to comply with applicable laws and regulations, or to protect such data, could result in enforcement action against us, including fines and public censure, claims for damages by accounts and other affected individuals, damage to our reputation and loss of goodwill (both in relation to existing accounts and prospective accounts), any of which could harm our business, financial condition, and results of operations.

Around the world, there are numerous lawsuits in process against various technology companies that process personal data. If those lawsuits are successful, it could increase the likelihood that our company may be exposed to liability for our own policies and practices concerning the processing of personal data and could hurt our business.

In addition to government activity, privacy advocacy and other industry groups have established or may establish new self-regulatory standards that may place additional burdens on us. Our accounts expect us to meet voluntary certification or other standards established by third parties or imposed by the accounts themselves. If we are unable to maintain these certifications or meet these standards, it could adversely affect our ability to provide our solutions to certain accounts and could harm our business. Further, if we were to experience a breach of systems compromising our accounts' sensitive data, our brand and reputation could be adversely affected, use of our software solutions and services could decrease, and we could be exposed to a risk of loss, litigation, and regulatory proceedings.

The costs of compliance with and other burdens imposed by laws, regulations and standards may limit the use and adoption of our services and reduce overall demand for it, or lead to significant fines, penalties or liabilities for any noncompliance.

Furthermore, concerns regarding data privacy may cause our accounts' customers to resist providing the data necessary to allow our accounts to use our services effectively. Even the perception that the privacy of personal information is not satisfactorily protected or does not meet regulatory requirements could inhibit sales of our software solutions or services, and could limit adoption of our cloud-based solutions.

We depend on our senior management team and other key personnel, and we could be subject to substantial risk of loss if any of them terminate their relationship with us.

Our success depends upon the continued services of our key personnel, including our Chief Executive Officer, Gregory S. Bentley, and one of our founders, Keith A. Bentley, each of whom plays an important role in day-to-day operations. The Bentleys and each of our other executive officers, key technical personnel and colleagues could terminate his or her relationship with us at any time. Failure to effectively implement our succession planning efforts and to ensure effective transfers of knowledge and smooth transitions involving key personnel could disrupt or adversely affect our business and results of operations. Additionally, the Bentleys and most of our senior management team and other key personnel are not subject to employment or other agreements containing non-compete provisions. Accordingly, the adverse effect resulting from the loss of certain key personnel could be compounded by our inability to prevent them from competing with us. Further, we do not maintain key person insurance on any of our senior management team or other key personnel in the event of their death or extended incapacity. The loss of any of our senior executives might significantly delay or prevent the achievement of our business objectives and could harm our business and account relationships.

If we are not successful in attracting, integrating and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

Our ability to establish and maintain a position of technology leadership in the highly competitive software market depends in large part upon our ability to attract, integrate and retain highly skilled engineering and development personnel in the United States and internationally. The market for this talent is highly competitive, and our recruiting efforts are widespread and conducted in varying hiring climates throughout the world. Due to restrictive immigration laws in the United States, we are also sometimes limited in our ability to integrate our international colleagues to locations where their skills may be particularly well-suited. If we are not successful in recruiting and retaining key personnel or integrating our personnel effectively, our business, reputation and results of operations could be adversely affected.

Quality problems, defects, errors, failures or vulnerabilities in our software solutions or services could harm our reputation and adversely affect our business, financial condition, results of operations, and prospects.

Our solutions are, in some cases, highly complex and incorporate advanced software technologies that we attempt to make interoperable with the products of other software providers. Despite testing prior to release, our software may contain undetected defects or errors. Further, the combined use of our software with those of other software providers may cause errors or failures, or it may expose undetected defects, errors or failures in our software. These defects, errors or failures could affect software performance and damage the businesses of our accounts as well as delay the development or release of new software or new versions of software. Further, we cannot guarantee that all of our accounts are using the latest versions of our software solutions with enhanced security features, and may be more vulnerable to cyber attacks. Allegations of unsatisfactory performance in any of these situations could damage our reputation in the market and our relationships with our accounts, cause us to lose revenue or market share, increase our service costs, cause us to incur substantial costs in analyzing, correcting or redesigning the software, cause us to lose accounts, subject us to liability for damages and divert our resources from other tasks, any one of which could adversely affect our business, financial condition, results of operations, and prospects. We may also be required to provide full replacements or refunds for such defective software. We cannot assure you that such remediation would not harm our business, financial condition, results of operations, and prospects.

Our business, financial condition, results of operations, and prospects may be harmed if we are unable to cross-sell our solutions.

A significant component of our growth strategy is to increase the cross-selling of our solutions to current and future accounts, however, we may not be successful in doing so if our accounts find our additional solutions to be unnecessary or unattractive. We have invested, and intend to continue to invest, significant resources in developing and acquiring additional solutions, which resources may not be recovered if we are unable to successfully cross-sell these solutions to accounts using our existing solutions. Any failure to sell additional solutions to current and future accounts could harm our business, financial condition, results of operations and prospects.

We license third-party technologies for the development of certain of our software solutions, and, in some instances, we incorporate third-party technologies, including open source software, into our software solutions. If we fail to maintain these licenses or are unable to secure alternative licenses on reasonable terms, our business could be adversely affected.

We license third-party technologies to develop certain of our products, and, in some cases, we incorporate third-party technologies into our own software solutions, including technologies owned by our competitors. If we were to seek to expand the scope of this activity in the future, we could be required to obtain additional licenses and enter into long-term arrangements with third parties on whose technology we could become substantially dependent.

If we are unable to use or license these third-party technologies on reasonable terms, including commercially justifiable royalty rates, or if these technologies fail to operate properly or be appropriately supported, maintained or enhanced, we may not be able to secure alternatives in a timely manner and our ability to develop and commercialize our own software solutions could be adversely impacted. In addition, licensed technology may be subject to claims that it infringes others' intellectual property rights, and we may lose access to or have restrictions placed on our use of the licensed technology.

Furthermore, we are unable to predict whether future license agreements and arrangements with third parties can be obtained, and, if obtained, whether they can be renewed on acceptable terms, or at all. If we become substantially dependent upon any such third-party technology and we are unable to successfully license it, we may not be able to develop or commercialize our software solutions in a timely manner or at all. Any of the foregoing could adversely impact our business and results of operations.

We also incorporate open source software into our products. While we have attempted not to use open source code in a manner which could adversely impact our proprietary code, the terms of many open source licenses have not been interpreted by U.S. courts, and there is a risk that such licenses could be construed in a manner that could impose unanticipated conditions or restrictions on our ability to market or sell our products or to develop new products. In such event, we could be required to seek licenses from third-parties in order to continue offering our products, to disclose and offer royalty-free licenses to our own source code, to re-engineer our products, or to discontinue the sale of our products in the event re-engineering cannot be accomplished on a timely basis, any of which could adversely impact our business and results of operations.

As a result of our strategy of strategic partnerships with other companies for product development, our product delivery schedules could be adversely affected if we experience difficulties with our product development partners.

We have strategic partnerships with certain independent firms and contractors to perform some of our product development activities. We believe our strategic partnerships allow us to, among other things, achieve efficiencies in developing new products and maintaining and enhancing existing product

offerings. Our strategic partnerships create a dependency on such independent developers. Independent developers, including those who currently develop solutions for us in the United States and throughout the world, may not be able or willing to provide development support to us in the future. In addition, use of development resources through consulting relationships, particularly in non-U.S. jurisdictions with developing legal systems, may be adversely impacted by, and expose us to risks relating to, evolving employment, export and intellectual property laws. These risks could, among other things, expose our intellectual property to misappropriation and result in disruptions to product delivery schedules, which in turn could harm our business, financial condition, and results of operations.

There are significant costs and restrictions associated with the repatriation of cash from our non-U.S. operations.

Our cash and cash equivalents balances are concentrated in a few locations around the world, with approximately 97% of those balances held outside of the United States as of September 30, 2019. Cash repatriation restrictions may limit our ability to repatriate cash held by our foreign subsidiaries. Additionally, the repatriation of cash held by our foreign subsidiaries may result in adverse tax consequences. Any repatriation of cash may be restricted or may result in our incurring substantial costs. As a result, we may be required to seek sources of cash to fund our operations, including through the issuance of equity securities, which may be dilutive to existing stockholders, or by incurring additional indebtedness. There can be no assurance that we will be able to secure sources of financing on terms favorable to us, or at all.

Assertions by third parties of infringement or other violations by us of their intellectual property rights could result in significant costs and harm our business and results of operations.

Vigorous protection and pursuit of intellectual property rights has resulted in protracted and expensive litigation for many companies in our industry. Although claims of this kind have not materially affected our business to date, there can be no assurance such claims will not arise in the future. Any claims or proceedings against us, regardless of whether meritorious, could be time consuming, result in costly litigation, require significant amounts of management time, result in the diversion of significant operational resources, or require us to enter into royalty or licensing agreements, any of which could harm our business, financial condition, and results of operations.

Intellectual property lawsuits are subject to inherent uncertainties due to the complexity of the technical issues involved, and we cannot be certain that we will be successful in defending ourselves against intellectual property claims. In addition, we may not be able to effectively use our intellectual property portfolio to assert defenses or counterclaims in response to copyright, patent and trademark infringement claims or litigation, as well as claims for trade secret misappropriation and unfair competition, brought against us by third parties. Further, litigation may involve patent holding companies or other adverse patent owners who have no relevant products and against whom our patent portfolio may provide little or no deterrence.

Many potential litigants have the capability to dedicate substantially greater resources to enforce their intellectual property rights and to defend claims that may be brought against them. Furthermore, a successful claimant could secure a judgment that requires us to pay substantial damages or prevents us from distributing certain solutions or performing certain services. We might also be required to seek a license and pay royalties for the use of such intellectual property, which may not be available on commercially acceptable terms or at all. Alternatively, we may be required to develop non-infringing technology, which could require significant effort and expense and may ultimately not be successful.

If our solutions infringe on the intellectual property rights of others, we may be required to indemnify our accounts for any damages they suffer.

We generally indemnify our accounts with respect to infringement by our products of the proprietary rights of third parties. Third parties may assert infringement claims against our accounts. These claims may require us to initiate or defend protracted and costly litigation on behalf of our accounts, regardless of the merits of these claims. If any of these claims succeed, we may be forced to pay damages on behalf of our accounts or may be required to obtain licenses for the products they use. If we cannot obtain all necessary licenses on commercially reasonable terms, our accounts may stop using our products.

Pricing pressure from our competitors and our accounts may impact our ability to sell our software solutions at prices necessary to support our current business strategies.

The intense competition we face in the sales of our software solutions and services, and general economic and business conditions, can put pressure on us to lower our prices. If our competitors offer deep discounts on certain software solutions or services, or develop software solutions that the marketplace considers more valuable, we may need to lower prices or offer discounts or other favorable terms to compete successfully. Any such changes may reduce operating margins and could adversely affect results of operations. Any broad-based change to our prices and pricing policies could cause new software subscription and service revenues to decline or be delayed as our salesforce implements and our accounts adjust to the new pricing policies.

Our credit agreement contains restrictive covenants that may limit our operating flexibility, and certain changes in ownership of equity interests in us by the Bentleys constitutes an event of default.

The agreement governing the Credit Facility (as defined below) contains certain restrictive covenants that limit our ability to enter into new agreements, incur indebtedness other than amounts under the Credit Facility and specified baskets, incur additional liens, merge or consolidate with other companies or consummate certain changes of control, enter into new lines of business, pay dividends to our stockholders, make investments in and acquire other businesses and transfer or dispose of assets. In certain circumstances, the agreement governing the Credit Facility may also limit our ability to transfer cash among our subsidiaries and between us and our subsidiaries, including our foreign subsidiaries. It also contains certain financial covenants, including a covenant requiring us not to permit the net leverage ratio to exceed 3.50 to 1.00 and a covenant requiring the fixed charge coverage ratio for any period of four consecutive fiscal quarters to not be less than 3.0 to 1.00, and financial reporting requirements. Borrowings under the Credit Facility are secured by a first priority security interest in substantially all of our U.S. assets and 65% of the stock our foreign subsidiaries owned by a party to the agreement governing the Credit Facility.

Further, if the Bentleys, their family members and their family trusts cease to collectively own equity interests in us representing at least a majority of the aggregate voting power of the Company, then such change in ownership will be an event of default under the agreement governing the Credit Facility and, among other things, the commitments under the Credit Facility may be terminated immediately and the outstanding loans and accrued interest may become due and payable immediately.

In addition, there is no guarantee that we will be able to generate sufficient cash flow or revenues to meet these financial covenants or pay the principal and interest on any debt. Furthermore, there is no guarantee that future working capital, borrowings or equity financing will be available to repay or refinance any debt. Any inability to make scheduled payments or meet the financial covenants in the agreement governing the Credit Facility would adversely affect our business.

We may incur substantial additional debt, which could exacerbate the risks described above.

We may incur additional debt in the future. Although the agreement governing the Credit Facility contains restrictions on our ability to incur indebtedness, those restrictions are subject to a number of exceptions which permit us and our subsidiaries to incur substantial debt. Adding new debt to current debt levels could intensify the related risks that we and our subsidiaries now face. See the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources."

We may need to raise additional capital, which may not be available to us.

We may require substantial funds to operate our business and pursue our strategies. Our future liquidity and capital requirements are difficult to predict as they depend upon many factors, including the success of our solutions and competing technological and market developments. In the future, we may require additional capital to respond to business opportunities, challenges, acquisitions, a decline in the level of account prepayments or unforeseen circumstances and may determine to engage in equity or debt financings or enter into credit facilities for other reasons, and we may not be able to timely secure additional debt or equity financing on favorable terms, or at all. Any additional debt financing obtained by us in the future could involve restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and to pursue business opportunities, including potential acquisitions. If we raise funds through issuances of equity, convertible debt securities or other securities convertible into equity, our existing stockholders could suffer significant dilution in their percentage ownership of our company. If we are unable to obtain adequate financing or financing on terms satisfactory to us when we require it, our ability to continue to grow or support our business and to respond to business challenges could be significantly limited.

From time to time we realign or introduce new business initiatives, including reorganizing our sales and marketing, research and development and administrative functions; if we fail to successfully execute and manage these initiatives, our results of operations could be negatively impacted.

We rely heavily on our direct salesforce. From time to time, we reorganize and make adjustments to our sales leadership and/or our salesforce in response to such factors as management changes, performance issues, market opportunities and other considerations. These changes may result in a temporary lack of sales production and may adversely impact revenues in future quarters. Market acceptance of any new business or sales initiative is dependent on our ability to match our accounts' needs at the right time and price. There can be no assurance that we will not restructure our salesforce in future periods or that the transition issues associated with such a restructuring will not occur. Similarly, reorganization of our research and development and administrative functions can disrupt our operations and negatively impact our results of operations if the execution is not managed properly. If any of our assumptions about expenses, revenues or revenue recognition principles from these initiatives proves incorrect, or our attempts to improve efficiency are not successful, our actual results may vary materially from those anticipated, and our financial results could be negatively impacted.

We may have to invest more resources in research and development than anticipated, which could increase our operating expenses and negatively affect our results of operations.

We devote substantial resources to research and development. New competitors, technological advances in the software industry or by competitors, our acquisitions, our entry into new markets, or other competitive factors may require us to invest significantly greater resources than we anticipate. If we are required to invest significantly greater resources than anticipated without a corresponding increase in revenue, our results of operations could decline. Additionally, our periodic research and

development expenses may be independent of our level of revenue, which could negatively impact our financial results.

Further, technology for which we spend a significant amount of time and resources on in our research and development, such as our digital twin technology, may prove to be less marketable than we expect. There can be no guarantee that our research and development investments will result in products that create additional revenue.

A portion of our revenues are from sales by our channel partners, and we could be subject to loss or liability based on their actions.

Sales through our global network of independent, regional channel partners accounted for 9% of our revenues for the year ended December 31, 2018. These channel partners sell our software solutions to smaller accounts, in geographic regions where we do not have a meaningful presence, and in niche markets where they have specialized industry and technical knowledge. Where we rely on channel partners, we may have reduced contact with ultimate users that purchase through such channel partners, thereby making it more difficult to establish brand awareness, ensure proper installation, service ongoing requirements, estimate demand and respond to the evolving needs of an account. Any of our channel partners may choose to terminate its relationship with us at any time. As a result, our ability to service the ultimate users who were interfacing with that channel partner may take time to develop as we divert resources to service those users directly or find a suitable alternative channel partner to continue the relationship. Any disruption in service may damage our reputation and business. In addition, our channel partners may be unable to meet their payment obligations to us, which would have a negative impact on our results of operations and revenues. Our channel partners may also not have loyalty to our brand and therefore may not be particularly motivated to sell our software solutions or services.

The use of channel partners could also subject us to lawsuits, potential liability and reputational harm if, for example, any channel partners misrepresent the functionality of our software solutions or services to accounts, fail to comply with their contractual obligations or violate laws or our corporate policies. Such actions may impact our ability to distribute our software solutions into certain regions and markets, and may have an adverse effect on our results of operations and cash flows.

Some of our solutions are complex, and accounts may experience difficulty in implementing, upgrading or otherwise achieving the benefits attributable to them.

Due to the scope and complexity of some of the solutions that we provide, our implementation cycle for them can be lengthy and unpredictable. Some solutions require configuration and integration with existing computer systems and applications of our accounts and their trading partners, which can be time-consuming and expensive for our accounts and can result in implementation delays. As a result, some accounts may have difficulty implementing those solutions successfully or otherwise achieving their expected benefits. Delayed or ineffective implementation or upgrades may limit our future sales opportunities, negatively affect revenue, result in account dissatisfaction and harm our reputation.

Determining our effective income tax rate is complex and subject to uncertainty.

We make significant estimates in determining our worldwide income tax provision. These estimates involve complex tax laws and regulations in a number of jurisdictions across our global operations and are subject to many transactions and calculations in which the ultimate tax outcome is uncertain. The final outcome of tax matters could be different than the estimates reflected in the historical income tax provision and related accruals. These differences could have a material impact on income tax expense and net income in the periods in which such determinations are made.

The amount of income tax we pay is subject to ongoing audits by federal, state and foreign tax authorities. These audits can often result in additional assessments, including interest and penalties. Our estimate for liabilities associated with uncertain tax positions is highly judgmental and actual future outcomes may result in favorable or unfavorable adjustments to our estimated tax liabilities, including estimates for uncertain tax positions, in the period the assessments are made or resolved, audits are closed or when statutes of limitation on potential assessments expire. As a result, our effective tax rate may fluctuate significantly on a quarterly or annual basis.

The intended efficiency of our corporate structure depends on the application of the tax laws and regulations in the countries where we operate, and we may have exposure to additional tax liabilities or our effective tax rate could change, which could have a material impact on our financial condition and results of operations.

As a company with international operations, we are subject to income taxes, as well as non-income based taxes, in both the United States and various foreign jurisdictions. Currently, the majority of our revenues is generated from accounts located outside the United States, and a large portion of our assets are located outside the United States. We have designed our corporate structure, the manner in which we develop and use our intellectual property, and our intercompany transactions between our subsidiaries in a way that is intended to enhance our operational and financial efficiency and increase our overall profitability. United States income taxes and foreign withholding taxes have not been provided on undistributed earnings of non-U.S. subsidiaries to the extent those earnings are considered to be indefinitely reinvested in the operations of those subsidiaries. The application of the tax laws and regulations of various countries in which we operate and to our global operations is subject to interpretation. We also must operate our business in a manner consistent with our corporate structure to realize such efficiencies. The tax authorities of the countries in which we operate may challenge our methodologies for valuing developed technology or for transfer pricing. If, for one or more of these reasons, tax authorities determine that the manner in which we operate results in our business not achieving the intended tax consequences, our effective tax rate could increase and harm our financial condition and results of operations.

A change in the tax law in the jurisdictions in which we do business, including an increase in tax rates, an adverse change in the treatment of an item of income or expense, a decrease in tax rates in a jurisdiction in which we have significant deferred tax assets, or a new or different interpretation of applicable tax law, could result in a material increase in tax expense. The United States government and other governments are considering and may adopt tax law changes that significantly increase our worldwide tax liabilities. The U.S. Congress and other government legislatures and agencies in countries where we and our subsidiaries operate have focused on issues related to the taxation of multinational corporations. For example, in Ireland, where one of our significant subsidiaries is domiciled, tax authorities recently announced changes to the treatment of non-resident Irish entities. The changes are expected to take effect for existing non-resident Irish entities, such as ours, in 2021. These changes, and other prospective changes in the United States and other countries in which we and our subsidiaries operate, could increase our effective tax rate, and harm our financial condition and results of operations.

We are subject to legal proceedings and regulatory inquiries, and we may be named in additional legal proceedings or become involved in regulatory inquiries in the future, any of which may be costly, distracting to our core business and could result in an unfavorable outcome, or harm on our business, financial condition, results of operations, cash flows, or the trading price for our securities.

We are subject to various investigations, claims and legal proceedings that arise in the ordinary course of business, including commercial disputes, labor and employment matters, tax audits, alleged infringement of intellectual property rights and other matters. As the global economy has changed, our industry has seen an increase in litigation activity and regulatory inquiries. Like many other high

technology companies, on a regular and ongoing basis, we receive inquiries from U.S. and foreign regulatory agencies regarding our business and our business practices, and the business practices of others in our industry. In the event that we are involved in significant disputes or are the subject of a formal action by a regulatory agency, we could be exposed to costly and time consuming legal proceedings that could result in any number of outcomes. Any claims or regulatory actions initiated by or against us, whether successful or not, could result in expensive costs of defense, costly damage awards, injunctive relief, increased costs of business, fines or orders to change certain business practices, significant dedication of management time, diversion of significant operational resources, or otherwise harm our business. In any of these cases, our financial results could be negatively impacted.

Failure to comply with the FCPA and similar anti-bribery and anti-corruption laws associated with our activities outside the United States could subject us to penalties and other adverse consequences.

The majority of our revenues are from jurisdictions outside of the United States. We are subject to the FCPA, which generally prohibits U.S. companies and their intermediaries from making payments to foreign officials for the purpose of directing, obtaining or keeping business, and requires companies to maintain reasonable books and records and a system of internal accounting controls. The FCPA applies to companies and individuals alike, including company directors, officers, employees and agents. Under the FCPA, U.S. companies may be held liable for corrupt actions taken by employees, strategic or local partners or other representatives. In addition, the government may seek to rely on a theory of successor liability and hold us responsible for FCPA violations committed by companies or associated with assets that we acquire.

In many foreign jurisdictions where we operate, particularly countries with developing economies, it may be a local custom for businesses to engage in practices that are prohibited by the FCPA or other similar laws and regulations. There can be no assurance that our colleagues, partners and agents, as well as those companies to which we outsource certain of our business operations, will not take actions in violation of the FCPA or our policies for which we may be ultimately held responsible. If we or our intermediaries fail to comply with the requirements of the FCPA or similar anti-bribery and anti-corruption legislation such as the United Kingdom Bribery Act and the China Unfair Competition law, governmental authorities in the United States and elsewhere could seek to impose civil and/or criminal fines and penalties, which could harm our business, financial conditions, and results of operations. We may also face collateral consequences such as debarment and the loss of our export privileges.

We are subject to governmental export and import controls that could impair our ability to compete in international markets or subject us to liability if we violate the controls.

Our offerings may be subject to U.S. export controls and economic sanctions laws and regulations that restrict the delivery of our solutions and services to certain locations, governments, and persons. While we have processes in place to prevent our offerings from being exported in violation of these laws, including obtaining authorizations as appropriate and screening against U.S. government lists of restricted and prohibited persons, we cannot guarantee that these processes will prevent all violations of export control and sanctions laws.

Further, if our channel partners fail to obtain appropriate import, export or re-export licenses or permits, we may also be adversely affected, for example, through reputational harm as well as other negative consequences including government investigations and penalties. Complying with export control and sanctions regulations for a particular sale may be time-consuming and may result in the delay or loss of sales opportunities.

Violations of U.S. sanctions or export control laws can result in fines, penalties, denial of export and trading privileges, and seizure of goods and assets. Other consequences include negative publicity

and harm to business reputation, increased government scrutiny (including intrusive audits, and increased difficulty obtaining government licenses and approvals), and/or remedial compliance measures as a condition of settling government charges.

Our business may be significantly disrupted upon the occurrence of a catastrophic event.

Our business is highly automated and relies extensively on the availability of our network and data center infrastructure, our internal technology systems and our websites. We also rely on hosted computer services from third parties for services that we provide to our accounts and computer operations for our internal use. The failure of our systems or hosted computer services due to a catastrophic event, such as an earthquake, fire, flood, tsunami, weather event, telecommunications failure, power failure, cyber attack, terrorism, or war, could adversely impact our business, financial condition, or results of operations. We have developed disaster recovery plans and maintain backup systems in order to reduce the potential impact of a catastrophic event, however there can be no assurance that these plans and systems would enable us to return to normal business operations. In addition, any such event could negatively impact a country or region in which we conduct business. This could in turn decrease that country's or region's demand for our products and services, thereby negatively impacting our financial results.

We may face exposure to product or professional liability claims that could cause us to be liable for damages.

The use of our software could lead to the filing of product liability claims against us were someone to allege that our software provided inaccurate or incomplete information at any stage of the infrastructure lifecycle or otherwise failed to perform according to specifications. In the event that accounts or third parties sustain property damage, injury, death or other loss in connection with their use of our software or infrastructure for which our software solutions and services were used to engineer, we, along with others, may be sued, and whether or not we are ultimately determined to be liable, we may incur significant legal expenses, management's attention could be diverted from operations and market acceptance of our software could decrease. Our risk of exposure to litigation in these situations could rise as our software solutions and services are used for increasingly complex and high-profile infrastructure projects. Litigation could also impair our ability to obtain professional liability or product liability insurance or increase the cost of such insurance. These claims may be brought by individuals seeking relief on their own behalf or purporting to represent a class. In addition, product liability claims may be asserted against us in the future based on events we are not aware of at the present time.

The limitations of our liability included in our contracts with accounts may not be enforceable or may not otherwise protect us from liability for damages. Additionally, we may be subject to claims that are not explicitly covered by contract, such as a claim directly by a third party. There is no assurance that our insurance coverage will be adequate to cover incurred liabilities or that we will be able to obtain acceptable product and professional liability coverage in the future.

If the accounting estimates we make, and the assumptions on which we rely, in preparing our financial statements prove inaccurate, our actual results may be adversely affected.

Our financial statements have been prepared in accordance with U.S. GAAP. The preparation of these financial statements requires us to make estimates and judgments about, among other things, taxes, revenue recognition, stock-based compensation costs, investments, contingent obligations, allowance for doubtful accounts and intangible assets. These estimates and judgments affect the reported amounts of our assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances and at the time they are made. If our estimates or the assumptions underlying them are not correct, actual results may differ materially from

our estimates and we may need to, among other things, accrue additional charges that could adversely affect our results of operations, which in turn could adversely affect our stock price. In addition, new accounting pronouncements and interpretations of accounting pronouncements have occurred and may occur in the future that could adversely affect our reported financial results.

Changes in existing financial accounting standards or practices may harm our results of operations.

Changes in existing accounting rules or practices, new accounting pronouncements rules, or varying interpretations of current accounting pronouncements practice could have a significant, adverse effect on our results of operations or the manner in which we conduct our business. Further, such changes could potentially affect our reporting of transactions completed before such changes are effective.

U.S. GAAP is subject to interpretation by the Financial Accounting Standards Board ("FASB"), the SEC and various bodies formed to promulgate and interpret appropriate accounting principles. A change in these principles or interpretations could have a significant effect on our reported financial results, and could affect the reporting of transactions completed before the announcement of a change. In particular, in February 2016, the FASB issued ASC 842, *Leases*, which supersedes the lease accounting guidance in ASC 840, Leases. The core principle of ASC 842 requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. This classification will determine whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease. A lessee is also required to record a right-of-use asset and a lease liability for all leases with a term of greater than 12 months regardless of their classification. As an "emerging growth company," we are allowed under the JOBS Act to delay adoption of new or revised accounting pronouncements applicable to public companies until such pronouncements are made applicable to private companies. We have elected to take advantage of this extended transition period under the JOBS Act with respect to ASC 842, which resulted in ASC 842 becoming effective for us beginning on January 1, 2020. Any difficulties in implementing these pronouncements could cause us to fail to meet our financial reporting obligations, which could result in regulatory discipline and harm investors' confidence in us.

We are evaluating the impact of the adoption of ASC 842 and currently believe the most significant impact upon adoption will be the recognition of material right-of-use assets and lease liabilities on our consolidated balance sheets associated with operating leases. We do not believe this standard will have a material impact on our consolidated statements of operations data.

We are an "emerging growth company," and the reduced disclosure requirements applicable to "emerging growth companies" may make our Class B common stock less attractive to investors.

We are an "emerging growth company," as defined in the JOBS Act, and we intend to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not "emerging growth companies," including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. Additionally, as an "emerging growth company" we are required to have only two years of audited financial statements and only two years of related selected financial data and Management's Discussion and Analysis of Financial Condition and Results of Operations disclosure. We may take advantage of these exemptions until we are no longer an "emerging growth company," which could be as long as five full fiscal years following the listing of our Class B common stock on The Nasdaq Global Select Market. We cannot predict if investors will find our Class B common stock less attractive because we will rely on these exemptions. If some investors find our Class B common stock less attractive as a

result, there may be a less active trading market for our Class B common stock and the price of our Class B common stock may be more volatile.

We will remain an "emerging growth company" until the earliest to occur of: (i) the last day of the fiscal year in which we have more than $1.07 billion in annual revenue; (ii) the date we qualify as a "large accelerated filer," with at least $700 million of equity securities held by non-affiliates; (iii) the date on which we have issued, in any three-year period, more than $1.0 billion in non-convertible debt securities; and (iv) the last day of the fiscal year ending after the fifth anniversary of the listing of our Class B common stock on The Nasdaq Global Select Market.

Because we have elected under Section 107 of the JOBS Act to use the extended transition period with respect to complying with new or revised accounting standards, our financial statements may not be comparable to companies that comply with public company effective dates, making it more difficult for an investor to compare our results with other public companies.

Section 107 of the JOBS Act provides that an emerging growth company can use the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, as amended (the "Securities Act") by Section 102(b)(1) of the JOBS Act, for complying with new or revised accounting standards. In other words, as an emerging growth company we can delay the adoption of new or revised accounting standards that have different effective dates for public and private companies until those standards would otherwise apply to private companies, which will result in less available information for our investors. We have elected to take advantage of the benefits of this extended transition period. As a result, our financial statements may not be comparable to those of companies that comply with public company effective dates.

Risks Related to Ownership of Our Class B Common Stock

Our listing differs significantly from an underwritten initial public offering.

This listing is not an underwritten initial public offering of our Class B common stock. The listing of our Class B common stock on The Nasdaq Global Select Market differs from an underwritten initial public offering in several significant ways, which include, but are not limited to, the following:

- There are no underwriters. Consequently, prior to the opening of trading on The Nasdaq Global Select Market, there will be no book building process and no price at which underwriters initially sold shares to the public to help inform efficient and sufficient price discovery with respect to the opening trades on The Nasdaq Global Select Market. Therefore, buy and sell orders submitted prior to and at the opening of trading of our Class B common stock on The Nasdaq Global Select Market will not have the benefit of being informed by a published price range or a price at which the underwriters initially sold shares to the public, as would be the case in an underwritten initial public offering. Moreover, there will be no underwriters assuming risk in connection with the initial resale of shares of our Class B common stock. Additionally, because there are no underwriters, there is no underwriters' option to purchase additional shares to help stabilize, maintain, or affect the public price of our Class B common stock on The Nasdaq Global Select Market immediately after the listing. In an underwritten initial public offering, the underwriters may engage in "covered" short sales in an amount of shares representing the underwriters' option to purchase additional shares. To close a covered short position, the underwriters purchase shares in the open market or exercise the underwriters' option to purchase additional shares. In determining the source of shares to close the covered short position, the underwriters typically consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the underwriters' option to purchase additional shares. Purchases in the open market to cover short positions, as well as other purchases underwriters may undertake for their

own accounts, may have the effect of preventing a decline in the market price of shares. Given that there will be no underwriters' option to purchase additional shares and no underwriters engaging in stabilizing transactions, there could be greater volatility in the public price of our Class B common stock during the period immediately following the listing. See also "—The public price of our Class B Common stock may be volatile, and could, upon listing on The Nasdaq Global Select Market, decline significantly and rapidly. Market volatility may affect the value of an investment in our Class B common stock and could subject us to litigation;"

- There is not a fixed or determined number of shares of Class B common stock available for sale in connection with the registration and the listing. Therefore, there can be no assurance that any Registered Stockholders or other existing stockholders will sell any of their shares of Class B common stock and there may initially be a lack of supply of, or demand for, shares of Class B common stock on The Nasdaq Global Select Market. Alternatively, we may have a large number of Registered Stockholders or other existing stockholders who choose to sell their shares of Class B common stock in the near term, resulting in potential oversupply of our Class B common stock, which could adversely impact the public price of our Class B common stock once listed on The Nasdaq Global Select Market;

- None of our Registered Stockholders or other existing stockholders have entered into contractual lock-up agreements or other contractual restrictions on transfer. In an underwritten initial public offering, it is customary for an issuer's officers, directors, and most or all of its other stockholders to enter into a 180-day contractual lock-up arrangement with the underwriters to help promote orderly trading immediately after such initial public offering. Consequently, any of our stockholders, including the Bentleys, our directors and officers who own our common stock and other significant stockholders, may sell any or all of their shares of Class B common stock or Class A common stock (upon conversion of any shares of Class A common stock into Class B common stock at the time of sale (subject to any restrictions under applicable law)) at any time, including immediately upon listing. If such sales were to occur in a significant volume in a short period of time following the listing, it may result in an oversupply of our Class B common stock in the market, which could adversely impact the public price of our Class B common stock. See also "—None of our stockholders are party to any contractual lock-up agreement or other contractual restrictions on transfer. Following our listing, sales of substantial amounts of our Class B common stock in the public markets or the perception that sales might occur, could cause the market price of our Class B common stock to decline;"

- We will not conduct a traditional "roadshow" with underwriters prior to the opening of trading of our Class B common stock on The Nasdaq Global Select Market. Instead, we intend to host an investor day and engage in certain other investor education meetings. In advance of the investor day, we will announce the date for such day over financial news outlets in a manner consistent with typical corporate outreach to investors. We will prepare an electronic presentation for this investor day, which we anticipate will have content similar to a traditional roadshow presentation, and will make a version of the presentation publicly available, without restrictions, on our website. There can be no guarantee that the investor day and other investor education meetings will have the same impact on investor education as a traditional "roadshow" conducted in connection with an underwritten initial public offering. As a result, there may not be efficient or sufficient price discovery with respect to our Class B common stock or sufficient demand among potential investors immediately after our listing, which could result in a more volatile public price of our Class B common stock;

- Such differences from an underwritten initial public offering could result in a volatile market price for our Class B common stock and uncertain trading volume, which may adversely affect your ability to sell any Class B common stock that you may purchase; and

- We have agreed to indemnify the Registered Stockholders for certain claims arising in connection with sales under this prospectus. Large indemnity payments could adversely affect our business, financial condition, and results of operations.

The public price of our Class B Common stock may be volatile, and could, upon listing on The Nasdaq Global Select Market, decline significantly and rapidly. Market volatility may affect the value of an investment in our Class B common stock and could subject us to litigation.

The listing of our Class B common stock and the registration of the Registered Stockholders' shares of Class A common stock is a novel process that is not an underwritten initial public offering. We have engaged Goldman Sachs & Co. LLC and BofA Securities, Inc. as our financial advisors. There will be no book building process and no price at which underwriters initially sold shares to the public to help inform efficient and sufficient price discovery with respect to the opening trades on The Nasdaq Global Select Market. Pursuant to the Nasdaq Listing Rules, once , in its capacity as our financial advisor, has notified the Nasdaq Stock Market that our Class B common stock is ready to trade, the Nasdaq Stock Market will calculate the Current Reference Price for our Class B common stock, in accordance with the Nasdaq Listing Rules. If then approves proceeding at the Current Reference Price, the applicable orders that have been entered will be executed at such price and regular trading of our Class B common stock on The Nasdaq Global Select Market will commence, subject to the Nasdaq Stock Market conducting validation checks in accordance with the Nasdaq Listing Rules. Under the Nasdaq Listing Rules, the "Current Reference Price" means: (i) the single price at which the maximum number of orders to buy or sell our Class B common stock can be paired; (ii) if more than one price exists under (i), then the price that minimizes the number of our Class B common stock for which orders cannot be matched; (iii) if more than one price exists under (ii), then the entered price at which our Class B common stock will remain unexecuted in the cross; and (iv) if more than one price exists under (iii), a price determined by the Nasdaq Stock Market after consultation with in its capacity as our financial advisor. will determine when our Class B common stock is ready to trade and approve proceeding at the Current Reference Price primarily based on consideration of volume, timing and price. In particular, will determine when a reasonable amount of volume will cross on the opening trade such that sufficient price discovery has been made to open trading at the Current Reference Price. If does not approve proceeding at the Current Reference Price (for example, due to the absence of adequate preopening buy and sell interest), will request that the Nasdaq Stock Market delay the open until such a time that sufficient price discovery has been made to ensure a reasonable amount of volume crosses on the opening trade. The length of such delay could vary greatly, from a short period of time such as one day, to a decision to not list our shares on The Nasdaq Global Select Market at all. As a result, the absence of sufficient price discovery may result in delays in the opening of trading and, volatile prices and supply once trading commences. The opening public price may bear no relationship to the market price for our Class B common stock after our listing, and thus may decline below the opening public price. For more information, see the section titled "Plan of Distribution."

Moreover, prior to the opening trade, there will not be a price at which underwriters initially sold shares of Class B common stock to the public as there would be in an underwritten initial public offering. The absence of a predetermined initial public offering price could impact the range of buy and sell orders collected by The Nasdaq Global Select Market from various broker-dealers. Consequently, upon listing on The Nasdaq Global Select Market, the public price of our Class B common stock may be more volatile than in an underwritten initial public offering and could decline significantly and rapidly.

Moreover, because of our novel listing process, individual investors, retail or otherwise, may have greater influence in setting the opening public price and subsequent public prices of our Class B

common stock on The Nasdaq Global Select Market and may participate more in our initial trading than is typical for an underwritten initial public offering. These factors could result in a public price of our Class B common stock that is higher than other investors (such as institutional investors) are willing to pay, which could cause volatility in the trading price of our Class B common stock and an unsustainable trading price if the price of our Class B common stock significantly rises upon listing and institutional investors believe our Class B common stock is worth less than retail investors, in which case the price of our Class B common stock may decline over time. Further, if the public price of our Class B common stock is above the level that investors determine is reasonable for our Class B common stock, some investors may attempt to short our Class B common stock after trading begins, which would create additional downward pressure on the public price of our Class B common stock. To the extent that there is a lack of consumer awareness among retail investors, such lack of consumer awareness could reduce the value of our Class B common stock and cause volatility in the trading price of our Class B common stock.

Technology stocks have historically experienced high levels of volatility. The market price of our Class B common stock could be subject to wide fluctuations in response to the risk factors listed in this prospectus and others beyond our control, including:

- the number of shares of our Class B common stock publicly owned and available for trading;
- overall performance of the equity markets and/or publicly-listed technology companies;
- actual or anticipated fluctuations in our financial condition and results of operations and other non-GAAP metrics;
- our actual or anticipated operating performance and the operating performance of our competitors;
- changes in the projected operational and financial results we provide to the public or our failure to meet those projections;
- addition or loss of significant accounts;
- changes in laws or regulations applicable to our software solutions or business;
- actual or anticipated changes in our growth rate relative to our competitors;
- announcements of technological innovations or new offerings by us or our competitors;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital-raising activities or commitments;
- any major change in our board of directors, management, or key personnel, including the Bentleys in particular;
- changes in our financial guidance or securities analysts' estimates of our financial performance, or our failure to meet the estimates or the expectations of investors;
- rumors and market speculation involving us or other companies in our industry;
- discussion of us or our stock price by the financial press and in online investor communities;
- changes in accounting principles;
- announcements related to litigation;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- sales or expected sales of our Class B common stock by us, and our officers, directors, and principal stockholders;

- share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
- general economic and market conditions;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business, including those related to data privacy and cyber security in the United States or globally; and
- other events or factors, including those resulting from war, incidents of terrorism, or responses to these events.

Furthermore, the stock markets recently have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies, and technology companies in particular. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political and market conditions such as recessions, interest rate changes or international currency fluctuations, may negatively impact the market price of our Class B common stock. These fluctuations may be even more pronounced in the trading market for our Class B common stock shortly following the listing of our Class B common stock on The Nasdaq Global Select Market as a result of the supply and demand forces described above. If the market price of our Class B common stock after our listing does not exceed the opening public price, you may not realize any return on your investment in us and may lose some or all of your investment. In the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could harm our business.

The public price of our Class B common stock, upon listing on The Nasdaq Global Select Market, may have little or no relationship to the historical sales prices of our capital stock in private transactions.

Prior to the listing of our Class B common stock on The Nasdaq Global Select Market, there has been no public market for our capital stock. We intend to apply to list our Class B common stock on The Nasdaq Global Select Market. However, we can give no assurances that The Nasdaq Global Select Market will grant our application for listing. The historical sales prices of our capital stock is primarily from sales of shares of our Class B common stock in private transactions, which, at the time of the sale, had no voting power (as opposed to one vote per share of our Class A common stock). Upon the effectiveness of the registration statement of which this prospectus forms a part, our Class B common stock will be entitled to one vote per share, and our Class A common stock will be entitled to   votes per share. In the section titled "Sale Price History of our Capital Stock," we have provided the historical sales prices of our capital stock in private transactions. However, given that prior to the effectiveness of the registration statement of which this prospectus forms a part, our Class B common stock did not have voting rights, among other factors, this information may have little or no relation to broader market demand for our Class B common stock and thus the opening public price of our Class B common stock on The Nasdaq Global Select Market once trading begins. As a result, you should not place undue reliance on these historical sales prices as they may differ materially from the opening public prices and subsequent public prices of our Class B common stock on The Nasdaq Global Select Market. For more information about how the initial public price on The Nasdaq Global Select Market will be determined, see the section titled "Plan of Distribution."

If securities or industry analysts do not publish or cease publishing research or reports about us, our business or our market, or if they change their recommendations regarding our stock adversely, or if our actual results differ significantly from our guidance, our stock price and trading volume could decline.

The trading market for our Class B common stock will depend in part on the research and reports that securities or industry analysts publish about us or our business. If few securities analysts commence coverage of us, or if industry analysts cease coverage of us, the trading price for our Class B common stock could be negatively affected. If one or more of the analysts who cover us downgrade our Class B common stock or publish inaccurate or unfavorable research about our business, the price of our Class B common stock would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, demand for our Class B common stock could decrease, which might cause our Class B common stock price and trading volume to decline.

Although we have paid dividends in periods preceding our listing, there can be no assurance that we will pay dividends on our Class B common stock in the future. As a result, any return on investment may be limited to the value of our Class B common stock.

In 2019, we paid quarterly dividends of $0.025 per share of common stock. While we intend to continue paying quarterly dividends after our listing, there can be no assurance that we will pay such dividends in the amounts described herein or at all in the future. Any determination to pay dividends in the future will be at the discretion of our board of directors. The payment of dividends on our Class B common stock is restricted by Delaware law and the agreement governing the Credit Facility, and will, in all cases, depend on our earnings, financial condition and other business and economic factors as our board of directors may consider relevant. If we do not pay dividends in future periods, our Class B common stock may be less valuable to you as an investor and investors must rely on sales of their Class B common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments. See the section titled "Dividend Policy" for more information.

An active, liquid and orderly market for our Class B common stock may not develop or be sustained. You may be unable to sell your shares of Class B common stock at or above the price you bought them for.

We currently expect our Class B common stock to be listed and traded on The Nasdaq Global Select Market. Prior to listing on The Nasdaq Global Select Market, there has been no public market for our common stock. Moreover, consistent with Regulation M and other federal securities laws applicable to our listing, we have not consulted with Registered Stockholders or other existing stockholders regarding their desire or plans to sell shares in the public market following the listing or discussed with potential investors their intentions to buy our Class B common stock in the open market. While our Class B common stock may be sold after our listing on The Nasdaq Global Select Market by the Registered Stockholders pursuant to this prospectus or by our other existing stockholders in accordance with Rule 144 of the Securities Act ("Rule 144"), unlike an underwritten initial public offering, there can be no assurance that any Registered Stockholders or other existing stockholders will sell any of their shares of Class B common stock and there may initially be a lack of supply of, or demand for, Class B common stock on The Nasdaq Global Select Market. Conversely, there can be no assurance that the Registered Stockholders and other existing stockholders will not sell all of their shares of Class B common stock, resulting in an oversupply of our Class B common stock on The Nasdaq Global Select Market. In the case of a lack of supply of our Class B common stock, the trading price of our Class B common stock may rise to an unsustainable level. Further, institutional investors may be discouraged from purchasing our Class B common stock if they are unable to purchase a block of our Class B common stock in the open market due to a potential unwillingness of our existing stockholders to sell a sufficient amount of Class B common stock at the price offered by such institutional investors and the greater influence individual investors have in setting the trading

price. If institutional investors are unable to purchase our Class B common stock, the market for our Class B common stock may be more volatile without the influence of long-term institutional investors holding significant amounts of our Class B common stock. In the case of a lack of demand for our Class B common stock, the trading price of our Class B common stock could decline significantly and rapidly after our listing. Therefore, an active, liquid, and orderly trading market for our Class B common stock may not initially develop or be sustained, which could significantly depress the public price of our Class B common stock and/or result in significant volatility, which could affect your ability to sell your shares of Class B common stock.

None of our stockholders are party to any contractual lock-up agreement or other contractual restrictions on transfer. Following our listing, sales of substantial amounts of our Class B common stock in the public markets or the perception that sales might occur, could cause the market price of our Class B common stock to decline.

In addition to the supply and demand and volatility factors discussed above, sales of a substantial number of shares of our Class B common stock into the public market, particularly sales by our directors, executive officers and principal stockholders, or the perception that these sales might occur in large quantities, could cause the market price of our Class B common stock to decline.

As of , 2020, we have shares of common stock outstanding, of which are Class A common stock and are Class B common stock, all of which are "restricted securities" (as defined in Rule 144). Approximately of these shares of Class B common stock and of these shares of Class A common stock (after being converted to Class B common stock) may be immediately sold either by the Registered Stockholders pursuant to this prospectus or by our other existing stockholders under Rule 144 since such shares held by such other stockholders will have been beneficially owned by non-affiliates for at least one year. Moreover, once we have been a reporting company subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934 (the "Exchange Act") for 90 days and assuming the availability of certain public information about us, (i) non-affiliates who have beneficially owned our common stock for at least six months may rely on Rule 144 to sell their shares of common stock, and (ii) our directors, executive officers, and other affiliates who have beneficially owned our common stock for at least six months, including certain of the shares of Class B common stock covered by this prospectus to the extent not sold hereunder, will be entitled to sell their shares of our common stock subject to volume limitations under Rule 144 and various vesting agreements.

Further, as of , 2020, we had options outstanding that, if fully exercised, would result in the issuance of shares of Class B common stock. All of the shares of Class B common stock issuable upon the exercise of stock options will be registered for public resale under the Securities Act. Accordingly, these shares will be able to be freely sold in the public market upon issuance, subject to applicable vesting requirements and compliance by affiliates with Rule 144.

None of our stockholders are subject to any contractual lock-up or other contractual restriction on the transfer or sale of their shares.

Following the effectiveness of the registration statement of which this prospectus forms a part, the holders of up to shares of our Class B common stock will have rights, subject to some conditions, to require us to file registration statements for the public resale of the Class B common stock issuable upon conversion of such shares or to include such shares in registration statements that we may file for us or other stockholders. Any registration statement we file to register additional shares, whether as a result of registration rights or otherwise, could cause the market price of our Class B common stock to decline or be volatile.

We also may issue our capital stock or securities convertible into our capital stock from time to time in connection with a financing, acquisition, investments, or otherwise. Any such issuance could

result in substantial dilution to our existing stockholders and cause the public price of our Class B common stock to decline.

The dual class structure of our common stock has the effect of concentrating voting control with the Bentleys and their affiliates.

Upon the effectiveness of the registration statement of which this prospectus forms a part, our Class A common stock will have votes per share, and our Class B common stock, which is the stock we are listing, will have one vote per share. As of , 2020, the Bentleys held in the aggregate % of the voting power of our capital stock. Our Class A common stock will account for approximately % of the voting power of our outstanding capital stock upon our listing. Moreover, as a result of the to one voting ratio between our Class A and Class B common stock, the Bentleys will continue to control a majority of the combined voting power of our common stock and therefore be able to control all matters submitted to our stockholders for approval, subject to the occurrence of certain events that would reduce the voting power of our Class A common stock or cause the conversion thereof. See the section titled "Description of Capital Stock." This concentrated control will limit or preclude your ability to influence corporate matters for the foreseeable future and may have the effect of delaying, deferring or preventing a change in control, impeding a merger, consolidation, takeover or other business combination involving us, or discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of our business, even if such a transaction would benefit other stockholders. The Bentleys may also have interests that differ from yours and may vote in a way with which you disagree and which may be adverse to your interests. Furthermore, upon the effectiveness of the registration statement of which this prospectus forms a part, the Bentleys and their affiliates will be subject to a stockholders agreement, whereby the parties thereto agree to vote all their shares in an agreed upon manner. See the section titled "Certain Relationships and Related Party Transactions—Stockholders Agreement."

In addition, we expect to be a "controlled company" for the purposes of Nasdaq Listing Rules, which will provide us with exemptions from certain of the corporate governance standards imposed by the rules of The Nasdaq Global Select Market. These provisions will further allow the Bentleys to exercise significant control over our corporate decisions and limit the ability of the public stockholders to influence our decision making. See "—We will be a 'controlled company' within the meaning of the Nasdaq Listing Rules and, as a result, will be exempt from certain corporate governance requirements."

Future transfers by holders of Class A common stock will generally result in those shares converting to Class B common stock, subject to limited exceptions, including certain transfers to family members and transfers effected for estate planning purposes. The conversion of Class A common stock to Class B common stock will have the effect, over time, of increasing the relative voting power of those holders of Class A common stock who retain their shares in the long term. If, for example, the Bentleys retain a significant portion of their holdings of Class A common stock for an extended period of time, and a significant portion of the Class A common stock initially held by others is converted to Class B common stock, the Bentleys could, as a result, acquire a higher proportion of the combined voting power. As directors and executive officers, the Bentleys owe a fiduciary duty to our stockholders and must act in good faith in a manner they reasonably believe to be in the best interests of our stockholders. As stockholders, however, each Bentley is entitled to vote his shares in his own interests, which may not always be in the interests of our stockholders generally. For a description of the dual class structure, see the section titled "Description of Capital Stock."

In addition, while we do not expect to issue any additional shares of Class A common stock following the listing of our Class B common stock on The Nasdaq Global Select Market, any future issuances of Class A common stock would be dilutive to holders of Class B common stock.

We cannot predict the effect our dual class structure may have on the market price of our Class B common stock.

We cannot predict whether our dual class structure will result in a lower or more volatile market price of our Class B common stock, in adverse publicity, or other adverse consequences. For example, certain index providers have announced restrictions on including companies with multiple-class share structures in certain of their indices. In July 2017, FTSE Russell (whose indices include the Russell 2000) announced that it plans to require new constituents of its indices to have greater than 5% of the company's voting rights in the hands of public stockholders, and S&P Dow Jones announced that it will no longer admit companies with multiple-class share structures to certain of its indices. Affected indices include the S&P 500, S&P MidCap 400, and S&P SmallCap 600, which together make up the S&P Composite 1500. Also in 2017, MSCI, a leading stock index provider, opened public consultations on their treatment of no-vote and multi-class structures and temporarily barred new multi-class listings from certain of its indices; however, in October 2018, MSCI announced its decision to include equity securities "with unequal voting structures" in its indices and to launch a new index that specifically includes voting rights in its eligibility criteria. Under such announced policies, the dual class structure of our common stock would make us ineligible for inclusion in certain indices and, as a result, mutual funds, exchange-traded funds, and other investment vehicles that attempt to passively track those indices would not invest in our Class B common stock. These policies are relatively new and it is unclear what effect, if any, they will have on the valuations of publicly-traded companies excluded from such indices, but it is possible that they may depress valuations, as compared to similar companies that are included. Because of the dual class structure of our common stock, we will likely be excluded from certain indices and we cannot assure you that other stock indices will not take similar actions. Given the sustained flow of investment funds into passive strategies that seek to track certain indices, exclusion from certain stock indices would likely preclude investment by many of these funds and could make our Class B common stock less attractive to other investors. As a result, the market price of our Class B common stock could be adversely affected.

We will be a "controlled company" within the meaning of the Nasdaq Listing Rules and, as a result, will be exempt from certain corporate governance requirements.

Upon our listing, the Bentleys will continue to hold capital stock representing a majority of our outstanding voting power. So long as the Bentleys maintain holdings of more than 50% of the voting power of our capital stock for the election of directors, we will be a "controlled company" within the meaning of the Nasdaq Listing Rules and Nasdaq corporate governance standards. Under these standards, a listed company of which more than 50% of the voting power is held by an individual, group or another company is a "controlled company" and may elect not to comply with certain Nasdaq corporate governance requirements, including:

- the requirement that a majority of our board of directors consist of "independent directors" as defined under Nasdaq rules;
- the requirement that we have a compensation committee that is composed entirely of independent directors with a written charter addressing the committee's purpose and responsibilities; and
- the requirement that we have a nominating and corporate governance committee that is composed entirely of independent directors with a written charter addressing the committee's purpose and responsibilities, or otherwise have director nominees selected by vote of a majority of the independent directors.

We intend to use these exemptions upon our listing. As a result, we will not have a majority of independent directors on our board of directors. Additionally, upon our listing, we do not intend to have a compensation committee, nor do we intend to have a nominating and corporate governance

committee or an independent nominating function. Instead, our full board of directors will be directly responsible for reviewing and approving compensation and benefit arrangements for our executive officers and directors, as well as for nominating members of our board.

Even as a controlled company, we will remain subject to the rules of Sarbanes-Oxley as well as the rules of the Nasdaq Listing Rules that require us to have an audit committee composed entirely of independent directors, subject to permitted phase-in rules. Under these phase-in rules, we are required to have one independent audit committee member upon the listing date of our Class B common stock, a majority of independent audit committee members within 90 days from the listing date and all independent audit committee members within one year from the listing date. Upon our listing, we expect that our audit committee will be comprised of three members, two of whom will be independent.

If we are no longer eligible to rely on the "controlled company" exceptions, we will need to comply with all applicable Nasdaq corporate governance requirements, but we will be able to rely on phase-in periods for certain of these requirements in accordance with the Nasdaq Listing Rules. Accordingly, our stockholders may not have the same protections afforded to stockholders of companies that are subject to all Nasdaq corporate governance requirements.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us more difficult, limit attempts by our stockholders to replace or remove our current management and may negatively affect the market price of our Class B common stock.

Provisions in our amended and restated certificate of incorporation and amended and restated by-laws may have the effect of delaying or preventing a change of control or changes in our management. Our amended and restated certificate of incorporation and amended and restated by-laws include provisions that:

- provide that vacancies on our board of directors may be filled by a majority of directors then in office, even though less than a quorum;
- require that after such time as the Bentleys no longer possess a majority of our outstanding voting power, any action to be taken by our stockholders be effected at a duly called annual or special meeting and not by written consent;
- specify that special meetings of our stockholders can be called only by our board of directors, the chairman of our board of directors or our chief executive officer or president (in the absence of a chief executive officer);
- establish an advance notice procedure for stockholder proposals to be brought before an annual meeting, including proposed nominations of persons for election to our board of directors;
- authorize our board of directors to issue, without further action by the stockholders, shares of undesignated preferred stock; and
- authorize two classes of common stock, as discussed in the section titled "Description of Capital Stock."

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, which is responsible for appointing the members of our management. In addition, we are a Delaware corporation and governed by the provisions of Section 203 of the Delaware General Corporation Law (the "DGCL"), which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with a stockholder owning 15% or more of our outstanding voting stock, unless the stockholder has held the stock for a period of at least three years or, among other things, the board of directors has approved the transaction that resulted in the

stockholder owning 15% or more of our outstanding voting stock. See the section titled "Description of Capital Stock—Anti-Takeover Provisions."

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or colleagues.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the sole and exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a claim of a breach of fiduciary duty owed by any of our directors or officers, any action asserting a claim against us arising pursuant to the DGCL, our amended and restated certificate of incorporation or amended and restated by-laws, or any action seeking to interpret, apply, enforce or determine the validity of our amended and restated certificate of incorporation or amended and restated by-laws, and any action asserting a claim against us that is governed by the internal affairs doctrine. Nothing in our amended and restated certificate of incorporation or amended and restated by-laws will preclude stockholders that assert claims under the Securities Act or the Exchange Act, from bringing such claims in state or federal court, subject to applicable law. The choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other colleagues, which may discourage such lawsuits against us and our directors, officers and other colleagues. Alternatively, if a court were to find the choice of forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition.

We will incur significantly increased costs and devote substantial management time as a result of operating as a public company.

As a public company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. For example, we will be subject to the reporting requirements of the Exchange Act, and will be required to comply with the applicable requirements of the Sarbanes-Oxley Act and the Dodd-Frank Act, as well as rules and regulations subsequently implemented by the SEC and the Nasdaq, including the establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. We expect that compliance with these requirements will increase our legal and financial compliance costs and will make some activities more time consuming and costly. The Exchange Act requires, among other things, that we file annual, quarterly and current reports with respect to our business and results of operations. We expect to incur significant expenses and devote substantial management effort toward ensuring compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, which will increase when we are no longer an "emerging growth company," as defined by the JOBS Act. We may need to hire additional accounting and financial staff with appropriate public company experience and technical accounting knowledge. We cannot predict or estimate the amount of additional costs we may incur as a result of becoming a public company or the timing of such costs. As a result, management's attention may be diverted from other business concerns, which could adversely affect our business and results of operations.

In addition, changing laws, regulations and standards relating to corporate governance and public disclosure are creating uncertainty for public companies, increasing legal and financial compliance costs and making some activities more time consuming. These laws, regulations and standards are subject to varying interpretations, in many cases due to their lack of specificity, and as a result, their application in practice may evolve over time as regulatory and governing bodies provide new guidance. These

factors could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. We will continue to invest resources to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management's time and attention from revenue-generating activities to compliance activities. If our efforts to comply with new laws, regulations and standards differ from the activities intended by regulatory or governing bodies due to ambiguities related to their application and practice, regulatory authorities may initiate legal proceedings against us, and our business could be adversely affected.

As a result of disclosure of information as a public company, our business and financial condition have become more visible, which may result in threatened or actual litigation, including by competitors and other third parties. If the claims are successful, our business operations and financial results could be adversely affected, and even if the claims do not result in litigation or are resolved in our favor, these claims, and the time and resources necessary to resolve them, could divert the resources of our management and adversely affect our business operations and financial results. These factors could also make it more difficult for us to attract and retain qualified colleagues, executive officers and members of our board of directors.

We also expect that operating as a public company will make it more difficult and more expensive for us to obtain director and officer liability insurance on the terms that we would like. As a result, it may be more difficult for us to attract and retain qualified people to serve on our board of directors, our board committees or as executive officers.

Our internal control over financial reporting does not currently meet the standards required by Section 404 of the Sarbanes-Oxley Act, and failure to achieve and maintain effective internal control over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act could harm our business and stock price.

As a privately held company, we have not been required to maintain internal control over financial reporting in a manner that meets the standards of publicly traded companies as required by Section 404(a) of the Sarbanes-Oxley Act ("Section 404(a)"). As a public company, we will be required to provide an annual management report on the effectiveness of our internal control over financial reporting commencing with our second annual report on Form 10-K. Additionally, once we are no longer an "emerging growth company," our independent registered public accounting firm will be required to attest to the effectiveness of our internal control over financial reporting on an annual basis. The rules governing the standards that must be met for our management to assess our internal control over financial reporting are complex and require significant documentation, testing and possible remediation.

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 in accordance with U.S. GAAP. We are currently in the process of reviewing, documenting and testing our internal control over financial reporting, but we are not currently in compliance with, and we cannot be certain when we will be able to implement the requirements of Section 404(a). We may encounter problems or delays in implementing any changes necessary to make a favorable assessment of our internal control over financial reporting. In addition, we may encounter problems or delays in completing the implementation of any requested improvements and receiving a favorable attestation in connection with the attestation provided by our independent registered public accounting firm. If we cannot favorably assess the effectiveness of our internal control over financial reporting, or if our independent registered public accounting firm is unable to provide an unqualified attestation report on our internal controls, investors could lose confidence in our financial information and the price of our Class B common stock could decline.

Our independent registered public accounting firm is not required to formally attest to the effectiveness of our internal control over financial reporting until after we are no longer an "emerging growth company" as defined in the JOBS Act. At such time, our independent registered public accounting firm may issue a report that is adverse in the event it is not satisfied with the level at which our internal control over financial reporting is documented, designed or operating. Any failure to maintain effective disclosure controls and internal control over financial reporting could harm our business, financial condition, and results of operations, and could cause a decline in the price of our Class B common stock.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus includes forward-looking statements. All statements contained in this prospectus other than statements of historical facts, including statements regarding our future results of operations and financial position, our business strategy and plans and our objectives for future operations, are forward-looking statements. The words "believe," "may," "will," "estimate," "continue," "anticipate," "intend," "expect" and similar expressions are intended to identify forward-looking statements. We have based these forward-looking statements largely on our current expectations, projections and assumptions about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy, short-term and long-term business operations and objectives, and financial needs. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in the section titled "Risk Factors." Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the future events and trends discussed in this prospectus may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. The forward-looking statements, as well as our prospects as a whole, are subject to risks and uncertainties, including the following:

- general global market, political, economic and business conditions;
- impact of changes in our business model and revenue streams;
- our sensitivity to changes in foreign exchange rates and interest rates and the success of our foreign currency hedging program;
- plans for future software solutions and services and for enhancements of existing software solutions and services;
- our ability to protect our intellectual property;
- the possibility that we may fail to fully comply with data protection and privacy laws;
- the possibility that we may fail to accurately estimate future revenues and profitability;
- the possibility that we may fail to accurately estimate future expenses, including research and development, sales and marketing and general and administrative expenses;
- the ability of governments in jurisdictions where we do business to meet their financial and debt obligations and finance infrastructure projects;
- the possibility that we may fail to accurately estimate our capital requirements and our needs for additional financing;
- attracting and retaining accounts and colleagues;
- delayed or ineffective implementation or upgrades;
- rapid technological changes in our industry and relevant markets;
- sources of revenues and anticipated revenues;
- the impact of sanctions and export control laws on our ability to operate in certain geographical locations;
- the impact of changes in existing tax laws;
- the impact of changes in accounting standards;

- our ability to complete future acquisitions and difficulties encountered in integrating acquisitions;
- competition in our market;
- the sufficiency of our cash, cash equivalents, and investments to meet our liquidity needs;
- our ability to successfully defend litigation brought against us; and
- the increased expenses associated with being a public company.

These statements are only current predictions and are subject to known and unknown risks, uncertainties and other factors that may cause our or our industry's actual results, levels of activity, performance or achievements to be materially different from those anticipated by the forward-looking statements. We discuss many of these risks in this prospectus in greater detail in the section titled "Risk Factors" and elsewhere in this prospectus. You should not rely upon forward-looking statements as predictions of future events.

Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance, achievements, events, or circumstances reflected in the forward-looking statements will occur. Except as required by law, we undertake no obligation to update any of these forward-looking statements after the date of this prospectus to conform these statements to actual results or revised expectations.

MARKET AND INDUSTRY DATA

We obtained the industry, market and competitive position data contained throughout this prospectus from our own internal estimates and research as well as from industry publications and studies conducted by third parties. This information involves a number of assumptions and limitations, and you are cautioned not to give undue weight to these estimates. The industry publications and third-party studies generally state that the information that they contain has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. While we believe that these publications and third-party studies and our internal data are reliable as of their respective dates, the industry in which we operate is subject to a high degree of uncertainty and risk due to a variety of factors, including those described in the section titled "Risk Factors." These and other factors could cause results to differ materially from those expressed in these publications.

The source of certain statistical data, estimates and forecasts contained in this prospectus are the following independent industry publications or reports:

- a report prepared by Oxford Economics;
- market analyses performed by ARC Advisory Group; and
- an independent market study conducted by , which was commissioned by us. has consented to the references to its study and the use of its name in this prospectus and publicly-available reports.

USE OF PROCEEDS

Registered Stockholders may, or may not, elect to sell shares of our Class B common stock covered by this prospectus. To the extent any Registered Stockholder chooses to sell shares of our Class B common stock covered by this prospectus, we will not receive any proceeds from any such sales of our Class B common stock. See the section titled "Principal and Registered Stockholders."

DIVIDEND POLICY

The declaration and payment of dividends is within the discretion of our board of directors. In 2018, we paid quarterly dividends of $0.02 per share of common stock, and in 2019, we paid quarterly dividends of $0.025 per share of common stock. While we intend to continue paying quarterly dividends, any future determination will be subject to the discretion of our board of directors and will be dependent on a number of factors, including our results of operations, capital requirements, restrictions under Delaware law and overall financial condition, as well as any other factors our board of directors considers relevant. In addition, the terms of the agreement governing the credit facility limit the amount of dividends we can pay. See the section titled "Management's Discussion and Analysis of Financial Conditions and Results of Operations—Liquidity and Capital Resources" for a summary of the material terms of the agreement governing the credit facility.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and capitalization as of September 30, 2019. You should read this table together with the sections titled "Selected Consolidated Financial Data and Other Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and related notes included elsewhere in this prospectus.

Except as otherwise indicated, all information in this prospectus assumes the filing and effectiveness of our amended and restated certificate of incorporation ("Charter Amendments").

	As of September 30, 2019 (in thousands, except share and per share data) (unaudited)
Cash and cash equivalents	$ 125,997
Long-term debt:	$ 248,000
Stockholders' Equity:	
Class A common stock, $0.01 par value per share; 320,000,000 shares authorized, 11,601,757 shares issued and outstanding	116
Class B common stock, $0.01 par value per share; 600,000,000 shares authorized, 243,475,681 shares issued and outstanding	2,434
Additional paid-in capital	405,117
Accumulated other comprehensive loss	(23,636)
Accumulated deficit	(77,448)
Total stockholders' equity	306,583
Total capitalization	$ 554,583

Except as otherwise indicated, the number of outstanding shares of Class B common stock excludes, as of December 31, 2019: (i) 19,602,042 shares of Class B common stock issuable upon exercise of stock options outstanding at a weighted-average exercise price of $5.90 per share of Class B common stock, (ii) 54,771 shares of Class B common stock issuable upon the settlement of restricted stock units outstanding, (iii) 28,101,504 shares of Class B common stock reserved for issuance under our 2015 Equity Incentive Plan, and (iv) 30,756,936 shares of Class B common stock held by colleagues and directors as phantom shares under our nonqualified deferred compensation plans.

SELECTED CONSOLIDATED FINANCIAL DATA

The following tables set forth selected consolidated financial data. The selected consolidated statement of operations data for the year ended December 31, 2018 and the consolidated balance sheet data as of December 31, 2018 have been derived from our audited consolidated financial statements included elsewhere in this prospectus. The selected consolidated statement of operations data for the year ended December 31, 2017 has been derived from our audited consolidated financial statements not included in this prospectus, which were audited in accordance with the auditing standards of the American Institute of Certified Public Accountants rather than the auditing standards of the Public Company Accounting Oversight Board. The consolidated statements of operations data for the nine months ended September 30, 2018 and 2019 and the consolidated balance sheet data as of September 30, 2019 have been derived from our unaudited consolidated financial statements included elsewhere in this prospectus. The unaudited consolidated financial statements include all adjustments, consisting of normal recurring accruals, that we consider necessary for a fair presentation of the financial position and the results of operations for these periods. You should read this selected consolidated financial data in conjunction with the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results to be expected in the future, and our results of operations for the nine months ended September 30, 2019 are not necessarily indicative of the results that may be expected for the entire year ended December 31, 2019.

All amounts presented in this selected consolidated financial data, except share and per share amounts, are presented in thousands. Additionally, many of the amounts and percentages have been rounded for convenience of presentation.

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Consolidated Statements of Operations Data:

	Year Ended December 31,		Nine Months Ended September 30,		
	2017	2018	2018	2019	2019
	Topic 605		Topic 605[(1)]		Topic 606
Revenues:					
Subscriptions	$ 501,098	$ 557,421	$ 414,701	$ 449,957	$ 445,338
Perpetual licenses	61,661	61,065	46,149	38,899	38,255
Subscriptions and licenses	562,759	618,486	460,850	488,856	483,593
Services	66,164	73,224	54,110	49,244	50,139
Total revenues	628,923	691,710	514,960	538,100	533,732
Cost of revenues:					
Cost of subscriptions and licenses	53,662	55,113	40,796	48,129	48,201
Cost of services	66,928	76,211	57,467	56,048	56,048
Total cost of revenues	120,590	131,324	98,263	104,177	104,249
Gross profit	508,333	560,386	416,697	433,923	429,483
Operating expenses:					
Research and development	151,194	175,032	127,598	136,617	136,617
Selling and marketing	139,259	160,635	113,168	111,985	111,889
General and administrative	87,467	89,328	66,491	71,415	71,415
Amortization of purchased intangibles	9,014	14,000	9,961	10,402	10,402
Total operating expenses	386,934	438,995	317,218	330,419	330,323
Income from operations	121,399	121,391	99,479	103,504	99,160
Interest expense, net	(10,320)	(8,765)	(6,363)	(6,503)	(6,503)
Other income (expense), net	(5,773)	236	(1,966)	(14,053)	(14,053)
Income before income taxes	105,306	112,862	91,150	82,948	78,604
Provision for income taxes	46,141	(29,250)	11,375	11,285	11,759
Net income	$ 59,165	142,112	79,775	71,663	66,845
Less: Net income attributable to participating securities		(4)	(7)	(10)	(10)
Net income per share attributable to Class A and Class B common shares		$ 142,108	$ 79,768	$ 71,653	$ 66,835
Net income per share:					
Basic		$ 0.50	$ 0.28	$ 0.25	$ 0.23
Diluted		$ 0.49	$ 0.27	$ 0.24	$ 0.23
Weighted average shares outstanding, basic		285,805,096	285,684,596	286,024,263	286,024,263
Weighted average shares outstanding, diluted		292,624,496	291,845,931	294,586,354	294,586,354

(1) The Topic 605 unaudited amounts presented for the nine months ended September 30, 2019 give effect to revenue adjustments as if the adoption of Topic 606 had not occurred on January 1, 2019. For a reconciliation of the impact of adopting Topic 606 on our unaudited consolidated financial

statements for the nine months ended September 30, 2019, see Note 2 to our consolidated financial statements included elsewhere in this prospectus.

Revenue Comparison—Topic 605 versus Topic 606:

On January 1, 2019, we adopted Topic 606, which supersedes substantially all existing revenue recognition guidance under U.S. GAAP. We adopted Topic 606 using the modified retrospective method, under which the cumulative effect of initially applying Topic 606 was recorded as a reduction to the opening balance of *Accumulated deficit* of $125,464 ($101,489, net of tax) as of January 1, 2019. We applied the standard only to contracts that were not completed as of the date of initial application. The comparative information in our consolidated financial statements included elsewhere in this prospectus has not been adjusted and continues to be reported under Topic 605.

The below table presents a comparison of our revenues as recognized under Topic 605 and Topic 606. We believe that an understanding of the impact of the revenue recognition guidance under Topic 606 on our revenues and revenue trends is useful in evaluating our operating performance.

	Year Ended December 31,		Nine Months Ended September 30,	
	2017	2018	2018	2019
Topic 605:[1]				
Subscriptions	$ 501,098	$ 557,421	$ 414,701	$ 449,957
Perpetual licenses	61,661	61,065	46,149	38,899
Services	66,164	73,224	54,110	49,244
Total Revenues	$ 628,923	$ 691,710	$ 514,960	$ 538,100
Topic 606:[2]				
Subscriptions	$ 505,720	$ 560,485	$ 413,237	$ 445,338
Perpetual licenses	49,983	57,353	38,438	38,255
Services	66,164	73,224	54,110	50,139
Total Revenues	$ 621,867	$ 691,062	$ 505,785	$ 533,732

(1) The Topic 605 unaudited amounts presented for the nine months ended September 30, 2019 give effect to revenue adjustments as if the adoption of Topic 606 had not occurred on January 1, 2019. For a reconciliation of the impact of adopting Topic 606 on our unaudited consolidated financial statements for the nine months ended September 30, 2019, see Note 2 to our consolidated financial statements included elsewhere in this prospectus.

(2) The Topic 606 unaudited amounts presented for the years ended December 31, 2017 and 2018 and the nine months ended September 30, 2018 give effect to revenue adjustments as if the adoption of Topic 606 had occurred as of January 1, 2017 rather than January 1, 2019. For a reconciliation of the impact of adopting Topic 606 as if it had occurred as of January 1, 2017 on our audited consolidated statements of operations data for the years ended December 31, 2017 and 2018 and the unaudited consolidated statement of operations data for the nine months ended September 30, 2018, see the section titled "—Non-GAAP Financial Measures" below.

Key Business Metrics

We regularly review the following key metrics to evaluate our business, measure our performance, identify trends in our business, prepare financial projections, and make strategic decisions.

	As of and Year Ended December 31,		As of and Period Ended September 30,	
	2017	2018	2018	2019
Last twelve-months recurring revenues	$ 523,502	$ 583,403	$ 571,559	$ 616,753
Constant Currency:				
Annualized recurring revenues (ARR) growth rate	8.6%	10.4%	10.3%	11.6%
Account retention rate	98%	98%	98%	98%
Recurring revenues dollar-based net retention rate	105%	107%	106%	107%

Last twelve-months recurring revenues. Last twelve-months recurring revenues is calculated as recurring revenues recognized over the preceding twelve-month period. We define recurring revenues as subscriptions revenues that recur monthly, quarterly, or annually with specific or automatic renewal clauses and professional services revenues in which the underlying contract is based on a fixed fee and contains automatic annual renewal provisions. Last twelve-months recurring revenues is calculated using revenues recognized pursuant to Topic 605 for all periods in order to enhance comparability during our transition to Topic 606. We believe that last twelve-months recurring revenues is an important indicator of our performance during the immediately preceding twelve-month time period. We believe that we will continue to experience favorable growth in recurring revenues due to our strong account retention and recurring revenues dollar-based net retention rates as well as the addition of new accounts with recurring revenues. The last twelve-months recurring revenues under Topic 605 for the periods ended December 31, 2018 and September 30, 2019, compared to the last twelve-months of the preceding twelve-month period for each period, increased by $59,901 and $45,194, respectively. This increase was primarily due to growth in ARR during the prior and current periods for each period, which is primarily the result of consistent performance in our account retention rate and in our recurring revenues dollar-based net retention rate, as well as additional recurring revenues resulting from new accounts and acquisitions. For the last twelve-month period ended September 30, 2019, 86% of our total revenues were recurring revenues. Prospectively, we expect that this percentage is likely to remain consistent or modestly increase as we continue to target shifting episodic professional services revenues to subscriptions classified as recurring revenues.

Constant currency metrics. In reporting period-over-period results, we calculate the effects of foreign currency fluctuations and constant currency information by translating current period results using prior period average foreign currency exchange rates. Our definition of constant currency may differ from other companies reporting similarly named measures, and these constant currency performance measures should be viewed in addition to, and not as a substitute for, our operating performance measures calculated in accordance with U.S. GAAP.

ARR growth rate. Our ARR growth rate is the growth rate of our ARR, measured on a constant currency basis. Our ARR is defined as the sum of the annualized value of our portfolio of contracts that produce recurring revenue as of the last day of the reporting period, and the annualized value of the last three months of recognized revenues for our consumption-based software. ARR is inclusive of the ARR of acquired companies as of the date they are acquired. We believe that ARR and ARR growth are important metrics indicating the scale and growth of our business. Furthermore, we believe ARR, considered in connection with our account retention rate and our recurring revenues dollar-based net retention rate, is a leading indicator of revenue growth. Our ARR as of September 30, 2019 was $647.0 million, calculated using the spot foreign exchange rates as of September 30, 2019. Our ARR growth rate was favorably impacted by acquisitions during 2018 and 2019 and as a result was higher in these periods than in prior periods.

Account retention rate. Our account retention rate for any given twelve-month period is calculated using the average currency exchange rates for the prior period, as follows: the prior period recurring revenues from all accounts with recurring revenues in the current and prior period, divided by total recurring revenues from all accounts during the prior period. The account retention rate is calculated using revenues recognized pursuant to Topic 605 for all periods in order to enhance comparability during our transition to Topic 606. Our account retention rate is an important indicator that provides insight into the long-term value of our account relationships and our ability to retain our account base. We believe that our consistent and high account retention rates during 2017 and 2018 and the first nine months of 2019 illustrate our ability to retain and cultivate long-term relationships with our accounts.

Recurring revenues dollar-based net retention rate. Our recurring revenues dollar-based net retention rate is calculated using the average exchange rates for the prior period, as follows: the recurring revenues for the current period, including any growth or reductions from existing accounts, but excluding recurring revenues from any new accounts added during the current period, divided by the total recurring revenues from all accounts during the prior period. A period is defined as any trailing twelve months. The recurring revenues dollar-based net retention rate is calculated using revenues recognized pursuant to Topic 605 for all periods in order to enhance comparability during our transition to Topic 606. We believe our recurring revenues dollar-based net retention rate is a key indicator of our success in growing our revenues within our existing accounts. Given that for the last twelve-month period ended September 30, 2019 recurring revenues represented 86% of our total revenues, this metric helps explain our revenue performance as primarily growth into existing accounts. We believe our 105%, 107%, and 107% recurring revenues dollar-based net retention rate for the twelve-month periods ended December 31, 2017, December 31, 2018, and September 30, 2019, respectively, illustrates our ability to consistently retain accounts and grow them.

Our calculation of these metrics may not be comparable to other companies with similarly-titled metrics.

For additional information about our key metrics, see the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Business Metrics."

Non-GAAP Financial Measures

In addition to our results determined in accordance with U.S. GAAP, we believe the below non-GAAP measures are useful in evaluating our operating performance. We use the below non-GAAP financial information, collectively, to evaluate our ongoing operations and for internal planning and forecasting purposes.

	Year Ended December 31,		Nine Months Ended September 30,	
	2017	2018	2018	2019
Topic 605:(1)				
Adjusted EBITDA	$ 160,886	$ 171,768	$ 130,907	$ 136,577
Adjusted Net Income	$ 115,389	$ 132,246	$ 100,407	$ 104,167
Topic 606:(2)				
Adjusted EBITDA	$ 153,830	$ 171,120	$ 121,732	$ 132,156
Adjusted Net Income	$ 109,398	$ 131,697	$ 92,377	$ 99,278

(1) The Topic 605 unaudited amounts presented for the nine months ended September 30, 2019 give effect to revenue adjustments as if the adoption of Topic 606, had not occurred on January 1, 2019. For a reconciliation of the impact of adopting Topic 606 on our unaudited consolidated

financial statements for the nine months ended September 30, 2019, see Note 2 to our consolidated financial statements included elsewhere in this prospectus.

(2) The Topic 606 unaudited amounts presented for the years ended December 31, 2017 and 2018 and the nine months ended September 30, 2018 give effect to revenue adjustment as if the adoption of Topic 606 had occurred as of January 1, 2017 rather than January 1, 2019.

Adjusted EBITDA. We define Adjusted EBITDA as net income adjusted for interest expense, net, provision for income taxes, depreciation and amortization, equity-based compensation, acquisition expenses, realignment expenses, and other non-operating income and expense, net. For the years ended December 31, 2017 and 2018, Adjusted EBITDA under Topic 605 increased by $10,882 (or $17,290 under Topic 606) and, for the nine months ended September 30, 2018 and 2019, by $5,670 (or $10,424 under Topic 606). These increases were primarily due to an increase in income from operations, net of adjustments discussed above. The larger increase under Topic 606 is primarily driven by the upfront recognition of perpetual license revenue as compared to ratable recognition over a three-year period under Topic 605.

Under Topic 605, Adjusted EBITDA as a percentage of revenue was 25.6% and 24.8% for the years ended December 31, 2017 and 2018, respectively, and 25.4% and 25.4% for the nine months ended September 30, 2018 and 2019, respectively. Under Topic 606, Adjusted EBITDA as a percentage of revenue was 24.7% and 24.8% for the years ended December 31, 2017 and 2018, respectively, and 24.1% and 24.8% for the nine months ended September 30, 2018 and 2019, respectively.

Adjusted Net Income. We define Adjusted Net Income as net income adjusted for the following: amortization of purchased intangibles and developed technologies, equity-based compensation, acquisition expenses, realignment expenses, other non-operating income and expense, net, the tax effect of the above adjustments to net income, and non-recurring income tax expense and benefit. The tax effect of adjustments to net income is based on the estimated marginal effective tax rates in the jurisdictions impacted by such adjustments, which is 24.5% in the United States, and an average of 10% for all other jurisdictions. For the years ended December 31, 2017 and 2018, Adjusted Net Income under Topic 605 increased by $16,857 (or $22,299 under Topic 606) and, for the nine months ended September 30, 2018 and 2019, by $3,760 (or $6,901 under Topic 606). These increases were primarily due to an increase in income from operations, net of adjustments discussed above. The larger increase under Topic 606 is primarily driven by the upfront recognition of perpetual license revenue as compared to ratable recognition over a three-year period under Topic 605.

Under Topic 605, Adjusted Net Income as a percentage of revenue was 18.3% and 19.1% for the years ended December 31, 2017 and 2018, respectively, and 19.5% and 19.4% for the nine months ended September 30, 2018 and 2019, respectively. Under Topic 606, Adjusted Net Income as a percentage of revenue was 17.6% and 19.1% for the years ended December 31, 2017 and 2018, respectively, and 18.3% and 18.6% for the nine months ended September 30, 2018 and 2019, respectively.

Adjusted EBITDA and Adjusted Net Income are not presentations made in accordance with U.S. GAAP, and our use of the terms Adjusted EBITDA and Adjusted Net Income may vary from the use of similarly titled measures by others in our industry due to the potential inconsistencies in the method of calculation and differences due to items subject to interpretation. We believe the presentation of Adjusted EBITDA and Adjusted Net Income provides useful information to management and investors regarding financial and business trends related to our results of operations and that when non-GAAP financial information is viewed with U.S. GAAP financial information, investors are provided with a more meaningful understanding of our ongoing operating performance. We also use Adjusted EBITDA and Adjusted Net Income to compare our results to those of our competitors and to consistently measure our performance from period to period.

Adjusted EBITDA and Adjusted Net Income should not be considered as alternatives to net income, operating income, or any other performance measures derived in accordance with U.S. GAAP as measures of operating performance. Adjusted EBITDA and Adjusted Net Income have important limitations as analytical tools and should not be considered in isolation or as a substitute for analysis of our results as reported under U.S. GAAP.

Reconciliation of net income to Adjusted EBITDA (Topic 605):

	Year Ended December 31,		Nine Months Ended September 30,	
	2017	2018	2018	2019
Net income[1]	$ 59,165	$ 142,112	$ 79,775	$ 71,663
Interest expense, net	10,320	8,765	6,363	6,503
Provision for income taxes	46,141	(29,250)	11,375	11,285
Depreciation and amortization[3][a]	26,544	29,200	21,112	23,334
Equity-based compensation[3][c]	4,985	7,989	5,801	6,051
Acquisition expenses[3][d]	3,020	6,410	4,646	4,180
Realignment expenses[3][e]	4,938	6,778	(131)	(492)
Other (income) expense, net[3][f]	5,773	(236)	1,966	14,053
Adjusted EBITDA	$ 160,886	$ 171,768	$ 130,907	$ 136,577

Reconciliation of net income to Adjusted Net Income (Topic 605):

	Year Ended December 31,		Nine Months Ended September 30,	
	2017	2018	2018	2019
Net income[1]	$ 59,165	$ 142,112	$ 79,775	$ 71,663
Non-GAAP adjustments, prior to income taxes:				
Amortization of purchased intangibles and developed technologies[3][b]	13,879	17,215	12,251	13,699
Equity-based compensation[3][c]	4,985	7,989	5,801	6,051
Acquisition expenses[3][d]	3,020	6,410	4,646	4,180
Realignment expenses[3][e]	4,938	6,778	(131)	(492)
Other (income) expense, net[3][f]	5,773	(236)	1,966	14,053
Non-GAAP adjustments, prior to income taxes	32,595	38,156	24,533	37,491
Income tax effect of non-GAAP adjustments	(6,644)	(5,971)	(3,901)	(4,977)
Non-recurring income tax expense related to Tax Cuts and Jobs Act[3][g]	30,273	4,318	—	—
Non-recurring income tax benefit related to intercompany transactions[3][h]	—	(46,369)	—	—
Adjusted Net Income	$ 115,389	$ 132,246	$ 100,407	$ 104,167

Reconciliation of net income to Adjusted EBITDA (Topic 606):

	Year Ended December 31,		Nine Months Ended September 30,	
	2017	2018	2018	2019
Net income[2]	$ 53,174	$ 141,563	$ 71,745	$ 66,845
Interest expense, net	10,320	8,765	6,363	6,503
Provision for income taxes	45,076	(29,349)	10,230	11,759
Depreciation and amortization[3][a]	26,544	29,200	21,112	23,334
Equity-based compensation[3][c]	4,985	7,989	5,801	6,051
Acquisition expenses[3][d]	3,020	6,410	4,646	4,103
Realignment expenses[3][e]	4,938	6,778	(131)	(492)
Other (income) expense, net[3][f]	5,773	(236)	1,966	14,053
Adjusted EBITDA	$ 153,830	$ 171,120	$ 121,732	$ 132,156

Reconciliation of net income to Adjusted Net Income (Topic 606):

	Year Ended December 31,		Nine Months Ended September 30,	
	2017	2018	2018	2019
Net income[2]	$ 53,174	$ 141,563	$ 71,745	$ 66,845
Non-GAAP adjustments, prior to income taxes:				
Amortization of purchased intangibles and developed technologies[3][b]	13,879	17,215	12,251	13,699
Equity-based compensation[3][c]	4,985	7,989	5,801	6,051
Acquisition expenses[3][d]	3,020	6,410	4,646	4,103
Realignment expenses[3][e]	4,938	6,778	(131)	(492)
Other (income) expense, net[3][f]	5,773	(236)	1,966	14,053
Non-GAAP adjustments, prior to income taxes	32,595	38,156	24,533	37,414
Income tax effect of non-GAAP adjustments	(6,644)	(5,971)	(3,901)	(4,977)
Non-recurring income tax expense related to Tax Cuts and Jobs Act[3][g]	30,273	4,318	—	—
Non-recurring income tax benefit related to intercompany transactions[3][h]	—	(46,369)	—	—
Adjusted Net Income	$ 109,398	$ 131,697	$ 92,377	$ 99,278

(1) The Topic 605 unaudited amounts presented for the nine months ended September 30, 2019 give effect to revenue adjustments as if the adoption of Topic 606 had not occurred on January 1, 2019. For a reconciliation of the impact of adopting Topic 606 on our unaudited consolidated financial statements for the nine months ended September 30, 2019, see Note 2 to our consolidated financial statements included elsewhere in this prospectus.

(2) The Topic 606 unaudited amounts presented for the years ended December 31, 2017 and 2018 and the nine months ended September 30, 2018 give effect to revenue and income tax adjustments as if the adoption of Topic 606 had occurred as of January 1, 2017 rather than January 1, 2019. The most significant impact from the adoption of Topic 606 relates to timing of revenue recognition for perpetual licenses and the accounting for certain of our subscription arrangements that include term-based software licenses bundled with support. Under prior guidance, revenue for perpetual licenses was recognized over a three-year period, while revenue attributable to the term-based software licenses was recognized ratably over the term. Under Topic 606, both perpetual license

and term-based software license revenue will be recognized upfront upon delivery of the software license. Our revenue recognition for services, as well as our accounting for costs to obtain a contract with a customer, remained substantially unchanged and were not adjusted. See Note 2 to our consolidated financial statements included elsewhere in this prospectus for additional information regarding the adoption of Topic 606.

Reconciliation of Topic 605 to Topic 606:

	Year Ended December 31, 2017		
	As reported Topic 605	Adjustments	Topic 606
Subscriptions	$ 501,098	$ 4,622	$ 505,720
Perpetual licenses	61,661	(11,678)	49,983
Provision for income taxes	46,141	(1,065)	45,076
Net Income	59,165	$ (5,991)	53,174

	Year Ended December 31, 2018		
	As reported Topic 605	Adjustments	Topic 606
Subscriptions	$ 557,421	$ 3,064	$ 560,485
Perpetual licenses	61,065	(3,712)	57,353
Provision for income taxes	(29,250)	(99)	(29,349)
Net Income	142,112	$ (549)	141,563

	Nine Months Ended September 30, 2018		
	As reported Topic 605	Adjustments	Topic 606
Subscriptions	$ 414,701	$ (1,464)	$ 413,237
Perpetual licenses	46,149	(7,711)	38,438
Provision for income taxes	11,375	(1,145)	10,230
Net Income	79,775	$ (8,030)	71,745

(3) Further explanation of certain of our adjustments in arriving at Adjusted EBITDA and Adjusted Net Income are as follows:

(a) *Depreciation and amortization.* Depreciation and amortization includes amortization of $1,617 and $2,052 for the years ended December 31, 2017 and 2018, respectively, and $1,307 and $2,337, for the nine months ended September 30, 2018 and 2019, respectively, related to certain projects under our Accelerated Commercial Development Program ("ACDP").

(b) *Amortization of purchased intangibles and developed technologies.* Amortization of purchased intangibles varies in amount and frequency and is significantly impacted by the timing and size of our acquisitions. For the years ended December 31, 2017 and 2018 and the nine months ended September 30, 2018 and 2019, amortization of acquisition related developed technologies under our ACDP was $359, $375, $284, and $537, respectively. Management finds it useful to exclude these variable charges from our operating expenses to assist in budgeting, planning and forecasting future periods. The use of intangible assets and developed technologies contributed to our revenues earned during the periods presented and will also contribute to our revenues in future periods. Amortization of purchased intangible assets and developed technologies will recur in future periods.

(c) *Equity-based compensation*. We exclude equity-based compensation expenses from our non-GAAP measures primarily because they are non-cash expenses and management finds it useful to exclude certain non-cash charges to assess the appropriate level of various operating expenses to assist in budgeting, planning and forecasting future periods. Moreover, because of varying available valuation methodologies, subjective assumptions and the variety of award types that companies can use under ASC 718, *Compensation—Stock Compensation*, we believe excluding equity-based compensation expenses allows investors to make meaningful comparisons between our recurring core business results of operations and those of other companies.

(d) *Acquisition expenses.* We incur expenses for professional services rendered in connection with business combinations, which are included in our U.S. GAAP presentation of general and administrative expense. Also included in our acquisition expenses are retention incentives paid to executives of the acquired companies as well as adjustments related to deferred revenue from acquired companies. We exclude these acquisition expenses when we evaluate our continuing operational performance as we would not have otherwise incurred these expenses in the periods presented as part of our continuing operations. Acquired deferred revenue is recorded on the opening balance sheet at an amount that typically is lower than historical carrying value. The adjustment to acquired deferred revenue has no impact on our business or cash flow, but it does reduce reported U.S. GAAP revenue in the periods following an acquisition.

(e) *Realignment expenses.* These expenses are associated with realigning our business strategies to better serve our accounts and to better align resources with the evolving needs of the business. In connection with these actions, we recognize costs related to termination benefits for former colleagues whose positions were eliminated. We exclude these charges because they are not reflective of our ongoing business and results of operation. We believe it is useful for investors to understand the effects of these items on our total operating expenses. In the ordinary course of operating our business, we incur severance expenses that are not included in this adjustment.

(f) *Other (income) expense, net*. Primarily consists of foreign currency translation losses of $6,294, $418, $2,087, and $14,053 for the years ended December 31, 2017 and 2018 and the nine months ended September 30, 2018 and 2019, respectively. The foreign currency translation losses derive primarily from U.S. Dollar denominated intercompany balances, cash and cash equivalents and accounts receivable held by foreign subsidiaries with non-U.S. Dollar functional currencies. In October 2018, we had intercompany sales of certain intangible operating assets between our foreign subsidiaries, which resulted in significant U.S. Dollar denominated intercompany liabilities at foreign subsidiaries with a non-U.S. Dollar functional currency (mainly Euro). These U.S. Dollar denominated balances are being translated into their functional currencies at the rates in effect at the balance sheet date and are fully eliminated in consolidation. The gains and losses from such translations are included in Other income (expense), net. For the nine months ended September 30, 2019, such intercompany balances resulted in unrealized foreign currency translation losses of $13,982. Foreign currency translation gain and losses are driven by the volume of foreign currency transactions and the foreign currency exchange rates for the year. A significant amount of such gains and losses is derived from the translation of intercompany balances which eliminate in consolidation and are unrealized. We exclude these charges because they are not reflective of ongoing business and results of operation. We believe it is useful for investors to understand the effects of these items on our total operating expenses.

(g) *Non-recurring income tax expense related to Tax Cuts and Jobs Act*. The U.S. Tax Cuts and Jobs Act was enacted on December 22, 2017 and resulted in a provisional tax expense of $30,273 in

2017 primarily due to the one-time transition tax on accumulated foreign subsidiary earnings and deferred tax impacts. For the year ended December 31, 2018, the Company recorded a $4,318 increase to tax expense related to provisional amounts recorded in 2017.

(h) *Non-recurring income tax benefit related to intercompany transactions*. For the year ended December 31, 2018, we had intercompany sales of certain intangible operating assets between our foreign subsidiaries, which resulted in a non-recurring net tax benefit of $46,369.

Consolidated Balance Sheet Data:

The following table presents summary consolidated balance sheet data as of December 31, 2018 and September 30, 2019:

	December 31, 2018	September 30, 2019
Cash and cash equivalents	$ 81,183	$ 125,997
Working capital, excluding deferred revenues	135,163	143,991
Total assets	923,596	908,601
Deferred revenues, current and long-term	337,451	169,724
Total debt	258,750	248,000
Total stockholders' equity	147,431	306,583

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion should be read in conjunction with the section titled "Selected Consolidated Financial Data" and our consolidated financial statements and related notes thereto included elsewhere in this prospectus. 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 titled "Cautionary Note Regarding Forward-Looking Statements" and "Risk Factors."

All amounts presented in this Management's Discussion and Analysis of Financial Condition and Results of Operations, except share and per share amounts, are presented in thousands. Additionally, many of the amounts and percentages have been rounded for convenience of presentation.

Overview

We are a leading global provider of software for infrastructure engineering, enabling the work of civil, structural, geotechnical, and plant engineering practitioners, their project delivery enterprises, and owner-operators of infrastructure assets. We were founded in 1984 by the Bentley brothers. Our enduring commitment is to develop and support the most comprehensive portfolio of integrated software offerings across professional disciplines, project and asset lifecycles, infrastructure sectors, and geographies. Our software enables digital workflows across engineering disciplines, distributed project teams, from offices to the field, and across computing form factors, including desktops, on-premises servers, cloud-native services, mobile devices, and web browsers. We deliver our solutions via on-premise, cloud, and hybrid environments. Our users engineer, construct, and operate projects and assets across infrastructure sectors:

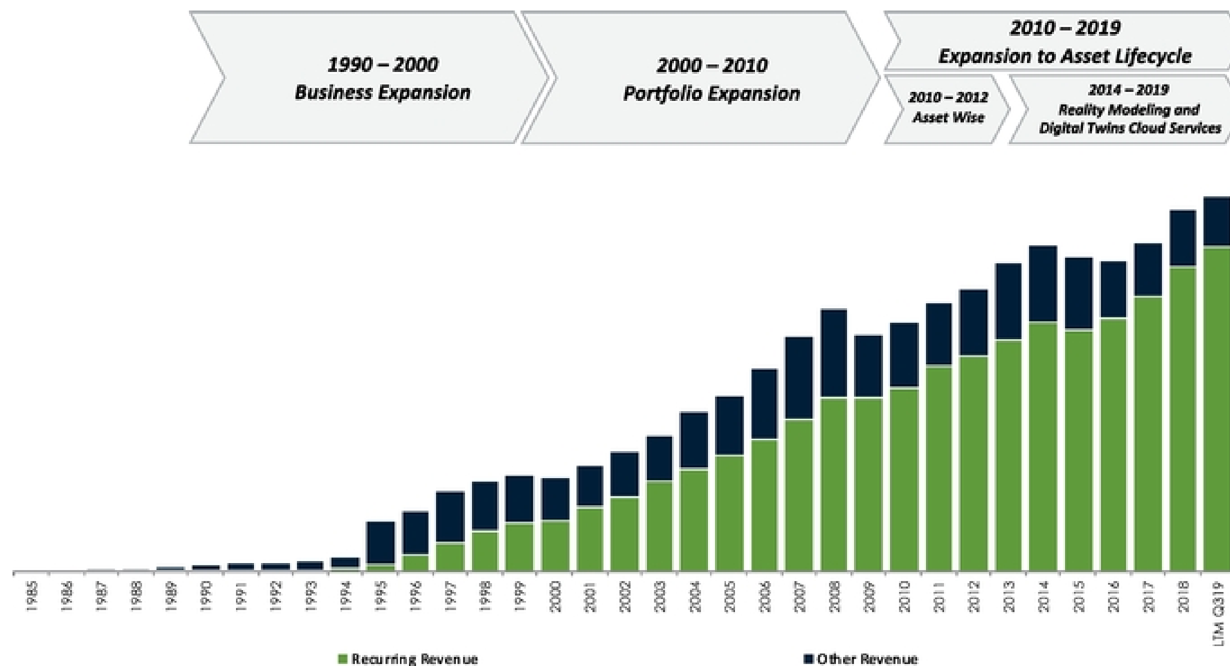
- *public works* (including roads, rail, airports, ports, and water and wastewater networks) */ utilities* (including electric, gas, water, and communications). We estimate that this sector represents 52% of the net infrastructure asset value of the global top 500 infrastructure owners (the "global top 500 infrastructure owners") based on the 2019 edition of the *Bentley Infrastructure 500 Top Owners*, our annual compilation of the world's largest infrastructure owners ranked by net depreciated value of their tangible fixed assets;

- *industrial* (including discrete and process manufacturing, power generation, and water treatment plants) */ resources* (including oil and gas, mining, and offshore), which we estimate represents 38% of the global top 500 infrastructure owners' net infrastructure asset value; and

- *commercial/facilities* (including office buildings, hospitals, and campuses), which we estimate represents 10% of the global top 500 infrastructure owners' net infrastructure asset value.

Since its founding, Bentley Systems has remained focused on our mission to provide software in support of the professional needs of those responsible for creating and managing the world's infrastructure. We have methodically grown through periods of global expansion, periods of expansion

in our portfolio of solutions, and periods of rapid technological change. The following provides key corporate milestones over our 35-year history:



The growth of our business is driven by growth in infrastructure spending. Infrastructure can be divided into three significant sectors: (i) public works/utilities; (ii) industrial/resources; and (iii) commercial facilities. We empower professionals across a wide variety of engineering disciplines to address the challenges facing participants in the infrastructure project delivery and asset performance phases of the infrastructure lifecycle through our comprehensive software solutions, which are accessible via desktop computers, on-premises servers, cloud services, and mobile devices. Our portfolio of open modeling and simulation applications leverages a shared application framework across engineering disciplines to help create robust digital assets that maximize real-world performance of physical assets. Our connected data environment enables our applications to intra-operate, empowering substantive multi-discipline collaboration while also supporting backward compatibility across current and earlier generations of software, and interoperability among many other vendors' software. Our collaboration systems enable distributed design and construction teams to effectively and securely share information, while providing visibility into project performance. Finally, the engineering content management capabilities of our assets lifecycle system and our digital twins cloud services enable digital engineering models to be leveraged within the context of right-time condition monitoring for better operations and maintenance decisions.

We market and sell our offerings primarily through our direct sales force. Our sales organization reaches accounts across: (i) the Americas; (ii) EMEA; and (iii) APAC. Our marketing efforts focus on building corporate brand awareness, brand equity, and thought leadership, as well as obtaining sales leads through digital marketing channels, including webinars, and traditional marketing channels, including industry-specific trade shows and conferences.

Our sources of revenue growth, in order of magnitude, come from the recurrence of existing subscription revenues, additional revenue and growth from existing accounts using the same products, additional revenue and growth from existing accounts using new products, and growth from new accounts. For the nine months ended September 30, 2019, we generated 83% of our revenues through recurring subscriptions, with the remaining revenue generated from the sale of perpetual licenses and

the delivery of professional services, some of which are recurring in nature. Our subscription revenue, and our professional services revenue in which the underlying contract is based on a fixed fee and contains automatic annual renewal provisions, together representing our recurring revenues, were 86% of our total revenues for the nine months ended September 30, 2019. We have a highly-diversified account base, with our largest account representing no more than 2% of total revenues in 2018. Our 2018 revenues were also diversified by account type, size, and geography. Additionally, we believe that we have a loyal account base, with 80% of our 2018 revenues from organizations that have been our accounts for over 10 years.

Our Commercial Offerings:

Our solutions are made available to our accounts in a broad range of commercial offerings designed to accommodate the diverse preferences of our accounts, which range from owned versus subscribed, short-term subscriptions versus longer term annual subscriptions, and fee-certain arrangements versus variable or consumption-based arrangements. We contract our commercial offerings under a single form of standard contract, which includes liability and other risk protections in our favor, and appropriate standard addendums to the primary contract, which specifically address the commercial offerings provided. Our standard commercial offerings are summarized in the below table, with further descriptions following the table:

	Subscription Offerings				Perpetual Licenses	Professional Services
	SELECT Subscriptions	Enterprise Subscriptions		Term License Subscriptions		
		E365	ELS			
Overview	• Prepaid annual recurring subscription based on owned perpetual licenses	• Complete and unlimited global access to our comprehensive portfolio of solutions • Includes benefits of SELECT subscriptions		• Consumption-based growth and expansion	• Available for accounts that prefer to own software licenses	• Offered alongside all subscription and license offerings
Topic 606 Revenue Recognition	• Substantially ratable	• Quarterly	• Substantially upfront	• Annually, quarterly, monthly as applicable	• Upfront	• As delivered
Key Features	• Software upgrades • Technical support • License pooling • Open Access • Portfolio Balancing	• Unlimited portfolio access and users • Global pricing • Success Plan services included	• Unlimited portfolio access; unlimited users • License pooling	• For *Applications* : unlimited portfolio access; unlimited users • For *ProjectWise* and *AssetWise:* term access via Passports and Visas or Annual Subscriptions	• License ownership for select accounts	• Training • Implementation • Configuration • Customization • Strategic consulting

SELECT Subscriptions. Our SELECT subscription is a prepaid annual recurring subscription that accompanies a new or previously purchased perpetual license. We believe that the SELECT benefits summarized below support our favorable rates of account retention and growth:

- Software upgrades;
- Comprehensive technical support;
- License pooling providing accounts with efficiency advantages;
- Portfolio balancing providing accounts the opportunity to exchange unused or under used licenses with other of our license offerings;
- Learning benefits, Azure-based collaboration services, and mobility advantages; and
- Access to our entire application portfolio with usage of licenses not previously purchased monetized quarterly in arrears based on consumption. See the section titled "—Quarterly Term License Subscription" below.

Enterprise Subscriptions. Our enterprise subscription offerings provide our largest accounts with complete and unlimited global access to our comprehensive portfolio of solutions.

- *Enterprise License Subscriptions ("ELS").* Our ELS offering provides access to our comprehensive portfolio of solutions for a fixed annual fee. Subsequent annual renewals are based on the account's usage of software in the preceding year. The majority of our ELS subscribers were historically SELECT subscribers that have grown into a position to take full advantage of our ELS offering.

- *Enterprise 365 ("E365 Subscriptions").* Under our E365 subscription, participating accounts have unrestricted access to our comprehensive software portfolio, similar to ELS, however they are charged based upon daily usage. The daily usage fee also includes maintenance and Success Plan services, which are designed to achieve business outcomes through more efficient and effective use of our software. The E365 subscription offering was introduced in 2018. Prospectively, we plan to prioritize efforts to transition ELS subscribers to E365 subscriptions, primarily to simplify pricing, more closely align consumption to monetization, and to establish Success Plan services as recurring to ensure better business outcomes for our users. To the extent we succeed in transitioning subscribers to E365, under Topic 606 we would recognize a greater proportion of our revenues on a quarterly basis rather than substantially upfront. See the section titled "—Key Factors Impacting Comparability and Performance."

Term License Subscriptions

Annual Term Licenses ("ATL") Subscription. Annual term licenses are generally prepaid annually for named user access to specific products and include our newly introduced Practitioner Licenses. Annual term licenses are also used to monetize site or enterprise wide access for certain of our AssetWise solutions within given usage bands.

Quarterly Term License ("QTL") Subscription. Through quarterly term licenses, accounts pay quarterly in arrears for licenses they have used representing usage beyond their contracted quantities. Much like our Enterprise Subscription programs, a QTL allows smaller and medium-sized accounts to match usage to ongoing project requirements.

Monthly Term License ("MTL") Subscription. Monthly term licenses are identical to QTL subscriptions, except for the term of the license, and the manner in which they are monetized. MTL subscriptions require a Cloud Services Subscription, which is discussed below.

Visas and Passports. Visas and Passports are quarterly or annual term licenses enabling users to access specific project or enterprise information and entitle certain functionality of our *ProjectWise* and AssetWise systems. Generally, a Passport provides desktop, web, and mobile application access to project information and certain functions, and a Visa provides similar access, plus added functionality depending upon the product to which the Visa is aligned.

While certain legacy arrangements are supported, our standard offering requires Visas and Passports to be fulfilled and contracted via a CSS, which is discussed below.

Cloud Services Subscription ("CSS"). CSS is designed to streamline the procurement, administration, and payment process for us and our accounts. A CSS requires an upfront annual estimation of MTL, Visa and Passport consumption, and any Success Plan services expected for the upcoming year. A deposit for the annual estimated consumption is submitted in advance. Actual consumption is monitored and invoiced against the deposit on a calendar quarter basis. Accounts are charged only for what gets used and deposited amounts never expire.

Perpetual Licenses

We historically have sold perpetual licenses and continue to offer them to our accounts as an available option for most of our applications. Perpetual licenses are available for accounts that prefer to own their software licenses and may be sold with or without attaching a SELECT subscription. Historically, attachment and retention of the SELECT subscription has been high given the benefits of the SELECT subscription.

Professional Services

We offer professional services, including training, implementation, configuration, customization, and strategic consulting services for all types of projects as requested by our accounts. We perform projects on both a time and materials and a fixed fee basis. We also offer our services using contractual structures based on (i) delivery of the services in the form of subscription-like, packaged offerings that are annually recurring in nature; and (ii) delivery of our growing portfolio of Success Plans in standard offerings that offer a level of subscription service over and above the standard technical support offered to all accounts as part of their SELECT or Enterprise agreement. Over time, we expect professional revenues using subscription and subscription-like contractual structures to make up a greater proportion of our professional services revenues.

Examples of Typical Commercial Offering Combinations

For the nine months ended September 30, 2019, approximately 27% of our revenues derive from ELS or E365 offerings, and approximately 38% of our revenues derive from SELECT subscriptions. Our users often add further sources of revenue upon each of these foundational subscription offerings. Typical examples are as follows:

- An account contracts for its application solutions under its ELS or E365 as described above. In addition, if the account also utilizes our *ProjectWise* enterprise solution, it will estimate its prospective annual usage and make an incremental deposit into its CSS account. The CSS account will be drawn down quarterly based on actual usage and consumption of Passports and Visas. We deliver professional services for E365 accounts via the embedded Success Plan. An ELS account may contract for professional services under fixed fee or "days and rates" episodic arrangements billed separately, or it may contract for professional services in the form of Success Plans, which it pays for via its CSS.

- A SELECT subscription account pays a fixed annual subscription fee based on the number of perpetual licenses for applications which it owns. The account may purchase additional perpetual licenses to which an additional annual SELECT subscription fee will apply for each. Alternatively, the account may grow its application use via term licenses, which will be billed quarterly in arrears based on actual term license consumption. Alternatively, the account may estimate its annual term license requirements and make a deposit into its CSS account, with quarterly draw down based on actual usage and consumption. Contracting for term license usage via the CSS provides the account a slight economic advantage. Similar to the ELS or E365 subscriber, if the SELECT subscriber also utilizes our *ProjectWise* enterprise system, prospective annual usage will be estimated and a deposit made into a CSS account. The CSS account will be drawn down quarterly based on actual usage and consumption of Passports and Visas. For any professional services, the account may contract for professional services under fixed fee or "days and rates," episodic arrangements billed separately, or it may contract for professional services in the form of Success Plans, which it will pay for via its CSS.

Key Business Metrics

We regularly review the following key metrics to evaluate our business, measure our performance, identify trends in our business, prepare financial projections, and make strategic decisions.

	As of and Year Ended December 31,		As of and Period Ended September 30,	
	2017	2018	2018	2019
Last twelve-months recurring revenues	$ 523,502	$ 583,403	$ 571,559	$ 616,753
Constant Currency:				
Annualized recurring revenues (ARR) growth rate	8.6%	10.4%	10.3%	11.6%
Account retention rate	98%	98%	98%	98%
Recurring revenues dollar-based net retention rate	105%	107%	106%	107%

Last twelve-months recurring revenues. Last twelve-months recurring revenues is calculated as recurring revenues recognized over the preceding twelve-month period. We define recurring revenues as subscriptions revenues that recur monthly, quarterly, or annually with specific or automatic renewal clauses and professional services revenues in which the underlying contract is based on a fixed fee and contains automatic annual renewal provisions. Last twelve-months recurring revenues is calculated using revenues recognized pursuant to Topic 605 for all periods in order to enhance comparability during our transition to Topic 606. We believe that last twelve-months recurring revenues is an important indicator of our performance during the immediately preceding twelve-month time period. We believe that we will continue to experience favorable growth in recurring revenues due to our strong account retention and recurring revenues dollar-based net retention rates as well as the addition of new accounts with recurring revenues. The last twelve-months recurring revenues under Topic 605 for the periods ended December 31, 2018 and September 30, 2019, compared to the last twelve-months of the preceding twelve-month period for each period, increased by $59,901 and $45,194, respectively. This increase was primarily due to growth in ARR during the prior and current periods for each period, which is primarily the result of consistent performance in our account retention rate and in our recurring revenues dollar-based net retention rate, as well as additional recurring revenues resulting from new accounts and acquisitions. For the last twelve-month period ended September 30, 2019, 86% of our total revenues were recurring revenues. Prospectively, we expect that this percentage is likely to remain consistent or modestly increase as we continue to target shifting episodic professional services revenues to subscriptions classified as recurring revenues.

Constant currency metrics. In reporting period-over-period results, we calculate the effects of foreign currency fluctuations and constant currency information by translating current period results using prior period average foreign currency exchange rates. Our definition of constant currency may differ from other companies reporting similarly named measures, and these constant currency performance measures should be viewed in addition to, and not as a substitute for, our operating performance measures calculated in accordance with U.S. GAAP.

ARR growth rate. Our ARR growth rate is the growth rate of our ARR, measured on a constant currency basis. Our ARR is defined as the sum of the annualized value of our portfolio of contracts that produce recurring revenue as of the last day of the reporting period, and the annualized value of the last three months of recognized revenues for our consumption-based software. ARR is inclusive of the ARR of acquired companies as of the date they are acquired. We believe that ARR and ARR growth are important metrics indicating the scale and growth of our business. Furthermore, we believe ARR, considered in connection with our account retention rate and our recurring revenues dollar-based net retention rate, is a leading indicator of revenue growth. Our ARR as of September 30, 2019 was $647.0 million, calculated using the spot foreign exchange rates as of September 30, 2019. Our ARR growth rate was favorably impacted by acquisitions during 2018 and 2019 and as a result was higher in these periods than in prior periods.

Account retention rate. Our account retention rate for any given twelve-month period is calculated using the average currency exchange rates for the prior period, as follows: the prior period recurring revenues from all accounts with recurring revenues in the current and prior period, divided by total recurring revenues from all accounts during the prior period. The account retention rate is calculated using revenues recognized pursuant to Topic 605 for all periods in order to enhance comparability during our transition to Topic 606. Our account retention rate is an important indicator that provides insight into the long-term value of our account relationships and our ability to retain our account base. We believe that our consistent and high account retention rates during 2017 and 2018 and the first nine months of 2019 illustrate our ability to retain and cultivate long-term relationships with our accounts.

Recurring revenues dollar-based net retention rate. Our recurring revenues dollar-based net retention rate is calculated using the average exchange rates for the prior period, as follows: the recurring revenues for the current period, including any growth or reductions from existing accounts, but excluding recurring revenues from any new accounts added during the current period, divided by the total recurring revenues from all accounts during the prior period. A period is defined as any trailing twelve months. The recurring revenues dollar-based net retention rate is calculated using revenues recognized pursuant to Topic 605 for all periods in order to enhance comparability during our transition to Topic 606. We believe our recurring revenues dollar-based net retention rate is a key indicator of our success in growing our revenues within our existing accounts. Given that for the last twelve-month period ended September 30, 2019 recurring revenues represented 86% of our total revenues, this metric helps explain our revenue performance as primarily growth into existing accounts. We believe our 105%, 107%, and 107% recurring revenues dollar-based net retention rate for the twelve-month periods ended December 31, 2017, December 31, 2018, and September 30, 2019, respectively, illustrates our ability to consistently retain accounts and grow them.

Our calculation of these metrics may not be comparable to other companies with similarly-titled metrics.

Non-GAAP Financial Measures

In addition to our results determined in accordance with U.S. GAAP, we believe the below non-GAAP measures are useful in evaluating our operating performance. We use the below non-GAAP financial information, collectively, to evaluate our ongoing operations and for internal planning and forecasting purposes.

	Year Ended December 31,	Nine Months Ended September 30,		
	2018	2018	2019	
	Topic 605	Topic 605	Topic 605	Topic 606
Adjusted EBITDA	$ 171,768	$ 130,907	$ 136,577	$ 132,156
Adjusted Net Income	$ 132,246	$ 100,407	$ 104,167	$ 99,278

For additional information, including the limitations of using non-GAAP financial measures, and reconciliations of the non-GAAP financial measures to the most directly comparable financial measures stated in accordance with U.S. GAAP, see the section titled "Selected Consolidated Financial Data."

Key Factors Impacting Comparability and Performance

Impact of Topics 606 and 340-40. On January 1, 2019, we adopted Topic 606, which supersedes substantially all existing revenue recognition guidance under U.S. GAAP. We adopted Topic 606 using the modified retrospective method, under which the cumulative effect of initially applying Topic 606 was recorded as a reduction to the opening balance of *Accumulated deficit* of $125,464 ($101,489, net of tax) as of January 1, 2019. We applied the standard only to contracts that were not completed as of the

date of initial application. The comparative information has not been adjusted and continues to be reported under Topic 605.

The most significant impact from the adoption of Topic 606 relates to timing of revenue recognition for perpetual licenses and the accounting for certain of our subscription arrangements that include term-based software licenses bundled with support. Under Topic 605, revenue for perpetual licenses was recognized over a three-year period, while revenue attributable to the term-based software licenses was recognized ratably over the term. Under Topic 606, both perpetual license and term-based software license revenue will be recognized upfront upon delivery of the software license. Revenue recognition related to support, hosting, usage-based offerings, and services is substantially unchanged, with support and hosting revenue recorded ratably over the contract term, usage-based revenue recognized upon usage or delivery, and services revenue as delivered.

On an annual and trailing twelve-month basis, we expect our subscriptions revenues recognized under Topic 606 to be comparable to such revenues recognized under Topic 605. This expectation is attributable to the annual, recurring nature of our subscription agreements. However, quarterly subscription revenue and profitability trends, will be impacted by the subscription term as well as the term start date of new and renewals subscriptions, due to the upfront revenue recognition of the associated term-license component. Refer to the sections titled "—Quarterly Results of Operations" and "—Quarterly Trends" below.

Under Topic 605, our perpetual licenses revenues were recognized over a three-year period due to the portfolio balancing feature users obtain through their SELECT subscriptions. Under Topic 606, our perpetual licenses revenues are recognized upon delivery and will closely align with the respective license sales of the period.

Further, under Topic 606, the conversion of our existing subscription users to consumption-based offerings, such as our E365 program, will introduce some volatility between annual, quarterly and trailing twelve-month periods and impact period over period comparability. This effect is because the term-based software license is recognized upfront upon delivery for subscription-based offerings, but upon usage for consumption-based offerings. For example, if an account renews an annual ELS at the beginning of July 2019, then we will recognize in 2019 the term-based software license of the annual subscription upon renewal for the twelve-month period from July 1, 2019 to June 30, 2020. However, if such account instead switches from our ELS offering to our consumption based E365 offering, then we will only recognize in 2019 the distinct license component for the consumption period July 1, 2019 to December 31, 2019.

See Note 2 to our consolidated financial statements included elsewhere in this prospectus for further information on the impact upon adoption of Topics 606 and 340-40 as of January 1, 2019.

Impact of foreign currency. A portion of our revenues and operating expenses were derived from outside the United States and as such, were denominated in various foreign currencies, including most significantly: Euros, British Pounds, Australian Dollars, Canadian Dollars, and Chinese Yuan Renminbi. Our financial results are therefore affected by changes in foreign currency rates. In 2018, 49% of our revenues were denominated in various foreign currencies. Correspondingly, in 2018, 48% of our operating expenses were denominated in various foreign currencies. Other than the natural hedge attributable to matching revenues and expenses in the same currencies, we do not currently hedge foreign currency exposure. Accordingly, our results of operations have been, and in the future will be, affected by changes in foreign exchange rates.

We identify the effects of foreign currency on our operations and present constant currency growth rates and fluctuations because we believe exchange rates are an important factor in understanding period to period comparisons and enhance the understanding of our results and evaluation of our performance. In reporting period to period results, we calculate the effects of foreign currency

fluctuations and constant currency information by translating current period results using prior period average foreign currency exchange rates. Our definition of constant currency may differ from other companies reporting similarly named measures, and these constant currency performance measures should be viewed in addition to, and not as a substitute for, our operating performance measures calculated in accordance with U.S. GAAP.

Acquisitions. Historically, we have enhanced our business with acquisitions of businesses, software solutions, and technologies. Going forward, we plan to selectively acquire adjacent software solutions that can be sold broadly across our account base, as well as to acquire new technologies that we can leverage across our existing software solution portfolio. We completed seven, five, and two acquisitions during the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, respectively.

In accordance with Rule 3-05 of Regulation S-X, separate financial statements are not required for any of our acquisitions individually or in the aggregate.

Income taxes. The U.S. Tax Cuts and Jobs Act was enacted on December 22, 2017 and resulted in a provisional tax expense primarily due to the one-time transition tax on accumulated foreign subsidiary earnings and deferred tax impacts. For the year ended December 31, 2018, we recorded a $4,318 increase to tax expense related to provisional amounts recorded in 2017. In October 2018, we had intercompany sales of certain intangible operating assets between our foreign subsidiaries, which resulted in a non-recurring net tax benefit of $46,369.

Components of Results of Operations:

We manage our business globally within one operating segment, the development and marketing of computer software and related services, which is consistent with how our chief operating decision maker reviews and manages our business.

Revenues

We generate revenues from subscriptions, perpetual licenses, and professional services.

Subscriptions

SELECT subscriptions: We provide prepaid annual recurring subscriptions that accounts can elect to add to a new or previously purchased perpetual license. SELECT provides accounts with benefits, including upgrades, comprehensive technical support, pooled licensing benefits, annual portfolio balancing exchange rights, learning benefits, certain Azure-based collaboration services, mobility advantages, and access to other available benefits. Under Topic 606, SELECT subscriptions revenues are recognized as distinct performance obligations are satisfied. Under Topic 605, SELECT subscriptions revenue was recognized on a ratable basis, over the subscription term.

Enterprise subscriptions: We provide enterprise subscription offerings that provides our largest accounts with complete and unlimited global access to our comprehensive portfolio of solutions. Enterprise License Subscriptions ("ELS") provide access for a prepaid annual fee. E365 subscriptions ("E365"), which were introduced during the fourth quarter of 2018, provide unrestricted access to our comprehensive software portfolio, similar to ELS, however are charged based upon daily usage. The daily usage fee also includes maintenance and Success Plan services, which are designed to achieve business outcomes through more efficient and effective use of our software. The ELS and E365 programs both contain a distinct term license component. Under Topic 606, ELS subscriptions revenue is recognized as the distinct performance obligations are satisfied. Under Topic 605, ELS subscriptions revenue is recognized on a ratable basis, over the subscription term. E365 revenue is recognized based upon usage incurred by the account under both Topic 606 and 605.

Term license subscriptions: We provide annual, quarterly, and monthly term licenses for our software products. ATL subscriptions are generally prepaid annually for named user access to specific products. QTL subscriptions allow accounts to pay quarterly in arrears for licenses usage that is beyond their SELECT contracted quantities. MTL subscriptions are identical to QTL subscriptions, except for the term of the license, and the manner in which they are monetized. MTL subscriptions require a CSS, which is described below.

Visas and Passports are quarterly or annual term licenses enabling accounts to access specific project or enterprise information and entitle certain functionality of our *ProjectWise* and *AssetWise* systems. Our standard offerings are usage based with monetization through our CSS program. Under Topic 606, annual, quarterly, and monthly term licenses revenues are recognized as the distinct performance obligations for each are satisfied. Billings in advance are recorded as *Deferred revenues* in the consolidated balance sheets. Under Topic 605, the subscriptions revenues are recognized on a ratable basis, over the subscription term. QTL, MTL, Visas and Passports subscriptions are recognized based upon usage incurred by the account under both Topic 606 and 605.

CSS is a program designed to streamline the procurement, administration, and payment process. The program requires an estimation of annual usage for CSS eligible offerings and a deposit of funds in advance. Actual consumption is monitored and invoiced against the deposit on a calendar quarter basis. CSS balances not utilized for eligible products or services may roll over to future periods or are refundable. Paid and unconsumed CSS balances are recorded in *Accruals and other current liabilities* in the consolidated balance sheets. Software and services consumed under CSS are recognized pursuant to the applicable revenue recognition guidance for the respective software or service and classified as subscriptions or services based on their respective nature.

Perpetual licenses

Perpetual licenses may be sold with or without attaching a SELECT subscription. Historically, attachment and retention of the SELECT subscription has been high given the benefits of the SELECT subscription discussed above. Perpetual licenses revenues are recognized upon delivery of the license to the user under Topic 606. Under Topic 605, we recognized perpetual licenses revenues ratably over a three-year term due to the portfolio balancing feature users obtain through their SELECT subscriptions.

Services

We provide professional services including training, implementation, configuration, customization, and strategic consulting services. We perform projects on both a time and materials and a fixed fee basis. Our recent and preferred contractual structures for delivering professional services include (i) delivery of services in the form of subscription-like, packaged offerings that are annually recurring in nature, and (ii) delivery of our growing portfolio of Success Plans. Success Plans are standard offerings that offer a level of subscription service above the standard technical support offered to all accounts as part of their SELECT or Enterprise agreement. Revenues are recognized as services are performed under both Topic 606 and 605.

Headcount-related costs

For the year ended December 31, 2018, 81% of our aggregate cost of revenues, research and development, selling and marketing, and general and administrative costs, are represented by what we refer to herein as "headcount-related" costs. These costs include the salary costs of our colleagues (our employees) and the corresponding incentives, benefits, employment taxes, and travel-related costs. Our headcount-related costs are variable in nature. We actively manage these costs to align to our trending

run rate of revenue performance, with the objective of enhancing visibility and predictability of resulting operating profit margins.

Cost of subscriptions, licenses, and services

Cost of subscriptions and licenses. Cost of subscriptions and licenses includes salaries and other related costs, including the depreciation of property and equipment and the amortization of capitalized software costs associated with servicing software subscriptions, the amortization of intangible assets associated with acquired software and technology, channel partner compensation for providing sales coverage to subscribers, as well as cloud-related costs incurred for servicing our accounts using cloud deployed hosted solutions and our license administration platform.

Cost of services. Cost of services includes salaries for internal and third-party personnel and related overhead costs, including depreciation of property and equipment, for providing training, implementation, configuration, and customization services to accounts, amortization of capitalized software costs, and related out-of-pocket expenses incurred.

Operating expenses

Research and development. Research and development expenses, which are generally expensed as incurred, primarily consist of personnel and related costs of our research and development staff, including salaries, benefits, bonuses, stock-based compensation, and costs of certain third-party contractors, as well as allocated overhead costs. We expense software development costs, including costs to develop software products or the software component of products to be sold, leased, or marketed to external accounts, before technological feasibility is reached. Technological feasibility is typically reached shortly before the release of such products and as a result, development costs that meet the criteria for capitalization were not material for the periods presented.

We capitalize certain development costs related to certain projects under our ACDP (our structured approach to an in-house business incubator function) once technological feasibility is established. Technological feasibility is established when a detailed program design has been completed and documented; we have established that the necessary skills, hardware, and software technology are available to produce the product; and there are no unresolved high-risk development issues. Once the software is ready for its intended use, amortization is recorded over the software's estimated useful life (generally three years). During the year ended December 31, 2018 and the nine months ended September 30, 2018 and September 30, 2019, total costs capitalized under the ACDP were $5,735, $4,155, and $3,807, respectively. Additionally, during the year ended December 31, 2018 and the nine months ended September 30, 2018 and September 30, 2019, total ACDP related amortization recorded in *Costs of subscriptions and licenses* was $2,052, $1,307, and $2,337, respectively.

Selling and marketing. Selling and marketing expenses include salaries, benefits, bonuses and stock-based compensation expense for our selling and marketing colleagues, the expense of travel, entertainment and training for such personnel, online marketing, product marketing and other brand-building activities, such as advertising, trade shows, and expositions, various sales and promotional programs, and costs of computer equipment and facilities used in selling and marketing activities. We anticipate that we will continue to make strategic investments in our global business systems and methods to enhance major account sales activities and to support our worldwide sales and marketing strategies, and the business in general. Topic 340-40 requires the capitalization of certain incremental costs of obtaining a contract, which impacts the period in which we record sales commission expense. Historically, under Topic 605, we recognized commissions expense as incurred. Under Topic 340-40, we are required to recognize these expenses over the period of benefit associated with these costs, resulting in a deferral of certain contract costs each period. The contract costs are amortized based on the economic life of the goods and services to which the contract costs relate. We have determined that

certain sales incentive programs meet the requirements to be capitalized. We apply a practical expedient to expense costs as incurred for costs to obtain a contract with a customer when the amortization period would have been one year or less. These costs include our internal sales force compensation program and certain channel partner sales incentive programs for which the annual compensation is commensurate with annual sales activities.

General and administrative. General and administrative expenses include salaries, bonuses, benefits, and stock-based compensation expense for our finance, human resources, and legal colleagues, the expense of travel, entertainment, and training for such personnel, professional fees for legal and accounting services, and costs of computer equipment and facilities used in general and administrative activities.

We expect to recognize certain non-recurring costs as part of our transition to a publicly-traded company, consisting of professional fees and other expenses. These fees are being expensed in the period incurred. We expect to incur $ in audit fees and $ in legal fees and expenses. In the quarter of the listing of our Class B common stock on The Nasdaq Global Select Market, we expect to incur approximately $ in fees paid to our financial advisors and associate financial advisors. Following the listing of our Class B common stock on The Nasdaq Global Select Market, we expect to continue to incur additional expenses as a result of operating as a public company, including costs to comply with the rules and regulations applicable to companies listed on a U.S. securities exchange and costs related to compliance and reporting obligations pursuant to the rules and regulations of the SEC. In addition, as a public company, we expect to incur increased expenses in the areas of insurance, investor relations, and professional services. As a result, we expect the dollar amount of our general and administrative expenses to increase for the foreseeable future. We expect, however, that our general and administrative expenses will decrease as a percentage of our revenues over time, although the percentage may fluctuate from period to period depending on fluctuations in our revenue and the timing and extent of our general and administrative expenses.

Amortization of purchased intangibles. Amortization of purchased intangibles includes the amortization of acquired non-product related intangible assets, primarily customer relationships, trademarks, and non-compete agreements recorded in connection with completed acquisitions.

Interest expense, net. Interest expense, net primarily represents interest associated with the Credit Facility, amortization of deferred financing costs, and interest income from our investments in money market funds.

Other income (expense), net. Other income (expense), net primarily consists of foreign currency translation results derived primarily from U.S. Dollar denominated intercompany balances, cash and cash equivalents and accounts receivable held by foreign subsidiaries with non-U.S. Dollar functional currencies.

Provision for income taxes. Provision for income taxes includes the aggregate consolidated income tax expense for U.S. domestic and foreign income taxes.

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Results of operations:

The following table sets forth selected consolidated statements of operations data for each of the periods indicated:

	Year Ended December 31,	Nine Months Ended September 30,		
	2018	2018	2019	2019
	Topic 605	Topic 605	Topic 605	Topic 606
Revenues:				
Subscriptions	$ 557,421	$ 414,701	$ 449,957	$ 445,338
Perpetual licenses	61,065	46,149	38,899	38,255
Subscriptions and licenses	618,486	460,850	488,856	483,593
Services	73,224	54,110	49,244	50,139
Total revenues	691,710	514,960	538,100	533,732
Cost of revenues:				
Cost of subscriptions and licenses	55,113	40,796	48,129	48,201
Cost of services	76,211	57,467	56,048	56,048
Total cost of revenues	131,324	98,263	104,177	104,249
Gross profit	560,386	416,697	433,923	429,483
Operating expenses:				
Research and development	175,032	127,598	136,617	136,617
Selling and marketing	160,635	113,168	111,985	111,889
General and administrative	89,328	66,491	71,415	71,415
Amortization of purchased intangibles	14,000	9,961	10,402	10,402
Total operating expenses	438,995	317,218	330,419	330,323
Income from operations	121,391	99,479	103,504	99,160
Interest expense, net	(8,765)	(6,363)	(6,503)	(6,503)
Other income (expense), net	236	(1,966)	(14,053)	(14,053)
Income before income taxes	112,862	91,150	82,948	78,604
Provision for income taxes	(29,250)	11,375	11,285	11,759
Net income	142,112	79,775	71,663	66,845
Less: Net income attributable to participating securities	(4)	(7)	(10)	(10)
Net income per share attributable to Class A and Class B common shares	$ 142,108	$ 79,768	$ 71,653	$ 66,835
Net income per share:				
Basic	$ 0.50	$ 0.28	$ 0.25	$ 0.23
Diluted	$ 0.49	$ 0.27	$ 0.24	$ 0.23
Weighted average shares outstanding, basic	285,805,096	285,684,596	286,024,263	286,024,263
Weighted average shares outstanding, diluted	292,624,496	291,845,931	294,586,354	294,586,354

Comparison of the Nine Months Ended September 30, 2018 and 2019

In reporting period-over-period results, we calculate the effects of foreign currency fluctuations and constant currency information by translating current period results using prior period average foreign currency exchange rates. Our definition of constant currency may differ from other companies reporting similarly named measures, and these constant currency performance measures should be viewed in addition to, and not as a substitute for, our operating performance measures calculated in accordance with U.S. GAAP.

For comparative purposes, the changes in the following tables and the related discussions are presented under Topic 605, unless otherwise noted.

Revenues

	Nine Months Ended September 30,			Comparison under Topic 605		
	2018	2019				
	As reported Topic 605	Topic 605	As reported Topic 606	Amount	%	Constant Currency %
Revenues:						
Subscriptions	$ 414,701	$ 449,957	$ 445,338	$ 35,256	8.5%	11.8%
Perpetual licenses	46,149	38,899	38,255	(7,250)	(15.7)%	(12.5)%
Subscriptions and licenses	460,850	488,856	483,593	28,006	6.1%	9.3%
Services	54,110	49,244	50,139	(4,866)	(9.0)%	(6.8)%
Total revenues	$ 514,960	$ 538,100	$ 533,732	$ 23,140	4.5%	7.7%

Revenues increased by $23,140, or 4.5%, to $538,100 for the nine months ended September 30, 2019. This increase was driven primarily by improvements in our organic performance and to a lesser extent, the impact from acquisitions, partially offset by negative foreign currency effects due to a stronger U.S. Dollar relative to our other functional currencies. On a constant currency basis, our revenues increased by 7.7% for the nine months ended September 30, 2019 as compared to the prior period.

Subscriptions revenues increased 8.5%, or 11.8% in constant currency, as compared to the nine months ended September 30, 2018. The increase in revenue from subscriptions was primarily due to growth from both our E365 program and updated offerings for our *ProjectWise* and civil design products. Acquisitions contributed approximately 2% to the overall growth in subscriptions.

Perpetual licenses revenues decreased 15.7%, or 12.5% in constant currency, as compared to the nine months ended September 30, 2018. The decline in perpetual licenses revenue was caused by the impact from acquisition integration effects related to certain perpetual licenses from a 2018 acquisition whose pattern of recognition changed effective January 1, 2019 under Topic 605. During 2018, revenue was recognized upon delivery for those perpetual licenses, however it changed to ratable recognition over a three-year period in 2019 under Topic 605 due to inclusion in our portfolio balancing program under SELECT.

Services revenues decreased 9.0%, or 6.8% in constant currency, as compared to the nine months ended September 30, 2018, primarily due to the completion of several large projects during 2018.

Revenues by Geographic Area

Revenues are allocated to individual countries based upon the location of the users. Revenues by geographic area are as follows:

	Nine Months Ended September 30,			Comparison under Topic 605		
	2018	2019				
	As reported Topic 605	Topic 605	As reported Topic 606	Amount	%	Constant Currency %
Revenues by Geographic Area						
Americas	$ 243,194	$ 265,374	$ 259,216	$ 22,180	9.1%	9.8%
EMEA	173,366	171,100	171,604	(2,266)	(1.3)%	4.9%
APAC	98,400	101,626	102,912	3,226	3.3%	7.3%
Total revenues by geographic area	$ 514,960	$ 538,100	$ 533,732	$ 23,140	4.5%	7.7%

Revenues from the Americas increased 9.1%, or 9.8% in constant currency, as compared to the nine months ended September 30, 2018. This increase was driven primarily by improvements in our organic performance and to a lesser extent the impact from acquisitions. The increase in organic performance was primarily due to growth from both our E365 program and updated offerings for our *ProjectWise* and civil design products.

Revenues from EMEA decreased by 1.3%, or increased by 4.9% in constant currency, as compared to the nine months ended September 30, 2018. Revenues in EMEA were positively impacted by acquisitions, although increases in acquisition related subscriptions and services revenues were partly offset by a decrease in licenses revenue solely caused by a change in the pattern of revenue recognition from upon delivery in 2018 to ratable over a period of three years in 2019 under Topic 605 due to the inclusion of such licenses in our portfolio balancing program under SELECT starting January 1, 2019. Revenues from EMEA also showed improvements in organic performance offset by negative foreign currency impacts due to a stronger U.S. Dollar relative to our other functional currencies.

Revenues from APAC increased by 3.3%, or 7.3% in constant currency, as compared to the nine months ended September 30, 2018. This increase was driven primarily by improvements in our organic performance and to a lesser extent the impact from acquisitions. The increase in organic performance was primarily due to growth from both our E365 program and updated offerings for our *ProjectWise* and civil design products and was partially offset by negative foreign currency impacts due to a stronger U.S. Dollar relative to our other functional currencies.

Cost of Revenues

	Nine Months Ended September 30,			Comparison under Topic 605		
	2018	2019				
	As reported Topic 605	Topic 605	As reported Topic 606	Amount	%	Constant Currency %
Cost of subscriptions and licenses	$ 40,796	$ 48,129	$ 48,201	$ 7,333	18.0%	21.3%
Cost of services	57,467	56,048	56,048	(1,419)	(2.5)%	0.7%
Total cost of revenues	$ 98,263	$ 104,177	$ 104,249	$ 5,914	6.0%	9.3%

Cost of revenues increased by $5,914, or 6.0%, to $104,177 for the nine months ended September 30, 2019. This increase was driven primarily by an increase in cost of subscriptions and licenses, partially offset by lower cost of services relative to the prior period. On a constant currency

basis, total cost of revenues increased by 9.3% for the nine months ended September 30, 2019 as compared to the prior period.

Cost of subscriptions and licenses increased 18.0%, or 21.3% in constant currency, as compared to the nine months ended September 30, 2018. On a constant currency basis, this increase was primarily due to an increase in hosting costs of approximately $4,300 and an increase in salaries, incentive compensation, and other headcount-related costs of approximately $3,200. This increase was partially offset by the impact of foreign currency.

Cost of services decreased by 2.5%, or increased by 0.7% in constant currency, as compared to the nine months ended September 30, 2018. On a constant currency basis, the increase was primarily due to an increase in salaries, incentive compensation, and other headcount-related costs of approximately $800. This increase was fully offset by the impact of foreign currency.

Operating Expenses Comparison

	Nine Months Ended September 30,			Comparison under Topic 605		
	2018	2019				
	As reported Topic 605	Topic 605	As reported Topic 606	Amount	%	Constant Currency %
Research and development	$ 127,598	$ 136,617	$ 136,617	$ 9,019	7.1%	9.9%
Selling and marketing	113,168	111,985	111,889	(1,183)	(1.0)%	1.9%
General and administrative	66,491	71,415	71,415	4,924	7.4%	9.0%
Amortization of purchased intangibles	9,961	10,402	10,402	441	4.4%	9.6%
Total operating expenses	$ 317,218	$ 330,419	$ 330,323	$ 13,201	4.2%	6.9%

Research and development. Research and development expenses increased 7.1%, or 9.9% in constant currency, as compared to the nine months ended September 30, 2018. On a constant currency basis, the increase was primarily due to an increase in salaries, incentive compensation, and other headcount-related costs of approximately $9,100, as well as an increase in facility related costs of approximately $2,900. This increase was partially offset by the impact of foreign currency.

Selling and marketing. Selling and marketing expenses decreased 1.0%, or increased 1.9% in constant currency, as compared to the nine months ended September 30, 2018. On a constant currency basis, the increase was primarily caused by an increase in salaries, incentive compensation, and other headcount-related costs of approximately $2,200. This increase was fully offset by the impact from foreign currency.

General and administrative. General and administrative expenses increased 7.4%, or 9.0% in constant currency, as compared to the nine months ended September 30, 2018. On a constant currency basis, the increase was primarily caused by an increase in salaries, incentive compensation, and other headcount-related costs of approximately $5,100. This increase was partially offset by the impact from foreign currency.

Amortization of purchased intangibles. Amortization of purchased intangibles increased by 4.4%, or 9.6% in constant currency, as compared to the nine months ended September 30, 2018. The increase was primarily attributable to acquisitions in 2018.

Interest Expense, Net

	Nine Months Ended September 30,	
	2018	2019
Interest expense	$ (6,850)	$ (7,477)
Interest income	487	974
Total interest expense, net	$ (6,363)	$ (6,503)

	Nine Months Ended September 30,	
	2018	2019
Bank credit facility	$ (6,276)	$ (6,905)
Amortization of deferred financing costs	(415)	(415)
Other, net	328	817
Total interest expense, net	$ (6,363)	$ (6,503)

Our net interest expense, for the nine months ended September 30, 2019 increased from the prior year period primarily due to an increase in the effective interest rate for the Credit Facility, that resulted from an increase in the average benchmark rate.

Other Income (Expense), Net

	Nine Months Ended September 30,	
	2018	2019
Foreign exchange loss	$ (2,087)	$ (14,053)
Other income, net	121	—
Total other income (expense), net	$ (1,966)	$ (14,053)

Other income (expense), net for the nine months ended September 30, 2018 and 2019 primarily consists of foreign currency translation losses of and $2,087 and $14,053, respectively. The foreign currency translation losses derive primarily from U.S. Dollar denominated intercompany balances, cash and cash equivalents and accounts receivable held by foreign subsidiaries with non-U.S. Dollar functional currencies. In October 2018, we had intercompany sales of certain intangible operating assets between our foreign subsidiaries, which resulted in significant U.S. Dollar denominated intercompany liabilities at foreign subsidiaries with a non-U.S. Dollar functional currency (mainly Euro). These U.S. Dollar denominated balances are being translated into their functional currencies at the rates in effect at the balance sheet date and fully eliminate in consolidation. The gains and losses from such translations are included in *Other income (expense), net*. For the nine months ended September 30, 2019, such intercompany balances resulted in unrealized foreign currency translation losses of $13,982.

Provision for Income Taxes

The income tax provisions for the nine months ended September 30, 2018 and 2019 were based on the estimated annual effective income tax rates applicable for those periods. During the nine months ended September 30, 2018 and 2019, we recognized an aggregate consolidated income tax expense of $11,375 and $11,759, respectively, for U.S. domestic and foreign income taxes. The effective income tax rate of 12.5% for the nine months ended September 30, 2018 was lower than 15.0% for the same period in the current year primarily as a result of a change in the timing and mix of U.S. and foreign

income. The provision for income tax under Topic 605 would have been $11,285 for the nine months ended September 30, 2019.

Quarterly Results of Operations

The following table sets forth our quarterly unaudited consolidated statements of operations for each of the quarters in the seven-quarter period ended September 30, 2019. Our quarterly results of operations have been prepared on the same basis as our audited consolidated financial statements, and we believe they reflect all normal recurring adjustments necessary for the fair presentation of our results of operations for these periods. This information should be read in conjunction with our consolidated financial statements and related notes included elsewhere in the prospectus. These quarterly results of operations are not necessarily indicative of our results of operations for a full year or any future period. Results of operations for the four quarters in the year ended December 31, 2018 are presented under Topic 605 while the quarters ended March 31, June 30, and September 30, 2019 are presented under Topic 606.

	Topic 605				Topic 606		
	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Revenues:							
Subscriptions	$ 137,807	$ 139,013	$ 137,881	$ 142,720	$ 152,309	$ 137,838	$ 155,191
Perpetual licenses	14,860	15,846	15,443	14,916	9,409	15,059	13,787
Subscriptions and licenses	152,667	154,859	153,324	157,636	161,718	152,897	168,978
Services	16,750	19,200	18,160	19,114	15,821	16,708	17,610
Total revenues	169,417	174,059	171,484	176,750	177,539	169,605	186,588
Cost of revenues:							
Cost of subscriptions and licenses	12,892	12,454	15,450	14,317	14,342	16,489	17,370
Cost of services	17,267	22,432	17,768	18,744	18,225	20,142	17,681
Total cost of revenues	30,159	34,886	33,218	33,061	32,567	36,631	35,051
Gross profit	139,258	139,173	138,266	143,689	144,972	132,974	151,537
Operating expenses:							
Research and development	40,983	43,822	42,793	47,434	44,477	47,384	44,756
Selling and marketing	35,886	39,047	38,235	47,467	35,982	39,186	36,721
General and administrative	20,906	23,414	22,171	22,837	22,804	23,503	25,108
Amortization of purchased intangibles	2,341	3,662	3,958	4,039	3,420	3,432	3,550
Total operating expenses	100,116	109,945	107,157	121,777	106,682	113,506	110,135
Income from operations	39,142	29,228	31,109	21,912	38,290	19,468	41,402
Interest expense, net	(1,839)	(2,248)	(2,276)	(2,402)	(2,282)	(2,192)	(2,029)
Other income (expense), net	(1,244)	(245)	(477)	2,202	(5,253)	3,506	(12,306)
Income before income taxes	36,059	26,735	28,356	21,712	30,755	20,782	27,067
Provision for income taxes	4,780	1,543	5,052	(40,625)	4,318	801	6,640
Net income	$ 31,279	$ 25,192	$ 23,304	$ 62,337	$ 26,437	$ 19,981	$ 20,427

On January 1, 2019, we adopted Topic 606, which supersedes substantially all existing revenue recognition guidance under U.S. GAAP. We adopted Topic 606 using the modified retrospective method, under which the cumulative effect of initially applying Topic 606 was recorded as a reduction to the opening balance of *Accumulated deficit* as of January 1, 2019. We applied the standard only to contracts that were not completed as of the date of initial application. The comparative information for each of the four quarters in the year ended December 31, 2018 has not been adjusted and continues to be reported under Topic 605.

	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Revenues (Topic 605):(1)							
Subscriptions	$ 137,807	$ 139,013	$ 137,881	$ 142,720	$ 146,372	$ 149,360	$ 154,225
Perpetual licenses	14,860	15,846	15,443	14,916	12,954	12,857	13,088
Subscriptions and licenses	152,667	154,859	153,324	157,636	159,326	162,217	167,313
Services	16,750	19,200	18,160	19,114	15,851	16,963	16,430
Total revenues	$ 169,417	$ 174,059	$ 171,484	$ 176,750	$ 175,177	$ 179,180	$ 183,743
Revenues (Topic 606):(2)							
Subscriptions	$ 141,902	$ 133,141	$ 138,194	$ 147,248	$ 152,309	$ 137,838	$ 155,191
Perpetual licenses	12,639	14,116	11,682	18,915	9,409	15,059	13,787
Subscriptions and licenses	154,541	147,257	149,876	166,163	161,718	152,897	168,978
Services	16,750	19,200	18,160	19,114	15,821	16,708	17,610
Total revenues	$ 171,291	$ 166,457	$ 168,036	$ 185,277	$ 177,539	$ 169,605	$ 186,588

(1) The amounts presented for the three quarters ended September 30, 2019 are unaudited and give effect to revenue adjustment as if the adoption of Topic 606, had not occurred on January 1, 2019. For a reconciliation of the impact of adopting Topic 606 on our unaudited consolidated financial statements for the nine months ended September 30, 2019, see Note 2 to our consolidated financial statements included elsewhere in this prospectus.

(2) The amounts presented for the four quarters in the year ended December 31, 2018 are unaudited and give effect to revenue adjustments as if the adoption of Topic 606 had occurred as of January 1, 2018 rather than January 1, 2019. The most significant impact from the adoption of Topic 606 relates to timing of revenue recognition for perpetual licenses and the accounting for certain of our subscription arrangements that include term-based software licenses bundled with support. Under the prior guidance, revenue for perpetual licenses was recognized over a three-year period, while revenue attributable to the term-based software licenses was recognized ratably over the term. Under Topic 606, both perpetual license and term-based software license revenue will be recognized upfront upon delivery of the software license. Our revenue recognition for services remained substantially unchanged and was not adjusted. See Note 2 to our consolidated financial statements included elsewhere in this prospectus for additional information regarding the adoption of Topic 606.

Reconciliation of Topic 605 to Topic 606:

	Three Months Ended March 31, 2018		
	As reported Topic 605	Adjustments	Topic 606
Subscriptions	$ 137,807	$ 4,095	$ 141,902
Perpetual licenses	14,860	(2,221)	12,639

	Three Months Ended June 30, 2018		
	As reported Topic 605	Adjustments	Topic 606
Subscriptions	$ 139,013	$ (5,872)	$ 133,141
Perpetual licenses	15,846	(1,730)	14,116

	Three Months Ended September 30, 2018		
	As reported Topic 605	Adjustments	Topic 606
Subscriptions	$ 137,881	$ 313	$ 138,194
Perpetual licenses	15,443	(3,761)	11,682

	Three Months Ended December 31, 2018		
	As reported Topic 605	Adjustments	Topic 606
Subscriptions	$ 142,720	$ 4,528	$ 147,248
Perpetual licenses	14,916	3,999	18,915

Quarterly Trends

A portion of our revenues and operating expenses were derived from outside the United States and as such, were denominated in various foreign currencies, including most significantly: Euros, British Pounds, Australian Dollars, Canadian Dollars, and Chinese Yuan Renminbi. Our quarterly results are therefore impacted by changes in foreign currency rates. Starting in the quarter ended March 31, 2018, and continuing into the quarter ended September 30, 2019, the U.S. Dollar strengthened relative to other foreign currencies in which we generate revenues and incur expenses. Accordingly, our results of operations have been, and in the future will be, affected by changes in foreign exchange rates. See the section titled "—Key Factors Impacting Comparability and Performance—Impact of foreign currency."

Revenues

Our revenues are primarily comprised of recurring subscription revenues. Historically, we have experienced growth in subscription revenues within existing accounts when their contracts renew, and typically, we have a higher level of renewals occur in the first and fourth quarter of each year. This renewal cycle is primarily based on the timing of when accounts first entered into their subscription contracts. Under Topic 605, subscription revenues were recognized on a ratable basis over the subscription term and generally showed an increase in each period presented. Under Topic 606, our quarterly subscriptions revenues and profitability are impacted by the subscription term as well as the term start date of new and renewals subscriptions, due to the upfront revenue recognition of the associated term-license component. Topic 606 therefore introduces volatility between quarters with our first and fourth quarter generally showing higher subscription revenues. However, on an annual and trailing twelve-month basis, we generally expect our subscription revenues recognized under Topic 606 to be comparable to such revenues recognized under Topic 605. This is attributable to the annual, recurring nature of our subscription agreements.

The conversion of our existing subscription users to consumption-based offerings, such as our E365 program, will further introduce some volatility between annual, quarterly, and trailing twelve-month periods and impact period over period comparability under Topic 606. This is because the term-based software license is recognized upfront upon delivery for subscription-based offerings, but upon usage for consumption-based offerings. Refer to the section titled "—Key Factors Impacting Comparability and Performance," discussed above.

Under Topic 605, revenue for perpetual licenses was recognized over a three-year period, due to the portfolio balancing feature users obtain through their SELECT subscriptions. Under Topic 606, our perpetual licenses revenues are recognized upon delivery and will closely align with the respective license sales of the period. Typically, we have a higher level of perpetual license sales in the fourth quarter of each year.

Our quarterly revenue for professional services may also fluctuate depending on the timing of our accounts' requests for additional services and the related implementation cycles.

Organic revenue increased over the seven quarters presented were partly offset by negative foreign currency impacts due to a stronger U.S. Dollar relative to our other functional currencies.

Headcount-related costs

For the year ended December 31, 2018, 81% of our aggregate cost of revenues, research and development, selling and marketing, and general and administrative costs are represented by what we refer to herein as "headcount-related" costs. These costs include the salary costs of our colleagues (our employees) and the corresponding incentives, benefits, employment taxes, and travel-related costs. Our headcount-related costs are variable in nature. We actively manage these costs to align to our trending run rate of revenue performance, with the objective of enhancing visibility to better predict the resulting operating profit margins.

Our quarterly operating expenses are impacted by the timing of headcount adjustments including additions from acquisitions and realignment programs, the timing of annual raises and variable compensation, product development cycles, and sales and marketing programs. We experience some seasonality in spending related to sales and marketing based on the timing of our participation in certain trade shows and conferences. Typically, we incur higher sales and marketing expenses during the fourth quarter of each year. We cannot assure you, however, that these trends will continue.

Our aggregate cost of revenues, research and development, selling and marketing, and general and administrative costs increased over the seven quarters presented and were partly offset by foreign currency impacts due to a stronger U.S. Dollar relative to our other functional currencies.

Liquidity and Capital Resources

Our primary source of cash is generated from the delivery of subscriptions, perpetual licenses, and services. Our primary use of cash is payment of our operating costs, which consist primarily of colleague-related expenses, such as compensation and benefits, as well as general operating expenses for marketing, facilities, and overhead costs. In addition to operating expenses, we also use cash to fund growth initiatives, which include acquisitions of software assets and businesses.

Our cash and cash equivalent balances are concentrated in a few locations around the world, with substantial amounts held outside of the United States. As of December 31, 2018 and September 30, 2019, approximately 95% and 97%, respectively, of our total cash and cash equivalents were located outside of the United States. Under the Tax Cuts and Jobs Act, we are subject to U.S. taxes for the deemed repatriation of certain cash balances held by foreign corporations. We intend to continue to permanently reinvest these funds outside of the United States, and current plans do not demonstrate a need to repatriate them to fund our U.S. operations. We expect to meet our U.S. liquidity needs through ongoing cash flows or external borrowings including available liquidity under the Credit Facility described below. We regularly review our capital structure and consider a variety of potential financing alternatives and planning strategies to ensure that we have the proper liquidity available in the locations in which it is needed and to fund our operations and growth investments with cash that has not been permanently reinvested outside the United States.

We believe that existing cash and cash equivalent balances together with cash generated from operations and liquidity under the Credit Facility, will be sufficient to meet our domestic and international working capital and capital expenditure requirements through the next twelve months. However, our future capital requirements may be materially different than those currently planned in our budgeting and forecasting activities and depend on many factors, including our rate of revenue growth, the timing and extent of spending on research and development, the expansion of our sales and marketing activities, the timing of new product introductions, currency fluctuations, market acceptance of our products, competitive factors, and overall economic conditions, globally. To the extent that current and anticipated future sources of liquidity are insufficient to fund our future business activities and requirements, we may be required to seek additional equity or debt financing. The sale of additional equity would result in additional dilution to our shareholders, while the incurrence of debt financing or additional convertible debt would result in debt service obligations. Such debt instruments also could introduce covenants that might restrict our operations. We cannot assure you that we could obtain additional financing on favorable terms or at all. See the section titled "Risk Factors—Risks Related to Our Business—We may need to raise additional capital, which may not be available to us."

Cash and cash equivalents. We consider all highly liquid investments with an original maturity of three months or less at the date of purchase to be cash equivalents. Our cash and cash equivalents consisted of cash held in checking accounts and money markets maintained at various financial institutions. The following table presents our foreign and domestic holdings of cash and cash equivalents:

	December 31, 2018	September 30, 2019
Cash and cash equivalents:		
Held domestically	$ 3,788	$ 3,215
Held by foreign subsidiaries	77,395	122,782
Total cash and cash equivalents	$ 81,183	$ 125,997

The amount of cash and cash equivalents held by foreign subsidiaries is subject to translation adjustments caused by changes in foreign currency exchange rates as of the end of each respective reporting period, the offset to which is recorded in accumulated other comprehensive loss on our consolidated balance sheet.

The following table summarizes our cash flow activities for the periods indicated:

	Year Ended December 31,	Nine Months Ended September 30,	
	2018	2018	2019
Net Cash Provided By (Used In):			
Operating activities	$ 161,465	$ 138,381	$ 118,249
Investing activities	(154,757)	(143,597)	(21,837)
Financing activities	(58,799)	(56,070)	(50,326)

Operating activities

Cash from operating activities during the nine months ended September 30, 2019, compared to the prior year comparative period, were lower by $20,087 primarily due to an increase of $13,670 in income tax payments, net of income tax refunds, and an increase in prepaid and other assets compared to the comparative period, partly impacted by the timing of prepayments for services related to the provisioning of our software solutions.

For the year ended December 31, 2018, cash flows provided by operating activities was $161,465, primarily due to our net income of $142,112 increased by $45,109 of non-cash expenses, decreased by $60,060 of non-cash tax benefits, and a $35,949 decrease in net operating assets.

Investing activities

Cash used in investing activities decreased $121,760 during the nine months ended September 30, 2019 compared to the prior year comparative period, due to a significant decrease in acquisition related cash payments.

For the year ended December 31, 2018, cash flows used in investing activities was $154,757, primarily due to cash used for acquisitions, net of cash acquired, of $135,264 and our use of cash for the purchase of property and equipment and investment in capitalized software of $18,616.

Financing activities

Cash used in financing activities decreased $5,744 during the nine months ended September 30, 2019 compared to the prior year period primarily due to a decrease in net repayments of $10,250 under the Credit Facility and a decrease in payments for share repurchases of $8,455, partially offset by an increase in payments for dividends of $4,030 and the payment of acquisition debt and other consideration of $9,878.

For the year ended December 31, 2018, cash used in financing activities was $58,799, primarily due to $30,231 in net payments related to share repurchase transactions, net of receipts from the Common Stock Purchase Agreement; $20,059 in payments of dividends; and $11,250 in net payments under the Credit Facility.

Bank Credit Facility. On December 19, 2017, we entered into an amended and restated credit agreement, which matures on December 18, 2022. Upon entry into this agreement, we obtained a $500,000 senior secured revolving facility (the "Credit Facility") and refinanced all indebtedness outstanding under our prior facility.

In addition to the revolving line of credit, the Credit Facility also provides up to $50,000 of letters of credit and other incremental borrowings subject to availability, including a $50,000 multi-currency swing-line sub-facility and a $100,000 incremental "accordion" sub-facility. We had $631 and $546 of letters of credit and surety bonds outstanding as of December 31, 2018 and September 30, 2019, respectively. As of December 31, 2018 and September 30, 2019, we had $240,619 and $251,454 available under the Credit Facility.

Under the Credit Facility, we may make either Euro currency or non-Euro currency interest rate elections. Interest on the Euro currency borrowings is at the one-month London Interbank Offered Rate (LIBOR) plus a spread ranging from 100 basis points (bps) to 225 bps as determined by our net leverage ratio. Under non-Euro currency elections, Credit Facility borrowings bear a base interest rate of the greater of (i) the prime rate, (ii) the overnight bank funding effective rate plus 50 bps, or (iii) LIBOR plus 100 bps, plus a spread ranging from 0 bps to 125 bps as determined by our leverage ratio. In addition, a commitment fee for the unused Credit Facility ranges from 15 bps to 30 bps as determined by our net leverage ratio.

Borrowings under the Credit Facility are guaranteed by all of our first tier domestic subsidiaries and are secured by a first priority security interest in substantially all of our and the guarantors' U.S. assets and 65% of the stock of their directly owned foreign subsidiaries. The agreement governing the Credit Facility contains both affirmative and negative covenants, including maximum leverage ratios. At December 31, 2018, and September 30, 2019, we were in compliance with all covenants in its debt agreements.

For the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, the weighted average interest rate under the Credit Facility was 3.28%, 3.16% and 3.63%, respectively. As of December 31, 2018 and September 30, 2019, accrued interest and fees were $31 and $70, respectively. Interest expense was $8,800, $6,276, and $6,905 for the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, respectively.

In addition, interest expense includes amortization of deferred financing costs of $552, $415, and $415 for the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, respectively.

The agreement governing the Credit Facility contains customary events of default, including, without limitation, payment defaults, breaches of representations and warranties, covenants defaults, cross-defaults to certain other indebtedness in excess of $10.0 million, certain events of bankruptcy and insolvency, judgment defaults in excess of $10.0 million, failure of any security document supporting the Credit Facility to be in full force and effect and a change of control.

Voluntary prepayments of amounts outstanding under the Credit Facility, in whole or in part, are permitted at any time, so long as we give notice as required by the Credit Facility. However, if prepayment is made with respect to a LIBOR-based loan and the prepayment is made on a date other than an interest payment date, we must pay customary breakage costs.

This summary is qualified in its entirety by reference to the agreement which is filed as an exhibit to the registration statement of which this prospectus forms a part.

Contractual Obligations and Other Commitments

The following table represents our contractual commitments as of December 31, 2018. The information presented in the table below reflects management's estimates of the contractual maturities of our obligations. These maturities may differ from the actual maturities of these obligations.

	Payments Due By Period				
	Total	Within 1 Year	1 - 3 Years	3 - 5 Years	After 5 Years
Long-term debt[1]	$ 258,750	$ —	$ —	$ 258,750	$ —
Interest on long-term debt[1]	33,879	8,464	16,951	8,464	—
Operating lease obligations[2]	54,713	16,158	23,702	12,966	1,887
Deferred compensation obligations[3]	2,357	127	514	661	1,055
Contingent obligations[4]	4,316	2,390	1,926	—	—
Purchase obligations[5]	15,377	15,377	—	—	—
Total contractual obligations	$ 369,392	$ 42,516	$ 43,093	$ 280,841	$ 2,942

(1) Long-term debt represents the outstanding balance of $258,750 related to the Credit Facility with an effective interest rate of 3.28%.

(2) Operating lease obligations include non-cancellable operating lease commitments for our domestic and international office facilities.

(3) Deferred compensation obligations relate to the deferred portion of bonus compensation of certain former colleagues.

(4) Contingent consideration from acquisitions.

(5) Purchase commitment for services related to our software solutions.

Critical Accounting Policies and Use of Estimates

Our consolidated financial statements are prepared in conformity with U.S. GAAP. In preparing our consolidated financial statements, we make assumptions, judgments, and estimates that can have a significant impact on amounts reported in the consolidated financial statements. We base our assumptions, judgments, and estimates on historical experience and various other factors that we believe to be reasonable under the circumstances. Actual results could differ materially from these estimates under different assumptions or conditions. We regularly reevaluate our assumptions, judgments, and estimates. Our significant accounting policies are described in Note 1 to our consolidated financial statements included elsewhere in this prospectus. We believe that the following critical accounting policies affect the more significant judgments and estimates used in the preparation of our consolidated financial statements.

Revenue recognition

On January 1, 2019, we adopted Topic 606, using the modified retrospective method, under which the cumulative effect of initially applying Topic 606 of $125,464 ($101,489 net of tax) was recorded as a reduction to the opening balance of *Accumulated deficit*. The impact from adoption was primarily derived from the timing of revenue recognition of perpetual licenses and the accounting for certain of our subscription arrangements that include term-based software licenses bundled with support. Under the prior guidance, revenue for perpetual licenses was recognized over a three-year period, while revenue attributable to the term-based software licenses was recognized ratably over the term. Under Topic 606, both perpetual license and term-based software license revenue will be recognized upfront upon delivery of the software license. The comparative information has not been adjusted and continues to be reported under Topic 605. Refer to Note 3, Recent Accounting Pronouncements, in our consolidated financial statements for a qualitative and quantitative discussion of the adoption impact.

Topic 606 establishes a principle for recognizing revenue upon the transfer of promised goods or services to customers, in an amount that reflects the expected consideration received in exchange for those goods or services.

We generate revenues from subscriptions, perpetual licenses, and professional services.

Subscriptions

SELECT subscriptions. We provide prepaid annual recurring subscriptions that accounts can elect to add to a new or previously purchased perpetual license. SELECT provides accounts with benefits, including upgrades, comprehensive technical support, pooled licensing benefits, annual portfolio balancing exchange rights, learning benefits, certain Azure-based collaboration services, mobility advantages, and access to other available benefits. Under Topic 606, SELECT subscription revenues are recognized as distinct performance obligations are satisfied. The performance obligations within the SELECT offering, outside of the portfolio balancing exchange right, are concurrently delivered and have the same pattern of recognition. These performance obligations are accounted for ratably over the term as a single performance obligation. Under Topic 605, SELECT subscriptions revenue was recognized on a ratable basis, over the subscription term.

Enterprise subscriptions. We provide enterprise subscription offerings which provide our largest accounts with complete and unlimited global access to our comprehensive portfolio of solutions. Enterprise License Subscriptions ("ELS") provide access for a prepaid annual fee. E365 subscriptions ("E365"), which were introduced during the fourth quarter of 2018, have unrestricted access to our comprehensive software portfolio, similar to ELS, however are charged based upon daily usage. The daily usage fee also includes maintenance and Success Plan services, which are designed to achieve business outcomes through more efficient and effective use of our software. The ELS and E365 programs both contain a distinct term license component. Under Topic 606, ELS subscriptions revenue

is recognized as the distinct performance obligations are satisfied. Under Topic 605, ELS subscriptions revenue was recognized on a ratable basis, over the subscription term. E365 revenues are recognized based upon usage incurred by the account under both Topic 606 and 605.

Term license subscriptions. We provide annual, quarterly and monthly term licenses for our software products. ATL subscriptions are generally prepaid annually for named user access to specific products. QTL subscriptions allow accounts to pay quarterly in arrears for licenses they have used representing usage that is beyond their SELECT contracted quantities. MTL subscriptions are identical to QTL subscriptions, except for the term of the license, and the manner in which they are monetized. MTL subscriptions require a CSS, which is described below.

Visas and Passports are quarterly or annual term licenses enabling users to access specific project or enterprise information and entitle certain functionality of the Company's *ProjectWise* and *AssetWise* systems. Our standard offerings are usage based with monetization through the Company's CSS program.

Under Topic 606, annual, quarterly, and monthly term licenses revenues are recognized as the distinct performance obligations for each are satisfied. Billings in advance are recorded as *Deferred revenues* in the consolidated balance sheets. Under Topic 605, the subscriptions revenue was recognized on a ratable basis, over the subscription term. QTL, MTL, Visas and Passports subscriptions are recognized based upon usage incurred by the account under both Topic 606 and 605.

CSS is a program designed to streamline the procurement, administration and payment process. The program requires an estimate of annual usage for CSS eligible offerings and a deposit of funds in advance. Actual consumption is monitored and invoiced against the deposit on a calendar quarter basis. CSS balances not utilized for eligible products or services may roll over to future periods or are refundable. Paid and unconsumed CSS balances are recorded in *Accruals and other current liabilities* in the consolidated balance sheets. Software and services consumed under CSS are recognized pursuant to the applicable revenue recognition guidance for the respective software or service and classified as subscriptions or services based on their respective nature.

Perpetual licenses

Perpetual licenses may be sold with or without attaching a SELECT subscription. Historically, attachment and retention of the SELECT subscription has been high given the benefits of the SELECT subscription. Perpetual license revenue is recognized upon delivery of the license to the user under Topic 606. Under Topic 605, the Company recognized perpetual licenses revenue ratably over a three-year term due to the portfolio balancing featured users obtain through their SELECT subscriptions.

Services

We provide professional services including training, implementation, configuration, customization, and strategic consulting services. We perform projects on both a time and materials and a fixed fee basis. Our recent and preferred contractual structures for delivering professional services include (i) delivery of the services in the form of subscription-like, packaged offerings which are annually recurring in nature, and (ii) delivery of our growing portfolio of Success Plans. Success Plans are standard offerings which offer a level of subscription service above the standard technical support offered to all accounts as part of their SELECT or Enterprise agreement. Revenues are recognized as services are performed under both Topic 606 and 605.

Significant Judgments and Estimates

Our contracts with customers may include promises to transfer licenses (perpetual or term-based), maintenance, and services to a user. Judgment is required to determine if the promises are separate performance obligations, and if so, the allocation of the transaction price to each performance obligation. When an arrangement includes multiple performance obligations which are concurrently delivered and have the same pattern of transfer to the customer, we account for those performance obligations as a single performance obligation. For contracts with more than one performance obligation, the transaction price is allocated among the performance obligations in an amount that depicts the relative standalone selling price ("SSP") of each obligation. Judgment is required to determine the SSP for each distinct performance obligation. In instances where SSP is not directly observable, such as when we do not sell the product or service separately, we determine the SSP using information that may include market conditions and other observable inputs. We use a range of amounts to estimate SSP when we sell each of the products and services separately and need to determine whether there is a discount that should be allocated based on the relative SSP of the various products and services.

Our SELECT agreement provides users with perpetual licenses a right to exchange software for other eligible perpetual licenses on an annual basis upon renewal. We concluded that the portfolio balancing feature represents a material right resulting in the deferral of the associated revenue. Judgment is required to estimate the percentage of users who may elect to portfolio balance and considers inputs such as historical user elections. As of September 30, 2019, we deferred $17,846 related to portfolio balancing exchange rights which is included in *Deferred revenues* on the consolidated balance sheet.

We primarily utilize our direct internal sales force and also have arrangements through independent channel partners to promote and sell Bentley products and subscriptions to end-users. Channel partners are authorized to promote the sale of an authorized set of Bentley products and subscriptions within an authorized geography under a Channel Partner Agreement.

Business combinations. We allocate the fair value of the consideration transferred to the assets acquired and liabilities assumed, including trademarks, customer relationships, in-process research and development, and acquired software and technology, based on their estimated fair values at the acquisition date. Any residual purchase price is recorded as goodwill. The purchase price allocation requires us to make significant estimates and assumptions, especially at the acquisition date, with respect to intangible assets and deferred revenue obligations.

Although we believe the assumptions and estimates we have made are reasonable, they are based in part on historical experience and information obtained from the management of the acquired companies and are inherently uncertain. Examples of critical estimates used in valuing certain of the intangible assets we have acquired or may acquire in the future include but are not limited to:

- future expected cash flows from sales, maintenance agreements, and acquired developed technologies;
- the acquired company's trade name and customer relationships as well as assumptions about the period of time the acquired trade name and customer relationships will continue to be used in our product portfolio;
- expected costs to develop the in-process research and development into commercially viable software and estimated cash flows from the projects when completed; and
- discount rates used to determine the present value of estimated future cash flows.

These estimates are inherently uncertain and unpredictable, and if different estimates were used the purchase price for the acquisition could be allocated to the acquired assets and liabilities differently

from the allocation that we have made. In addition, unanticipated events and circumstances may occur, which may affect the accuracy or validity of such estimates, and, if such events occur, we may be required to record a charge against the value ascribed to an acquired asset or an increase in the amounts recorded for assumed liabilities.

Income taxes. We account for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the consolidated financial statements. Under this method, deferred tax assets and liabilities are determined based on net operating loss carryforwards, credit carryforwards, and temporary differences between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the items are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period of the enactment date.

We record net deferred tax assets to the extent we believe these assets will more likely than not be realized. In making such determination, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and recent financial operations. In the event we determine that we will not be able to realize deferred income tax assets in the future in excess of our net recorded amount, an adjustment to the valuation allowance would be recorded that would increase the provision for income taxes.

On December 22, 2017, the U.S. Tax Cuts and Jobs Act was enacted. This act, among other things, reduces the U.S. federal income tax rate to 21% from 35% in 2018, institutes a dividends received deduction for foreign earnings with a related tax for the deemed repatriation of unremitted foreign earnings, and creates a new U.S. minimum tax on earnings of foreign subsidiaries. We completed our accounting for the effects of this legislation in 2018 and have included those effects in *Provision for income taxes* in the accompanying consolidated statements of operations.

We perform a quarterly assessment of the recoverability of these net deferred tax assets and believe that we will generate sufficient future taxable income in appropriate tax jurisdictions to realize the net deferred tax assets. Our judgment regarding future profitability may change due to future market conditions and other factors, including intercompany transfer pricing adjustments. Any change in future profitability may require material adjustments to these net deferred tax assets, resulting in a reduction in net income in the period when such determination is made. We believe our tax positions, including intercompany transfer pricing policies, are consistent with the tax laws in the jurisdictions in which we conduct our business. It is possible that these positions may be challenged by jurisdictional tax authorities and may have a significant impact on our effective tax rate.

We are subject to income taxes in the United States and in numerous foreign jurisdictions. As part of the process of preparing our consolidated financial statements, we are required to calculate our income tax expense based on taxable income by jurisdiction. There are many transactions and calculations about which the ultimate tax outcome is uncertain. As a result, our calculations involve estimates by management. Some of these uncertainties arise as a consequence of revenue-sharing, cost-reimbursement and transfer pricing arrangements among related entities, and the differing tax treatment of revenue and cost items across various jurisdictions. If we were compelled to revise or to account differently for our arrangements, that revision could affect our tax liability. While we believe the positions we have taken are appropriate, we record reserves for taxes to address potential exposures involving tax positions that we believe could be challenged by taxing authorities. We record a benefit on a tax position when we determine that it is more likely than not that the position is sustainable upon examination, including resolution of any related appeals or litigation processes, based on the technical merits of the position. For tax positions that are more likely than not to be sustained, we measure the tax position at the largest amount of benefit that has a greater than 50 percent likelihood of being realized when it is effectively settled. We review the tax reserves as circumstances warrant and adjust

the reserves as events occur that affect our potential liability for additional taxes. We follow the applicable guidance on derecognition, classification, interest and penalties, accounting in interim periods, disclosure, and transition with respect to uncertain tax positions. We recognize interest and penalties related to income taxes within the *Provision for income taxes* line in the consolidated statements of operations. Accrued interest and penalties are included within the related tax liability line in the consolidated balance sheets.

Goodwill and other intangible assets. Intangible assets arise from acquisitions and principally consist of goodwill, trademarks, customer relationships, and acquired software and technology. Intangibles, other than goodwill, are amortized on a straight-line basis over their estimated useful lives, which range from two to ten years (see Note 6 to our consolidated financial statements included elsewhere in this prospectus).

Goodwill consists of the excess of cost over the fair value of net assets acquired in business combinations. Goodwill is not amortized. Instead, it is tested annually for impairment, or more frequently if events occur or circumstances change that would more likely than not reduce its fair value below its carrying amount. We operate as a single reporting unit.

The initial step in evaluating goodwill for impairment requires us to determine the reporting unit's fair value and compare it to the carrying value, including goodwill, of such reporting unit. As part of the assessment, an entity may first qualitatively assess whether it is more likely than not (a likelihood of more than 50 percent) that a goodwill impairment exists. In evaluating whether it is more likely than not that a goodwill impairment exists, we considered the factors identified in ASC 350, *Intangibles—Goodwill and Othe*r. We also considered whether there are significant differences between the carrying amount and the estimated fair value of its assets and liabilities, and the existence of significant unrecognized intangible assets. Based upon our most recent annual impairment assessment completed as of October 1, 2018, it is not more likely than not that a goodwill impairment exists. There was no impairment of goodwill as a result of our annual impairment assessments conducted during the year ended December 31, 2018 or during the nine months ended September 30, 2018 or 2019.

Deferred compensation plan. Our nonqualified deferred compensation plan ("DCP") allows certain officers and key colleagues to elect to defer the receipt of all or a portion of bonus compensation. In addition, we may make discretionary awards under the DCP on behalf of the participants. Elective participant deferrals and discretionary company awards are required to be in the form of phantom shares of our Class B Non-Voting Common Stock (Class B Common Stock), which are valued for tax and accounting purposes in the same manner as actual shares of Class B Common Stock. All discretionary awards made prior to January 1, 2016 are fully-vested. The discretionary awards made on or after January 1, 2016 are 100% vested at the time of grant.

During the second quarter of 2015, the DCP was amended to provide that all DCP distributions to colleague participants would be in the form of Class B Common Stock shares only. This amendment resulted in a reclassification of the DCP from a liability to an equity-based plan as it pertains to colleague participants. Accordingly, subsequent to this amendment, there are no longer charges to compensation expense for changes in the market value of deferrals held by colleague participants as phantom shares. Amounts in the DCP attributable to certain non-colleague participants remained classified as a liability and are marked to market at the end of each reporting period.

Stock-based compensation. We record all stock-based compensation as an expense in the consolidated statements of operations measured at the grant date fair value of the award. The fair value of stock option awards is determined using the Black-Scholes option pricing model. For all other equity-based arrangements, the share-based compensation expense is based on the share price at the grant date (see Note 13 to our consolidated financial statements included elsewhere in this prospectus).

The determination of the fair value of stock-based payment awards using an option pricing model is affected by our stock price as well as assumptions regarding a number of subjective variables. These variables include our estimated stock price, volatility over the term of the awards, expected term, risk-free interest rates, and expected dividends. The expected stock price volatility for our common stock is estimated by taking the average historic price volatility for industry peers based on daily price observations over a period equivalent to the expected term of the stock option grants. We intend to continue to consistently apply this process using the same or similar public companies until a sufficient amount of historical information regarding the volatility of our own common stock share price becomes available. The expected term is based on the simplified method, which represents the average period from vesting to the expiration of the award. The risk-free interest rate is based on the U.S. Treasury yield curve with a remaining term equal to the expected life assumed at grant date.

Fair value of common stock. We have historically been a privately held company with no active public market of our common stock. We are required to estimate the fair value of the common stock underlying our stock-based awards. The fair value of the common stock underlying our equity-based awards was determined by our board of directors, with input from management and contemporaneous third-party valuations. We believe that our board of directors has the relevant experience and expertise to determine the fair value of our common stock.

Prior to the listing of our Class B common stock on The Nasdaq Global Select Market, and given the absence of a public trading market for our common stock, and in accordance with the American Institute of Certified Public Accountants practice guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*, our board of directors exercised reasonable judgment and considered numerous objective and subjective factors to determine the best estimate of the fair value of our common stock, including:

- contemporaneous independent valuations performed by an unrelated third-party valuation specialist;
- the nature of our business and its history;
- our operating and financial performance and forecast;
- present value of estimated future cash flows;
- the likelihood of achieving a liquidity event, such as an initial public offering, listing, or sale of our company, given prevailing market condition and the nature and history of our business;
- any adjustment necessary to recognize a lack of marketability for our common stock;
- the market performance of comparable publicly traded companies; and
- the U.S. and global capital market conditions.

In valuing our common stock, our board of directors determined the equity value of our business generally using the income approach and the market comparable approach valuation methods.

The income approach estimates value based on the expectation of future cash flows that a company will generate such as cash earnings, cost savings, tax deductions, and proceeds from disposition. These future cash flows are discounted to their present values using a discount rate derived from an analysis of the cost of capital of comparable publicly traded companies in our industry or similar lines of business as of each valuation date and is adjusted to reflect the risks inherent in our cash flows.

The market comparable approach estimates value based on a comparison of the Company to comparable public companies in a similar line of business. To determine our peer group of companies, we considered public enterprises with similar operations and selected those that are similar to our size,

stage of life cycle, and financial leverage. From the comparable companies, a representative market value multiple is determined and applied to our results of operations to estimate the value of the Company.

Application of these approaches involves the use of estimates, judgments, and assumptions that are highly complex and subjective, such as those regarding our expected future cash flows, cost savings and expenses, discount rates, market multiples, the selection of comparable companies, and the probability of possible future events. Changes in any or all of these estimates and assumptions or the relationships between those assumptions impacts our valuations as of each valuation date.

The following table summarizes, by grant date, all options awards since January 1, 2018 under our two stockholder-approved plans. The estimated fair value per share of common stock in the table below represents the determination by our board of directors of the fair value of our common stock as of the date of grant, taking into consideration the various objective and subjective factors described above, including the conclusions, if applicable, of contemporaneous valuations of our common stock.

Grant Date	Number of Shares Underlying Options	Exercise Price	Fair Value per Share of Common Stock
March 2018	20,000	6.805	6.805
May 2018	5,096,000	6.805	6.805
September 2018	10,000	8.670	8.670
March 2019	4,816,000	7.240	7.240
May 2019	10,000	7.240	7.240

Emerging Growth Company

Section 107 of the JOBS Act provides that an "emerging growth company" can use the extended transition period provided in Section 7(a)(2)(B) of the Securities Act, as amended by Section 102(b)(1) of the JOBS Act, for complying with new or revised accounting standards. This permits an "emerging growth company" to delay the adoption of new or revised accounting standards that have different effective dates for public and private companies until those standards would otherwise apply to private companies. We have elected to use the extended transition period provided in Section 7(a)(2)(B) for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (i) are no longer an "emerging growth company" or (ii) affirmatively and irrevocably opt out of the extended transition period provided in Section 7(a)(2)(B). As a result, our financial statements may not be comparable to those of companies that comply with public company effective dates.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements, as defined by applicable SEC regulations.

Recent Accounting Pronouncements

For information regarding recent accounting guidance and the impact of this guidance on our consolidated financial statements, see the Notes to our consolidated financial statements included elsewhere in this prospectus.

Quantitative and Qualitative Disclosures about Market Risk

Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily a result of fluctuations in foreign currency rates, although we also have exposure due to potential changes in interest rates. We do not hold financial instruments for trading purposes.

Foreign currency exchange risk. Our revenue, earnings, cash flows, receivables, and payables are subject to fluctuations due to changes in foreign currency exchange rates. We regularly evaluate our foreign currency positions in the context of the natural hedging of revenues and expenses and corresponding exposure. We have concluded that our naturally hedged positions support our strategy and no incremental hedging strategies have been deployed. The primary currencies for which we have exchange rate exposure are the U.S. Dollar versus Euros, British Pounds, Australian Dollars, Canadian Dollars, and Chinese Yuan Renminbi. For the year ended December 31, 2018, approximately 60% of our revenues are derived from outside of the United States and approximately 49% of our revenues are denominated in foreign currencies. In 2018, 51%, 15%, 7%, and 26% of our revenues were denominated in U.S. Dollars, Euros, British Pounds and other currencies, respectively, and 52%, 19%, 8%, and 21% of our expenses were denominated in U.S. Dollars, Euros, British Pounds and other currencies, respectively. Financial results therefore are affected by changes in foreign currency rates. We estimate that a 10% strengthening of the U.S. Dollar versus our other currencies would lower our 2018 annual operating income by approximately $8,855.

Interest rate risk. We had cash and cash equivalents of $125,997 as of September 30, 2019, which consisted of bank deposits and money market funds maintained at various financial institutions. The cash and cash equivalents are held primarily for working capital purposes. Such interest-earning instruments carry a degree of interest rate risk. To date, fluctuations in interest income have not been significant. The primary objective of our investment activities is to preserve principal while maximizing income without significantly increasing risk. We do not enter into investments for trading or speculative purposes and have not used any derivative financial instruments to manage our interest rate risk exposure. The interest rates on the Credit Facility also fluctuate based on various market conditions that affect LIBOR, the prime rate, or the overnight bank funding effective rate. The cost of borrowing thereunder may be impacted as a result of our interest rate risk exposure. Due to the short-term nature of our investments, we have not been exposed to, nor do we anticipate being exposed to, material risks due to changes in interest rates. A hypothetical 10% change in interest rates during any of the periods presented would not have had a material impact on our consolidated financial statements.

Inflation risk. We do not believe that inflation has had a material effect on our business, financial condition, or results of operations.

BUSINESS

Our Mission

Bentley Systems' mission is to provide innovative software to advance the design, construction, and operations of the world's infrastructure—sustaining both the global economy and environment, for improved quality of life.

Bentley Systems: The Infrastructure Engineering Software Company

We are a leading global provider of software for infrastructure engineering, enabling the work of civil, structural, geotechnical, and plant engineering practitioners, their project delivery enterprises, and owner-operators of infrastructure assets. We were founded in 1984 by the Bentley brothers. Our enduring commitment is to develop and support the most comprehensive portfolio of integrated software offerings across professional disciplines, project and asset lifecycles, infrastructure sectors, and geographies. Our software enables digital workflows across engineering disciplines, distributed project teams, from offices to the field, and across computing form factors, including desktops, on-premises servers, cloud-native services, mobile devices, and web browsers. We deliver our solutions via on-premise, cloud, and hybrid environments. Our users engineer, construct, and operate projects and assets across infrastructure sectors:

- *public works* (including roads, rail, airports, ports, and water and wastewater networks) */ utilities* (including electric, gas, water, and communications). We estimate that this sector represents 52% of the net infrastructure asset value of the global top 500 infrastructure owners (the "global top 500 infrastructure owners") based on the 2019 edition of the *Bentley Infrastructure 500 Top Owners*, our annual compilation of the world's largest infrastructure owners ranked by net depreciated value of their tangible fixed assets;

- *industrial* (including discrete and process manufacturing, power generation, and water treatment plants) */ resources* (including oil and gas, mining, and offshore), which we estimate represents 38% of the global top 500 infrastructure owners' net infrastructure asset value; and

- *commercial/facilities* (including office buildings, hospitals, and campuses), which we estimate represents 10% of the global top 500 infrastructure owners' net infrastructure asset value.

Infrastructure assets are among the world's largest and longest-lived investments, vital to both economic prosperity and environmental health. The quality of a region's infrastructure directly affects the region's capacity to meet constituents' essential needs for water, sanitation, energy, transport, and productive industries. Moreover, infrastructure considerations can affect the rate of global climate change and communities' vulnerability and resilience to negative climate change outcomes.

Infrastructure is complex due both to its physical scale and to its need for information connectedness at and between every stage of its lifecycle. Infrastructure design requires the structured collaboration of many engineering disciplines, often requiring globally dispersed teams. Infrastructure construction requires a distributed supply chain to reach an often remote location to realize a unique design. Infrastructure operations are mission critical, and require maintaining performance throughput and fitness-for-purpose for multiple generations. The design, construction, and operations of infrastructure require comprehensive solutions that can support and integrate rigorous workflows across professional disciplines in concert over the infrastructure lifecycle.

Our business, comprised of more than 3,500 colleagues, includes a "success force" of more than 900 colleagues with experience and credentials in infrastructure engineering. Our success force, coupled with 35 years of singular focus, has enabled us to create what we believe to be the most comprehensive infrastructure engineering software portfolio available today. Our comprehensiveness creates a

formidable competitive advantage by providing our users integrated solutions for infrastructure projects and assets of nearly any type, scale, and complexity.

We address both the project and asset lifecycle phases of infrastructure, each with applications and enterprise information systems. Our project lifecycle solutions encompass conception, planning, surveying, design, engineering, simulation, and construction, as well as the collaboration offerings required to coordinate and share the work of interdisciplinary and/or distributed project teams. Our asset lifecycle solutions span the operating life of commissioned infrastructure assets, allowing our accounts to manage engineering changes for safety and compliance and to model performance and reliability to support operating and maintenance decisions.

Our revenues are balanced and diversified between engineering and construction contracting firms who work together to deliver the design and construction of capital projects (representing 54% of our 2018 revenues), and their clients, public and private infrastructure asset owners and operators (representing 46% of our 2018 revenues). While engineering and construction contracting firms typically use our project lifecycle solutions, owner-operators are often involved in engineering and management for many of their own projects, and so can be users of our project lifecycle as well as our asset lifecycle solutions.

Our company's "Advancing Infrastructure" tagline reflects our enduring track record in successfully leveraging new technologies to improve and integrate the design, construction, and operations of infrastructure, leading to our infrastructure digital twins. An infrastructure digital twin is a cloud-native 4D digital representation of a physical project and resulting asset, incorporating its underlying engineering information, that is applied to model, simulate, analyze, chronicle, and predict its performance over time. By adding digital twin services to our existing solutions, our users can more fully extend digital workflows across project delivery and asset performance, increasing the value of infrastructure engineers' work.

We are the only infrastructure engineering software vendor to lead in market share in categories related to both the project and the asset lifecycle phases in the most recent rankings by The ARC Advisory Group ("ARC"). In August 2019, for *Engineering Design Tools for Plants, Infrastructure, and BIM* (building information modeling), ARC ranked us #2 overall, as well as #1 in each of Electric Transmission & Distribution and Communications and Water/Wastewater Distribution. In August 2019, ARC ranked us #1 in its inaugural market share study for Collaborative BIM. In December 2019, for *Asset Reliability Software & Services*, ARC ranked us #1 overall for software, as well as #1 in each of Transportation, Oil and Gas, and Electric Power Transmission and Distribution.

During the last two years, Microsoft recognized us as its 2019 "CityNext Partner of the Year" (citing our Azure-hosted *ProjectWise* for the Mumbai Trans Harbour Sea Link in India), its 2018 "CityNext Partner of the Year" (citing our Azure-hosted *ProjectWise* and *AssetWise* for the Klang Valley MRT in Kuala Lumpur, Malaysia), and a Finalist for the 2019 "Mixed Reality Partner of the Year Award" (citing our SYNCHRO XR 4D construction modeling application for the new HoloLens 2 device). Also, according to Microsoft, in 2019 we were one of the top 25 companies in terms of Azure usage globally.

We have spent decades cultivating trusted relationships with the largest global infrastructure engineering firms, including 454 of the *2019 Engineering News Record (615) Top Design* firms and 319 of the *2019 Bentley Infrastructure 500 Top Owners*. Our solutions are, in many cases, mission critical both for our accounts and for our professional users and foster a high degree of loyalty, with 80% of our 2018 revenues coming from accounts of more than ten years' standing.

We are a significant software vendor to major infrastructure engineering organizations. In 2018, 88 accounts each contributed over $1 million to our revenues. 50% of our 2018 revenues came from

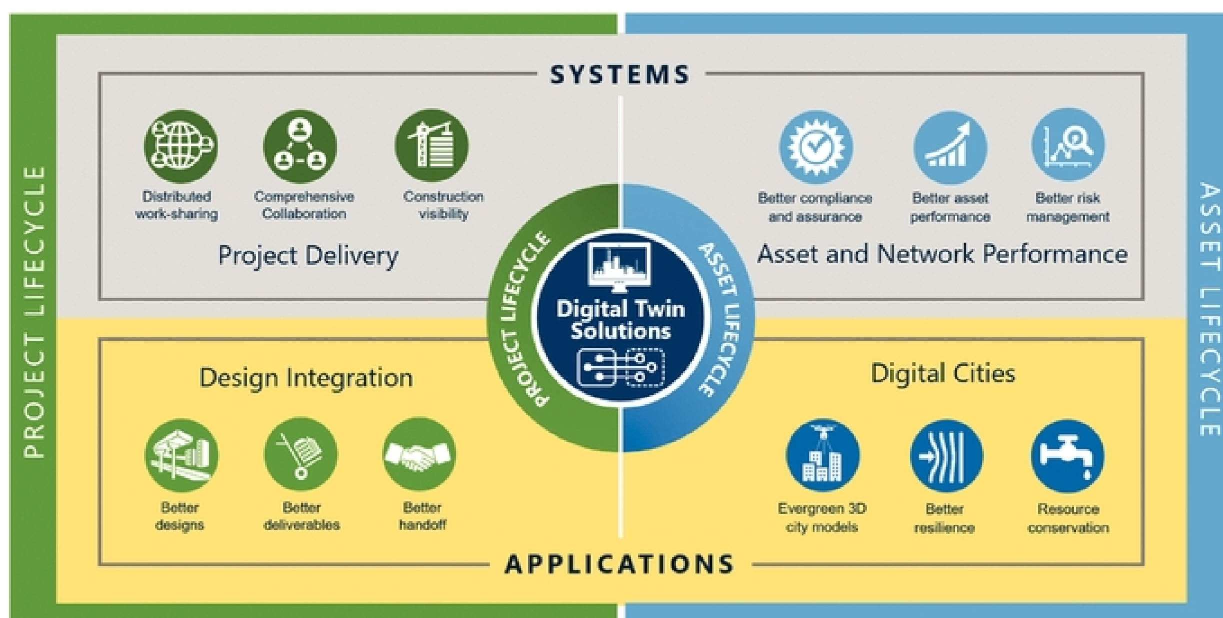
376 accounts each spending over $250,000. We serve over 35,000 accounts in total, and no single account provided more than 2% of our 2018 revenues.

Our business is comprehensively global. In 2018, the majority of our revenues were generated across 171 countries outside the United States, with 33% from EMEA and 19% from APAC. We have purposefully invested and are fully established in developing international markets where rapid infrastructure growth will continue to present compelling opportunities for us to scale efficiently. In particular, China, where we now have over 200 colleagues, has become one of our largest (among our top five) and fastest growing countries as measured by revenue.

In 2018, we generated subscription revenues of $557 million, total revenues of $692 million, net income of $142 million, and Adjusted EBITDA of $172 million. For additional information on our financial result, key metrics, and non-GAAP financial metrics, see the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Business Metrics."

Our Solutions

We offer solutions for enterprises and professionals across the infrastructure lifecycle. Our Project Delivery and Asset and Network Performance solutions are systems provided via cloud and hybrid environments, developed respectively to extend enterprise collaboration during project delivery, and to manage and leverage engineering information during operations and maintenance. Our Design Integration and Digital Cities solutions are primarily desktop applications and cloud-provisioned solutions for professional practitioners and workgroups. Our cloud-native Digital Twins solutions introduce digital workflows spanning our Project Lifecycle and Asset Lifecycle solutions.



Project Lifecycle Solutions. Our Project Lifecycle solutions span conception, planning, surveying, design, simulation, and construction, as well as the collaboration software services required to coordinate and share the work of interdisciplinary and/or distributed project teams.

Design Integration. Our Design Integration solutions consist of modeling and simulation applications. Our modeling applications are domain-specific authoring tools used by professionals for the 3D design and documentation of infrastructure assets. Our simulation applications enable engineers to analyze the functional performance of the designs created with our modeling applications (or those

of competitive vendors), preferably in iterative digital workflows, to improve engineering outcomes and to ensure compliance with design codes.

Benefits of our Design Integration applications to infrastructure engineers include:

- *Better designs.* Our modeling and simulation applications work together to improve infrastructure engineering quality, for instance to eliminate "clashes" across respective disciplines' work. Each application is for a specific purpose (asset-type or discipline; for example, OpenRoads for roadway design), and supports corresponding asset-specific engineering workflows (for example, the workflow a civil engineer would use in designing a road) by virtue of:

  - *Better engineering productivity.* We endeavor to provide in our applications the most advanced and automated intelligence for transforming engineers' conceptual decisions into complete, detailed, and editable deliverables; and

  - *Better configurability and continuity:* We take care to enable users to continuously refine their modeling preferences and standards across successive generations of our applications. This capability enables engineers, throughout their careers, to maintain continuity and compatibility with their preferred interfaces, formats, and methodologies, while advancing their work at the leading edge of innovation;

- *Better deliverables.* Our applications share a common modeling environment to enable streamlined coordination and production of multi-discipline documentation; and

- *Better handoff.* Our comprehensive modeling environment and our supplemental cloud services enable projects to enrich information sharing (and to minimize problematic translations) across project delivery processes. For instance:

  - by starting with reality modeling of existing conditions (often from drone surveying);

  - by sharing engineering component definitions across disciplines and projects; and

  - through "constructioneering" digital workflows, which automate the exchange of 3D design models to control GPS-enabled construction equipment (for earthmoving and paving), and to validate and preserve the resulting 3D as-built models for maintenance.

Project Delivery. Our Project Delivery solutions support information and document management, engineering-specific collaboration and work-sharing for distributed project teams and enterprises, and construction planning, modeling and execution. The scope of these solutions is not limited to users of only our own design applications.

Often during the project delivery lifecycle, key data are constantly changing, with inputs received from multiple sources, resulting in the need for a single source of information that is used to collect, manage, and disseminate information for the whole project team. Our software assures that the rapidly-changing data are managed in a common data environment ("CDE") such that only the correct milestone versions can be shared and referenced across the project. This functionality enables infrastructure project organizations to "virtualize" their talent so that the required work can be shared by all participants everywhere through our software, reducing the need for physical co-location of the project resources.

Our 4D construction modeling software spatially and temporally integrates a project's 3D engineering models into its construction schedules to assess sequencing strategies and to visualize and understand planned and actual progress over the project timeline. Our solutions also enable project delivery teams to optimally define and manage discrete engineering, construction, and installation work packages, including the construction trades' "workface planning," which considers crafts and materials by day and zone. For work packages which increasingly take advantage of modular offsite fabrication

and manufacturing, our software manages and enables 4D visualization of the necessary spatial and logistical interfaces.

Benefits of our Project Delivery solutions to project delivery enterprises include:

- *Distributed work-sharing:* Our solutions incorporate the rigorous workflow protocols required for structured coordination across engineering and construction supply chains, enabling global sourcing for integrated project delivery, while maximizing economics, quality, and safety;

- *Comprehensive collaboration:* Our software leverages cloud and hybrid environments to streamline the aggregation, distribution, and interaction for project deliverables, ensuring that the right project participants have the right information in the right format at the right time, including at the project site and on every device; and

- *Construction visibility:* Our solutions' broad span and continuous detail across design integration, construction modeling and work packaging, and mixed-reality 4D visualization, advances predictability, accountability, and safety throughout the construction process.

Asset Lifecycle Solutions. Our Asset Lifecycle solutions span the operating life of commissioned infrastructure assets, capturing and managing changes to engineering models and enterprise information for compliance and safety, and to model performance and reliability to support operating and maintenance decisions.

Asset and Network Performance. Our Asset and Network Performance Solutions are used to manage engineering information and geospatial relationships for operating and provisioning infrastructure across all sectors, including linear networks for transportation and energy transmission and distribution. Our asset performance modeling provides the needed analytical context for "right-time" data, including from Internet of Things ("IoT") sensor capabilities, to yield actionable insights.

Benefits of our Asset and Network Performance Solutions for owner-operators include:

- *Better compliance and assurance:* Our systems intrinsically enforce the rigor appropriate for operating infrastructure assets in order to provide dependable visibility into the impact of changes;

- *Better asset performance:* Our solutions include operational dashboards that provide decision support insights to maintain and improve throughput and reliability; and

- *Better risk management:* Our solutions include predictive analytics that identify potential problems before they occur, and ensure the accessibility of best-available engineering information and models for mitigation and resilience.

Digital Cities. Our Digital Cities solutions incorporate reality modeling (leveraging drone and mobile mapping "survey" inputs) and geospatial context to continuously capture as-operated infrastructure conditions at city and regional scale. Our offerings support department-level applications for municipal engineering, such as simulation of pedestrian and vehicle traffic, and water and drainage systems.

Benefits of our Digital Cities solutions to cities, regions, and their constituents include:

- *Evergreen 3D city models:* Our reality modeling software maintains engineering-ready 3D models, incorporating incrementally updated surveys, and thus ensures that engineering departments can rely on up-to-date geospatial context for digital workflows;

- *Better resilience:* Our solutions can integrate geotechnical, structural/seismic, and hydrological engineering modeling with evergreen 3D city models to harden infrastructure from flood and

other natural hazards, and to apply engineering simulations for mitigation and emergency response; and

- *Resource conservation:* Taking full advantage of our solutions can significantly increase efficiency and reduce waste. For instance, our water network modeling tools, applied to compare as-designed specifications to observed flows and pressures, can help to non-invasively locate subsurface water network leaks.

Infrastructure Digital Twins.

Our digital twins offerings enable our users to create and curate cloud-native 4D digital representations of physical projects and resulting assets, incorporating underlying engineering information, and then to model, simulate, analyze, chronicle, and predict performance over time. Using digital twins, our users can more fully extend digital workflows across project delivery and asset performance, increasing the value of infrastructure engineers' work.

Benefits of our digital twins solutions to project delivery firms and owner-operators include:

- *Advanced insights.* For project delivery, digital twins can reveal insights beyond what would be visible with traditional workflows; for example, a digital twin can show 3D heat maps highlighting where changes in a design have been unusually pervasive, indicating possible design flaws. For asset performance, such insights from digital twins can be used to evaluate different strategies for optimizing operational efficiencies and throughput;

- *Predictive analytics.* For project delivery, digital twins and machine learning can compare the progress of a current project with similar projects that have been previously completed, and identify in advance potential bottlenecks, in time to take corrective action. For asset performance, a digital twin can track observations from various operational inputs against design intelligence to predict future failures and recommend maintenance actions to minimize downtime;

- *Continuous and comprehensive design reviews.* For project delivery, digital twins can aggregate and align design models and data from all sources "on the fly" (without interruptions for translations, and without specialized software) to present immersive 3D status visualization in a web browser for any authorized stakeholder to participate in ongoing interactive design reviews; and

- *Convergence of OT, IT, and now "ET."* Infrastructure owner-operators are increasingly able to instrument their assets with IoT sensors, producing torrents of Operational Technology ("OT") data that are difficult to interpret. Software advances in Information Technology ("IT") can in turn make data from enterprise transaction systems, such as maintenance work order history, accessible for analytics. But even OT and IT together cannot inform decisions for improved asset performance as sufficiently as when combined with accessibility to comparable analytics from the assets' engineering models, which we refer to as the Engineering Technology ("ET"). Infrastructure digital twins notably enable the convergence of ET with OT and IT. With infrastructure digital twins, the design intent (the "digital DNA" captured in the digital twins' engineering models and simulations) can serve as a baseline for comparison to IoT-monitored "as-operated" performance, in light of the asset's operations and maintenance history stored in IT systems, to enable integrated analytics to provide timely insights and recommended actions to optimize safety and performance.

Comprehensiveness of Our Offerings

Our offerings are comprehensive across professional disciplines, lifecycle stages, infrastructure sectors, and geographies, resulting in what we believe to be durable competitive advantages:

Professional Disciplines. Each infrastructure project requires seamless and deep collaboration among professional disciplines, which can include civil, structural, geotechnical, and process engineers, architects, geospatial professionals, city and regional planners, contractors, fabricators, and operations and maintenance engineers. Our open modeling and open simulation applications facilitate iterative interactions between disciplines and coordination across project participants. Additionally, we believe our collaboration systems lead the market in managing infrastructure engineering firms' preferred work-in-progress workflows.

For example, to illustrate the benefits of interdisciplinary digital workflows in roadway design, our offerings' comprehensiveness can enhance both safety and economics by enriching the interfaces between geotechnical (earthworks) and structural analyses to share full 3D modeling details. Previously, structural decisions tended to be based on just a single imported parameter for subsurface foundation strength, frequently resulting in designs that included specifications and reinforcing materials beyond what was necessary to sufficiently mitigate risk.

The importance of integrating our offerings broadly across disciplines is also a reason that we have always prioritized interoperability with competitors' design tools. For major projects, owners and their contractors want to have the choice of the best professionals in every discipline, rather than limiting their choices to those using a particular software vendors' applications. Our offerings win acceptance within major organizations and projects both through our breadth of applications, and through each application's virtuosity in interpreting and emulating formats beyond our own.

Lifecycle Stages. Both project delivery enterprises and owner-operators benefit from our solutions, which enable digital workflows to extend between project and asset lifecycles, from design to construction and ultimately asset management. This capability allows our users' digital engineering models to be leveraged as the context for real-time condition monitoring to achieve better and safer operations and maintenance.

For an example of advantageous digital workflows from projects to assets, consider our solutions for permitting and routing of over-weight and over-sized loads by departments of transportation. Instead of routing based merely on static maximum load ratings for each bridge, we use actual bridge design models for dynamic structural simulations, and 3D clearances of the actual load configurations. As a result, user organizations are able to engineer safe routes to maximize commerce while protecting bridge longevity.

Infrastructure Sectors. Most major engineering and project delivery firms pursue an ever-changing mix of projects across the public works/utilities, industrial/resources, and commercial/facilities sectors and for flexibility tend to favor an infrastructure engineering software vendor whose portfolio correspondingly spans their full breadth. This comprehensiveness provides diversification for our own business, as an incidental advantage. For example, when there have been cyclical downturns in the primarily privately-financed industrial/resources and commercial/facilities sectors, we have historically witnessed offsetting counter-cyclical government investment in public works/utilities.

Geographies. While design codes may vary by country, infrastructure purposes and engineering practices are fundamentally the same throughout the world, which makes it possible for our infrastructure modeling applications to be used globally. Our offerings are available in most major languages, supporting country-specific standards and conventions. Our development teams are also globally dispersed, due in part to acquisitions made in various countries, but also to provide any needed last mile localization of our applications. Our global comprehensiveness enables our project delivery

accounts to compete more efficiently across geographic markets, thus also providing global supply-chain sourcing choices for owners.

Key Trends Impacting Our Markets

Growth in Global Infrastructure Demand

We expect that the rate of new spending required to meet currently anticipated infrastructure demands will represent a highly significant economic opportunity globally for the next twenty years. According to Oxford Economics' *Global Infrastructure Outlook* in 2017 (the "Oxford Economics Outlook"), in 2015, global spending was $2.3 trillion across road, electricity, rail, telecoms, water, airports, and ports. Oxford Economics Outlook forecasts that this spending will increase to an average of $3.2 trillion annually for the period from 2016 to 2040.

The increased demand for infrastructure is attributable to various factors, including urbanization and adaptation to demographic and climate changes. According to the Oxford Economics Outlook, by 2040, 10% of the world's population, and 15% of the population of Asia, will move into cities or find that their environs have newly become cities, and Asia will continue to account for over 50% of anticipated global infrastructure spending, with China alone accounting for 30%.

Over the period from 2016 through 2040, the Oxford Economics Outlook estimates that approximately $79 trillion will be spent across road, electricity, rail, telecoms, water, airports, and ports, equivalent to approximately 3.0% of global GDP over the same period, broken down by purpose as follows:

Sector	Roads	Electricity	Rail	Telecoms	Water	Airports	Ports
2016-2040 Spending as Approx. Proportion of Global GDP	1.0%	1.0%	0.4%	0.3%	0.2%	0.1%	0.1%

The Oxford Economic Outlook estimates that an additional $3.5 trillion of spending would be required to meet the UN's Sustainable Development Goals by 2030 for universal access to drinking water, sanitation, and electricity. Of this amount, $1.9 trillion is identified as needed to increase drinking water and sanitation capacity.

The Oxford Economics Outlook quantifies a funding gap by which its predicted actual spending falls short of what it estimates to be the need for functionally sufficient public works/utilities infrastructure. For North America, South America, and Central America, that gap is 47%, suggesting that investment needs in such regions are 47% greater than forecasted investment under current trends. We believe this funding gap, given compelling economic rates of return on further infrastructure investment, will give rise to rapidly increasing private infrastructure financing.

We believe that infrastructure funding gaps will accelerate demands for infrastructure engineering going digital. While significant privately-sourced capital has been earmarked for infrastructure investment, much of those funds are being held as dry powder, with investors seeking attractive projects with sufficient predictability at the outset and sufficient visibility throughout their investment holding periods. We also believe that digital twins can help to meet these requirements for private infrastructure investment and fulfill private infrastructure investors' expectations of advancement in digital workflows across project and asset lifecycles.

Responsibility for Environmental Sustainability

The global infrastructure engineering community is resolutely taking on the challenges of reducing waste and emissions, improving resilience, and designing for adaption to climate change. Going digital is recognized as essential to accomplish these goals, including in the following respects:

- *Reducing carbon impact of new projects.* During project delivery, digital twin technologies are being used to calculate the carbon impact of material, design, and construction alternatives to minimize the emission of carbon dioxide and other greenhouse gases;

- *Minimizing carbon emissions of operating assets.* Simulations and asset performance solutions based on engineering models enable adapting existing assets to be more energy-efficient and/or less reliant on fossil fuels;

- *Increasing the substitution of renewable energy.* In addition to designing new renewable energy assets including wind, solar, hydro-power, and waste-to-energy plants, engineers are leveraging network performance solutions to modernize existing power grids to purposefully incorporate distributed energy resources;

- *Optimizing the use of natural resources.* Simulation and analysis applications help engineers, among other examples, to

  - optimize the framing of an asset to maximize structural resilience while minimizing the raw material required;

  - identify and locate leaks in water networks to save water and the electricity needed to pump it; and

  - efficiently engineer wastewater treatment and water reclamation plants to save water resources; and

- *Building resilience into cities and assets.* Engineers today can model the impact of floods, earthquakes, hazardous spills, and extreme weather, and can accordingly harden infrastructure to minimize risks and mitigate the damage, disruption, and losses associated with such events.

Industrialization of Infrastructure Projects

While digital technologies have long and continuously improved the economics of manufacturing, infrastructure owners and investors are becoming increasingly dissatisfied with the low productivity improvements and rampant schedule and cost overruns too often associated with infrastructure project delivery. Owner-operators have tended to allow each engineering design to start from scratch, without taking into account potential synergies with the owner's existing asset fleet, operational performance history, and knowledge from comparable assets, thereby limiting opportunities for lifecycle-cost breakthroughs from construction-driven and operations-driven design.

Infrastructure engineering organizations are increasingly acknowledging imperatives for going digital to address these inefficiencies. New strategies are focused on the "industrialization" of infrastructure design and construction, using a smaller palette of modular functional elements dictated by the owner, fabricated offsite for economy, quality, and safety, and transported and assembled onsite. In construction, industrialization portends automation and robotics with digitally controlled machinery, which is already underway for heavy civil earthmoving.

We believe that industrialization of infrastructure delivery is compelling and inevitable, and will lead owner-operators to harness their own operating asset performance analytics to direct their project supply chains to learn from and deliver digital twins along with physical assets. We also believe industrialization's success will drive, and depend on, the adoption of 4D digital workflows for conception through construction, the comprehensiveness of all participants' solutions, and connectedness both in their data environments and between asset and project lifecycles.

Key Developments Impacting Infrastructure Owner-Operators

Trends that are influencing owner-operators' requirements for infrastructure engineering software include:

- *Autonomous vehicles.* We believe that the increase in investment in and demand for autonomous vehicle technologies will drive the need for intelligent roadway infrastructure. Roadway and related infrastructure owners will likely need to actively participate, creating an opportunity for roadway digital twins;

- *Ubiquitous video.* We believe the dense concentration and higher-definition of permanently installed cameras will facilitate opportunities for digital twins. For example, in bridge structural monitoring, machine learning applied to video of deflections during truckload passage can be as effective as sophisticated instrumentation with an array of sensors in detecting structural deficiencies;

- *Innovative funding models.* Newer forms of funding may catalyze the adoption of digital twins. For example, property tax proceeds can be increased based on building improvements that are machine-learned from aerial imagery; and

- *Threats to critical infrastructure.* Certain vulnerabilities, such as risks to the electric grid or potable water sources, represent potential use cases for digital twins for planning and execution of hardening, monitoring, and emergency response. Additionally, the requirement for industrial-strength cyber-security for infrastructure digital twins will raise the barriers for entry, favoring world-class proprietors.

Key Developments Impacting Infrastructure Project Delivery Organizations

Despite the potential upside in business outcomes presented by going digital, engineering and construction organizations face challenging constraints:

- *Business model obsolescence.* Traditionally, most engineering firms have relied primarily on the first phase of owners' "design-bid-build" procurement models, billing for their design hours and leaving owners to retain the resulting cost and change risks associated with actual project delivery. We believe that owners increasingly prefer procurement models with some extent of integrated project delivery including construction, and they are increasingly open to financing models such as public-private partnerships, which focus on delivering both project and asset outcomes efficiently over a full asset lifecycle. As a result, both engineering and construction firms are increasingly under pressure to embrace integrated project delivery systems to share their work effectively, rather than accepting risks outside their domain or losing the work to integrated competitors;

- *Recruitment constraints.* Engineering firms are each challenged to compete for increasingly scarce local engineering skills and talent. In order to grow, these firms realize they need to be going digital, substituting technology for labor, and charging for increased value despite decreasing labor hours. Over time, however, we believe that as the infrastructure engineering professions fully adopt digital twin infrastructure engineering software, which is more visually immersive and interactive, their work will become relatively more appealing to "digital native" generations of potential engineering talent;

- *Globalization of competition.* New technologies have enabled engineers around the world to contribute to projects located in other countries. Using these technologies, foreign firms are able to bid aggressively and win work elsewhere, and even domestic competitors have established value engineering centers in overseas locations where engineering skills are relatively abundant, inexpensive, and digitally advanced. We believe that many firms in established markets recognize

that going digital is essential both to maximize their local productivity and to fully integrate with virtualized collaborators worldwide;

- *Capital constraints.* In general, design and construction firms have not presented a compelling opportunity for investors, given their relatively higher risks and lower returns relative to other investment opportunities, and hence tend to be thinly capitalized. These firms require digital solutions, but often do not have the financial capital or technical resources to attempt to self-develop them. As a result, design and construction firms are increasingly a large and ready market for infrastructure engineering software, especially offerings with open-source capabilities for firms to configure and brand their own digital-twin offerings and analytics; and

- *Digital silos.* Legacy software applications often produce static deliverables in one-time, one-way file formats, siloed from the digital workflows required to bridge disciplines and lifecycle phases. Competitiveness in today's project delivery market requires solutions that facilitate data created by one application (for instance, in design) serving as inputs in new automated workflows by other applications (for instance, in 4D construction modeling). Such digital workflows improve productivity and quality, helping project delivery enterprises toward replication so that every project performs as well as their best projects.

The Digital Twins Opportunity

We believe that digital progress in infrastructure advancement has to date lagged behind other economic domains for several reasons, including that:

- most existing infrastructure assets predate engineering modeling software;

- engineers' work, including by way of building information modeling ("BIM") or geographic information systems ("GIS"), has been sequestered in native file formats that amount to "dark data," inaccessible without the software that was used to create it, and therefore unavailable for use in digital workflows or analytics; and

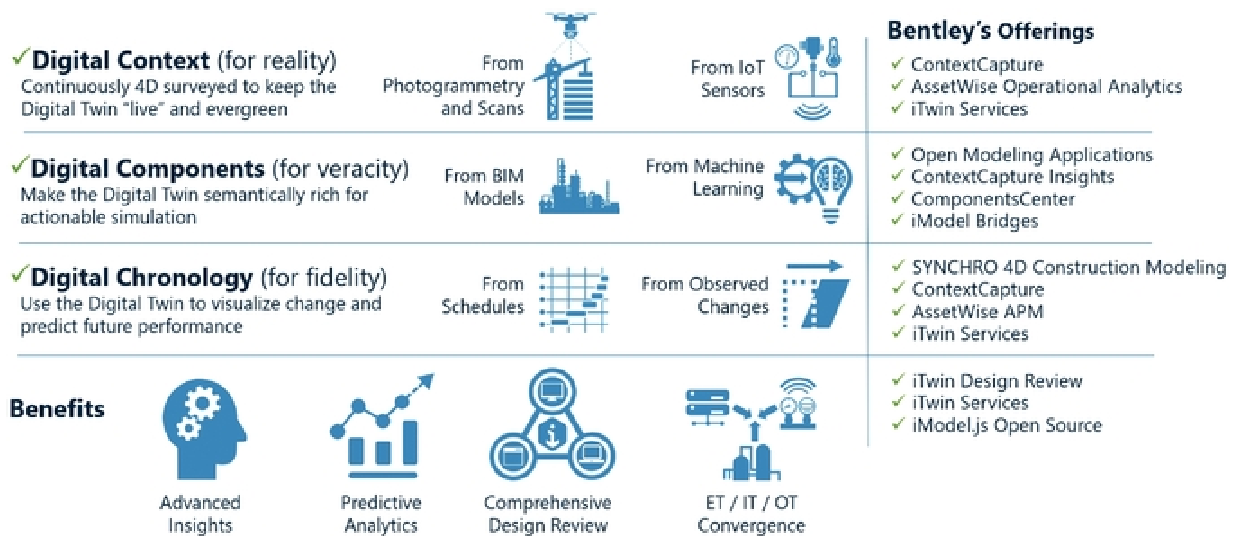
- construction processes are often fragmented and isolated from digital workflows altogether, resulting in engineering information being effectively abandoned between the project and the asset lifecycle phases of infrastructure.

Over our company's history, as computing capabilities have advanced, the scope of infrastructure engineering software has correspondingly increased. However, project lifecycle and asset lifecycle software markets have developed independently from one another and connecting digital workflows have not been offered. We believe that the new advancement of BIM and GIS to "evergreen" infrastructure digital twins will have the effect of merging what have to date been separate market spaces.

Period	Project Lifecycle Software	Asset Lifecycle Software
1985 - 1995	*2D Drafting ("Computer Aided Design," or "CAD"):* Workstations and then personal computers make possible interactive graphical applications to automate the creation of previously manually drafted 2D engineering drawings.	*2D Mapping:* Workstations and personal computers make possible interactive graphical applications to automate the creation of maps.
1996 - 2005	*Collaboration:* Networked personal computers and servers provide platforms for file-sharing and referencing. Common Data Environments ("CDEs") are introduced.	*Geographic Information Systems ("GIS"):* Networked personal computers and servers enable querying and visualization of geographic data.
2006 - 2015	*3D BIM*: Increased personal computing power enables the development of 3D applications for design of specific asset types including buildings, process plants, roads, water networks, and buildings. CDEs and the internet lead to global work-sharing and collaborative BIM.	*Geospatial:* Increased computing address space enables geo-coordinated engineering models. GPS technology enables alignment of digital components and real-world coordinates. *Asset Performance Management ("APM"):* solutions are introduced for reliability-centered maintenance and risk-based inspection.
2016 - 2018	*Reality Modeling*: Advances in digital imagery, unmanned aerial vehicles ("UAVs," or "drones"), and specialized software enable the automated capture of as-operated conditions of an asset or site in an engineering-ready, geo-coordinated 3D model. Cloud ubiquity enables *Common* Data Environments to evolve into *Connected* Data Environments.	*APM* evolves into Asset Performance *Modeling*, with engineering models recalibrated to reproduce and understand observed behaviors, and apply algorithms and analytics to derive insights and drive decisions.
2019 - Present	*4D Digital Twins:* Digital twins make possible the simulation of the behavior and the visualization of the changes of a project or infrastructure asset over time. Digital twins are continually updated in a cloud database and remain current and "evergreen," over the full project and asset lifecycle, through continuous surveying of the physical context and embedded links to inputs from connected IoT sensors in the operating asset. With digital twins, users are empowered to better understand the impact of changes over time for projects and assets to improve project, construction, and operational efficiencies, predictability, and overall outcomes.	

To enable infrastructure engineering to catch up and advance in "going digital," we have enabled infrastructure digital twins, cloud-provisioned digital representations of projects and assets that incorporate and converge their 3D physical conditions ("digital context") for reality, their underlying engineering information ("digital components") for veracity, and their 4D timeline of changes ("digital chronology") for fidelity, enabling the merging of project lifecycle and asset lifecycle workflows.

Digital Twins Requirements and Benefits



Digital twins solutions are now made possible by new technologies including UAVs and their intrinsic "surveying" sensors, machine learning, cloud computing, open-source development libraries, distributed ledger software, and mixed-reality visualization.

Our software to leverage these advancements for our digital twins offerings includes:

- **Reality modeling software**, which processes any combination of overlapping digital photography, video, and scanned imagery to produce a 3D model. Our software then uses machine learning to recognize and classify components within the 3D model (such as equipment, structural elements, pipes, valves, tags, and nameplates). This process populates the digital twins' digital context with digital components that add intelligence, especially when aligned with engineering models from the design stage;

- **iModel distributed databases**, which combine and align the digital components from all available sources for infrastructure projects and/or assets. iModels are created and bridged to our iTwins cloud services from our own engineering applications or from third-party applications. Using our iModel distributed databases, "dark data" is opened and aligned semantically and spatially with all other relevant models, allowing this information to be accessed and for its value to be enhanced; and

- **iTwins cloud services**, which update distributed databases through change ledgers to synchronize digital twins, as required, with physical and engineering changes. Along with assuring that their fidelity can be relied upon for critical decisions, our iTwins cloud services maintain secure environments for infrastructure digital twins' visualization and analytics visibility. Our iTwin services can be added to any user's or accounts' environments to generate incremental value by incorporating infrastructure engineering data within cloud-native evergreen digital twins. The go-to-market strategy for our iTwin cloud services is based on a dual-pronged sales strategy:

    - Sales to enterprise accounts using ProjectWise and AssetWise, to more broadly propagate their project and asset engineering data, respectively, through iTwins Design Review Service for comprehensive project-wide 4D status visibility, Immersive Asset Services, and PlantSight; and

    - Sales to individual practitioners and their workgroups for ad-hoc iTwins Design Review Service, often to upgrade their use of 2D PDF tools to 3D.

We believe that the growing adoption of infrastructure digital twins will serve to overcome the factors that have held back the digital advancement of infrastructure engineering. Moreover, we believe that due to the comprehensiveness of our solutions across project and asset lifecycles, infrastructure digital twins and newly enabled digital workflows spanning design, construction, and operations, will most particularly benefit our users and enhance our competitiveness.

Our Opportunity

We believe we are successful and well-established in enterprise-level relationships with the world's largest infrastructure engineering organizations, including both project-delivery contracting firms and owner-operators. Today, we address a significant market opportunity, which we refer to as our serviceable addressable market ("SAM"). We estimate our global SAM is approximately $9.5 billion, $6.1 billion of which is attributable to project delivery firms and $3.4 billion of which is attributable to owner-operators. Further, of our $9.5 billion SAM, approximately $1.6 billion is in Greater China.

We also view our market opportunity in terms of the total addressable market ("TAM"), which we believe we can address over the long term. We estimate our TAM is approximately $. We believe that digital progress in infrastructure advancement has to date lagged behind other economic domains. Over time, as project delivery firms and owner-operators increasingly recognize the value of going digital and increase their spend on solutions such as digital twins, we believe our SAM will approach our TAM. We believe that in the engineering of products (which are manufactured) more is currently spent per engineer on engineering software than in the engineering of infrastructure (which is constructed). We believe our TAM can be estimated by extrapolating levels of software spend for infrastructure engineers to levels currently demonstrated by product engineers. We believe our SAM and TAM will also expand over time from increased infrastructure spending.

In order to estimate our SAM of $6.1 billion for project delivery accounts, we consider both project delivery organizations whose design and construction billings are reported to and published by *Engineering News-Record* ("*ENR*") in addition to smaller project delivery organizations that do not have billings reported and published by such an organization. We estimate that the SAM for the larger project delivery accounts that have billings reported and published by *ENR* is currently approximately $3.4 billion. We estimate that the SAM for the smaller project delivery accounts is currently approximately $2.7 billion. Our calculation of the metric for the larger project delivery accounts that have billings reported to and published by *ENR* is based on the percentage of ARR/billings we capture from these larger accounts relative to the total billings from these accounts based on data reported to and published by *ENR*. This method results in a penetration rate that we apply across all of the accounts published by *ENR*. We use this same penetration rate to estimate the SAM for smaller project delivery organizations that do not report or publish billings in *ENR*.

In order to estimate our SAM of $3.4 billion for owner-operator accounts, we consider both larger owner-operators that are included in the list of *Bentley Infrastructure Top 500 Owners* in addition to smaller owner-operators that are not included in our list. We estimate that the SAM for the larger owner-operator accounts included in the list of *Bentley Infrastructure Top 500 Owners* is currently approximately $1.6 billion. We estimate that the SAM for smaller owner-operators not included in the list of *Bentley Infrastructure Top 500 Owners* is currently approximately $1.8 billion. Our calculation of this metric is based on the percentage of ARR/billings we capture from these larger accounts relative to the total billings from the accounts included in the list of *Bentley Infrastructure Top 500 Owners*. This results in a penetration rate that we apply across all of the larger accounts included in the list of *Bentley Infrastructure Top 500 Owners*. We use this same penetration rate to estimate the SAM for smaller owner-operators not included in the list of *Bentley Infrastructure Top 500 Owners*.

Over time, we believe our SAM and TAM will expand from increased infrastructure spending. Moreover, in Asia, where the Oxford Economics Outlook estimates a majority of infrastructure

spending occurs already and expects spending to increase through 2040, digital twin approaches are now being pursued to rapidly supersede traditional workflows institutionalized elsewhere in the world. In fact, in our 2019 Year in Infrastructure awards, the winners for 15 of 26 categories, judged by independent juries of global experts, were projects in China, India, and Southeast Asia, where we see spending on digital solutions accelerating faster than in other parts of the world.

Our Growth Strategies

We employ the following growth strategies to address the infrastructure engineering software market opportunities:

- ***Accretion within existing accounts.*** Most of our accounts currently use a small portion of our overall portfolio, even though they are often working on projects and assets where a large portion of our portfolio could be applied. We believe we can further penetrate our existing accounts by broadening their use of our portfolio. There are three primary mechanisms for this expansion:

  - *New commercial formulations.* We continually innovate with new commercial formulations to align the use of our software to the needs of our users. Presently, we offer our subscription solutions by the day, month, quarter and year. Additionally, we offer options enabling unrestricted access to our comprehensive software portfolio. We believe the flexibility in our commercial models and deployment options will allow our accounts to grow usage continuously;

  - *Automating user engagement.* We employ various technologies to drive user engagement. These technologies help to automate the user experience and drive engagement by suggesting and recommending best practices and appropriate software upgrades. We will continue to leverage these interactive technologies to virtually assist our users and drive engagement across our software offerings; and

  - *Adding new offerings.* We have a history of building and maintaining leadership in infrastructure software engineering comprehensiveness and intend to continue to innovate and develop our software offerings. Selected recent examples of our product innovations include the 2019 introduction of new multi-disciplinary modeling and simulation applications for 5G-ready communications towers and for offshore wind turbines, and the 2019 integration of our acquisitions of new software for vehicle traffic simulation and mobile mapping. Over the near term, we believe our iTwins Cloud Services represent a compelling opportunity to enhance value for our accounts. We intend to continue to develop and integrate new products and capabilities over time;

- ***Focusing on Asia.*** We believe Asia represents a large market opportunity and will continue to do so over the foreseeable future. According to the Oxford Economics Outlook, a majority of expected infrastructure spending for the period between 2016 and 2040 is expected to occur in Asia. Additionally, we believe that in Asia there is an abundance of skilled engineers whose work can be virtually exported, as well as engineering organizations that are eager and aggressive to win mandates for engineering and construction projects around the world. We intend to continue investing in strategies to enhance our market position in Asia;

- ***Increasing inside sales.*** Historically, our account management resources have focused on larger firms. Smaller and medium-sized engineering firms, however, represent a significant market opportunity and have the same needs for our comprehensive portfolio as the larger firms. While these firms have generally been served by our competitors' channel partners, we believe they will prefer to deal directly with us. We will continue to expand our global inside sales resources and

to multiply their reach and effectiveness with superior digital tools to convert leads and to provide the self-service administration that engineering practitioners prefer; and

- ***Digital co-ventures.*** We have forged substantial alliances with other major participants in the infrastructure engineering supply chain, primarily to jointly develop and offer digital twin cloud services that extend the scope of our software. These alliances include:

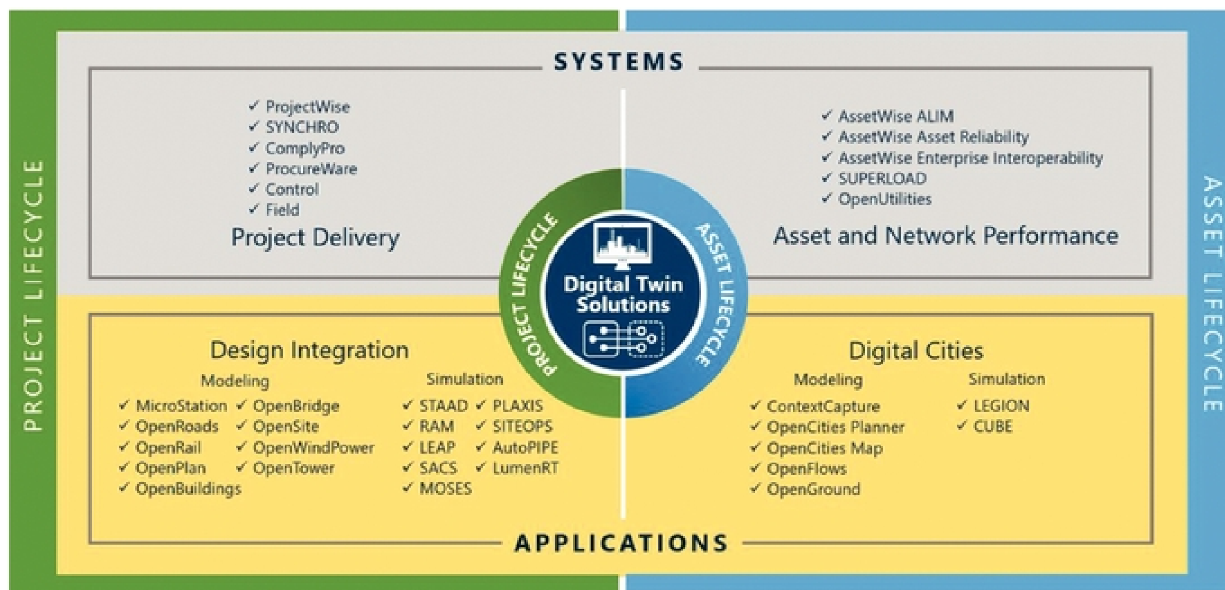
  - Topcon Positioning Systems: Our partnership integrates leading surveying technologies and geospatial machine control technologies for digital workflows between engineering and usage in the field. Our companies' Digital Construction Works joint venture provides expert services to major project delivery enterprises to incorporate these constructioneering workflows;

  - Siemens: Our partnership integrates leading industrial software and IoT capabilities for a broad joint development program focused on improving outcomes during infrastructure operations and maintenance through digital workflows enabled by digital twins cloud services; and

  - Microsoft: Our partnership extends Azure-powered machine learning and analytics through digital workflows for infrastructure professionals and enterprises.

Our Software Offerings

Our software products' development and go-to-market strategy are organized within Design Integration applications and Project Delivery systems (for project lifecycles), and Asset and Network Performance systems and Digital Cities applications (for asset lifecycles), all supplemented and brought together with our digital twins ("iTwins") cloud offerings.



Design Integration Applications

We undertake to provide comprehensive open modeling and open simulation applications for infrastructure design integration. Our open modeling applications include:

- *MicroStation*, for flexible 3D design and documentation providing the common modeling environment upon which our applications are built;

- *OpenRoads*, for the planning, 3D design, and documentation of roads and highways;
- *OpenRail*, for the planning, 3D design, and documentation of rail and transit systems;
- *OpenPlant*, for the 2D and 3D design and documentation of process plants;
- *OpenBuildings*, for the 3D design, and documentation of buildings and their integrated structural, HVAC, electrical, and plumbing systems;
- *OpenBridge*, for the 3D design and documentation of bridges;
- *OpenSite*, for the optimal planning, 3D design and documentation of building, residential development, and infrastructure sites;
- *OpenWindPower*, for the design of fixed and floating wind turbine structures; and
- *OpenTower*, for the design of communications towers, including for 5G capacity.

Our open simulation applications include:

- *STAAD* and *RAM*, for analysis and simulation respectively of infrastructure and building structural performance;
- *LEAP* and *RM*, for analysis and simulation of bridge structural performance;
- *SACS*, for analysis and simulation of offshore structural performance;
- *MOSES*, for analysis and simulation of floating structures;
- *PLAXIS*, for geotechnical analysis and simulation of subsurface rock and soil interacting with infrastructure foundations, footings, pilings, and tunnels;
- *SITEOPS*, for simulation of compliant site layout, and optimization of earthworks, drainage, and parking;
- *AutoPIPE*, for analysis and simulation of pipe stress in industrial process plants; and
- *LumenRT*, for enlivened animations of infrastructure projects.

Project Delivery Systems

Our Project Delivery solutions support collaboration, work-sharing, and 4D construction modeling for infrastructure project delivery enterprises. These offerings include:

- *ProjectWise*, for helping teams to manage, share, and distribute work-in-progress engineering content. *ProjectWise* enables all stakeholders involved in design and engineering to share and find information, conduct collaborative design reviews, and manage contractual exchanges faster for maximum team productivity;
- *SYNCHRO*, for planning 4D construction models for project and field management, work packaging, and immersive visualization, for instance via Microsoft HoloLens;
- *SYNCHRO ConstructSim*, for advanced work packaging, including engineering, construction, and installation work packages, and trade and task workface planning; and
- Additional cloud services for specialized project delivery use cases, including *ComplyPro*, *ProcureWare*, *Control*, and *Field*.

Asset and Network Performance Systems

Our Asset and Network Performance solutions, including our *AssetWise* systems, manage geo-coordinated information for asset performance modeling throughout the operations and

maintenance lifecycle of infrastructure assets and their associated networks, in transportation, energy, and communications. These offerings include:

- *AssetWise ALIM*, for managing infrastructure asset information and linear networks and for controlling and managing change over the asset lifecycle;
- *AssetWise Asset Reliability*, for reducing equipment downtime and limiting business risk associated with equipment failures, while increasing safety, reliability, and cost effectiveness;
- *AssetWise Enterprise Interoperability*, for enabling access to multiple data sources from third-party providers, and integrating them in operations and maintenance workflows;
- *SUPERLOAD*, for automating the safe routing and permitting of overweight/oversized vehicles;
- *AssetWise 4D Analytics*, for employing advanced analytics and machine learning, particularly to IoT time series, to gather insights to understand current conditions and predict future performance;
- *AssetWise Linear Analytics*, for visualizing and understanding vast quantities of linear network data to identify trends and anomalies, and optimize maintenance decisions, for rail or road networks; and
- *OpenUtilities*, for the design and management of electric, gas, and district energy networks, and substations.

Digital Cities Applications

Our Digital Cities offerings are used for surveying, reality modeling, planning, and managing the geospatial infrastructure of cities and regions. These offerings include:

- *ContextCapture*, for surveying existing conditions of a city, construction site, or operating infrastructure asset by processing digital imagery captured by UAVs, cameras, and scanners into 3D, geo-located, engineering-ready mesh models, and providing the digital context for digital twins;
- *ContextCapture Insights*, for applying machine learning, through cloud computing, to automatically identify and classify recognizable components in reality modeling;
- *OpenCities Planner*, for engineering-ready geospatial urban planning and visualization;
- *OpenCities Map*, for engineering-level GIS functions such as mapping, cadaster, and parcel management;
- *OpenFlows*, for water, wastewater, and stormwater system planning, design, and operations, incorporating hydrological, hydraulic, and flood modeling;
- *OpenGround*, for geotechnical information management;
- *CUBE*, for vehicular traffic simulation in roadway design; and
- *LEGION*, for pedestrian traffic simulation.

iTwins Cloud Offerings

Our iTwins cloud offerings add digital twins capabilities to any account's environment. These include:

- *iTwins Design Review Service*, for browser-level immersive status visualization, ranging from ad-hoc 2D/3D discipline-specific workflows for any applications users, to *ProjectWise*-enabled 4D design reviews and analytics visibility spanning the full project scope;
- *Immersive Asset Service*, for 4D immersive visualization and analytics visibility for *AssetWise* users;
- *OpenUtilities Digital Twin Cloud Services*, for consolidating, validating, and aligning GIS, reality modeling, performance, simulation, and other data for energy and communications networks; and
- *PlantSight*, for live and evergreen digital twins of operating process plants. PlantSight is jointly developed by Bentley and Siemens and commercially available from either company.

Use Cases

Our applications and systems are used in combinations, in parallel and in sequence, for infrastructure projects and assets.

Project Lifecycle Use Case

The following example illustrates the comprehensive use of our offerings in the planning, design, and construction of a new highway overpass to accommodate increased traffic at an intersection in a growing part of a city:

At the start of the project, *ProjectWise* is set up for the project team as a structured repository for their engineering work and shared documents and models relevant to the overpass project. The physical conditions of the current roadway intersection are surveyed with drones and captured with *ContextCapture* to produce the accurate 3D model which will be the basis for the engineering work. For the planning of the overpass, *OpenRoads ConceptStation* enables the roadway designers to quickly iterate on different overpass configurations and get preliminary estimates of the construction costs of various scenarios. *OpenSite* and *PLAXIS* is used by geotechnical engineers for modeling the geotechnical properties of the site to ensure the subsurface conditions for the roadway and overpass are accurately considered in the proposed design. Visualizations and animation of the proposed design alternatives are generated by *LumenRT* for city and community reviews and approvals.

When the preliminary design is approved, *OpenRoads Designer* begins to produce the detailed design of the ramps and roadway directly from the *ConceptStation* files. Bridge engineers use *OpenBridge Modeler* to quickly evaluate various options for the overpass bridge, then *OpenBridge Designer* is used to produce the detailed design of the bridge. *LEAP* is used to model and simulate the bridge's structural performance and compliance with building codes. Throughout the detailed design phase, as the project team grows and the complexity of the design develops, *ProjectWise* supports the work-sharing for the team, manages the production and distribution of the project deliverables, and helps resolve design clashes among elements of the multidisciplinary design.

In the construction phase, as the project team expands to include contractors and subcontractors, detailers, and fabricators, *ProjectWise* coordinates and provides an audit trail of the distribution of documents and approvals, ensuring the right team members have the right information at the right time. The construction management team uses *SYNCHRO 4D* to take the 3D models of the project and assign sequencing attributes to the various constructible elements, creating a 4D construction model used to evaluate different construction sequences during planning, and to track the progress of the actual construction through to completion. *SYNCHRO ConstructSim* is used to automate the detailed workface planning to create work packages of trades, materials, and schedules for each step and each section of the construction project.

When the construction planning is complete and the roadway and ramp grading is ready to begin, the project terrain model created by *OpenRoads Designer* is exported via *ProjectWise* to Topcon's *Magnet* software, which drives the GPS-enabled grading machinery to grade the surface of the site earthworks to the exact elevations of the design model. As the construction progresses, UAVs with *ContextCapture* continuously surveys the site to enable our solution's reality modeling capabilities to track the volume of soil still to be cut and filled, and monitor the actual progress to determine the "earned value" for contractor payments.

Asset Lifecycle Use Case

When the roadway overpass project is complete and operational, our asset lifecycle solutions can help keep its infrastructure in peak performance:

AssetWise Asset Reliability manages the inspection and inventory of all types of transportation infrastructure assets, including bridges, culverts, signs, light poles, antenna towers, stormwater networks, guardrails, retaining walls, and other ancillary structures. UAVs with *ContextCapture* continuously survey the roadway and overpass and use machine learning to identify storm drains that are clogged or road surface cracks and potholes needing repair and *AssetWise Enterprise Interoperability* alerts enterprise maintenance systems to issue work orders for repairs.

Sensors on the overpass bridge provide performance data to the asset performance digital twin and *AssetWise 4D Analytics* compares the observed performance to the predicted performance of the digital twin and spots trends for future performance, ensuring the safe operation of the bridge. *SUPERLOAD*, which maintains a cloud database of the dimensions and structural capacities of all the bridges in the state, further supports the operation of the overpass by permitting and routing over-sized and overweight vehicles to ensure those vehicles can safely cross the bridge, or have the clearance to drive under it, without damage to the vehicle or the bridge.

As the city grows, *CUBE* simulates the increase in vehicular traffic in different areas and *AssetWise Linear Analytics* analyzes the road network and projects the impact of increased traffic on the overpass. *Linear Analytics* also indicates the impact of a lane closure due to construction or an accident and provides alternate routing to alleviate congestion. When road construction involves subsurface utilities, *OpenUtilities* provides accurate documentation to the field to locate and identify the utility networks in the construction zone and analyzes the water pipe networks to help pinpoint the source of leaks. If there is flooding due to a water main break or an extreme weather event, *OpenFlows FLOOD* models the extent of flooding over the timeline of the event and determines its impact on the roadway and overpass.

AssetWise ALIM tracks and manages all of the overpass and roadway network asset information, ensuring that changes over its lifecycle are recorded and those affected by the impact of those changes on the entire road network are notified. *ALIM* streamlines the data analysis and reporting required for compliance with local, regional, and national transportation authorities.

Our Commercial Offerings

Licensing Models

Our applications are offered through perpetual licenses or term licenses, priced dependent on the country of purchase and use. Most accounts owning perpetual licenses subscribe to our SELECT coverage which, in addition to providing support and upgrades, enables the use of their licenses for each product to be pooled within each country. For most larger accounts (generally a minimum of $250,000 ARR) we have traditionally offered an ELS, which entitles unlimited use of any of our applications for an annual fixed fee, reset annually generally based on actual usage (within each country) for the previous year. During the fourth quarter of 2018, to respond to and improve upon new commercial models offered by peers and competitors, we introduced a new global consumption-based plan, E365, which is priced uniformly per application per day of actual usage in any country, and inclusive of Success services (described below) by our colleagues to assist with expanding and gaining the most value from usage of our software. We have begun upgrading ELS accounts to E365, beginning with the largest global accounts.

Our systems, *ProjectWise* and *AssetWise*, are offered under our CSS program, charged quarterly based on actual users of "passports" and "visas" for various levels of functionality. Passport and visa pricing includes Azure provisioning at our cost, although some accounts elect to continue on-premises and/or hybrid hosting. CSS commercial models entail an annual funding commitment, generally paid upfront, based on an estimation of services to be used for the upcoming year. Actual consumption is monitored and invoiced against the deposit on a calendar quarter basis. Accounts are charged only for what gets used, and deposited amounts never expire. At the end of 2019, accounts comprising approximately 58% our total ARR had chosen to institute our new commercial models of CSS and/or E365 consumption funding for licensing of our software.

Success Plans

Over the past several years we have re-deployed the post-sale focus of our success force, comprising more than 900 colleagues with experience and credentials in infrastructure engineering, from on-demand professional services and training to instead fulfill "Success Plans." Through Success Plans we assume proactive responsibilities to accounts to maximize their value from our solutions, which we accomplish by assigning our success force experts to be dedicated to serve multiple accounts requiring similar specializations. Typically, our success force engages with our accounts remotely. Success Plans are bundled into our new E365 commercial program and are growing rapidly among our major accounts.

Our success force also provides:

- *Managed services,* under Service Level Agreements ("SLAs"), to administer accounts' instances of our Azure-provisioned *ProjectWise* and/or *AssetWise* systems. SLAs vary as to our scope of responsibility, sometimes including Success Plans and/or our colleagues dedicated onsite;

- *Professional services,* mainly for implementation and integration of our *ProjectWise* and *AssetWise* systems within substantial enterprises, although we seek to minimize the need for this; and

- *Digital Advancement Academies,* where we convene industry participants to share best practices, including in programs with major owner-operator accounts to onboard their supply chains for initiatives in going digital.

Our Accounts

We provide our software solutions to over 35,000 accounts in 172 countries worldwide. Our revenues are balanced and diversified between engineering and construction contracting firms who work together to deliver the design and construction of capital projects (representing 54% of our 2018 revenues), and their clients, the world's public and private infrastructure asset owners and operators (representing 46% of our 2018 revenues).

We do not have material account concentration. No account, including any group of accounts under common control or accounts that are affiliates of each other, represented more than 2% of our revenues in 2018 or 2017.

Our Technology

Our business is singularly focused on software for infrastructure engineering, primarily for the world's largest projects and assets. As a result, we manage our software products to meet constraints imposed for fitness to this purpose. Our market position is built on several reputational hallmarks, including:

- generational stability of file formats, corresponding to the long lives of infrastructure projects and assets;
- commitment to openness and interoperability with competitors' file formats;
- continuity of software applications' lifecycles, never jeopardizing users' cumulative investments by requiring them to "start over"; and
- highest capacity and performance, versus competitors, for large infrastructure models and datasets.

Application Framework

Our software solutions are delivered using flexible, reusable, and open technology, which results in highly integrated applications and cloud services that support comprehensive digital workflows in a scalable manner. For example, our modeling and simulation applications, including MicroStation, leverage a set of reusable components for graphics editing, visualization, solid modeling, and other capabilities. This open framework supports the addition of domain specific features, allowing us to offer highly compatible and well-integrated discipline-specific applications based on this common framework.

Microsoft Integration

Our software leverages Microsoft's platform technologies. We seek to take full advantage of integration with Microsoft Office 365 and other horizontal applications such as Teams for workflows that unify our engineering applications within enterprise environments across all computing form factors and devices.

iModels and iModelHub

We support a rich format for digital twins called an iModel, a relational database encapsulated in a file, that stores aligned domain data from multiple source applications. iModels are synchronized with our design applications and we provide software development tools to enable iModels to be synchronized with third-party applications or services. We have created and maintain iModel connections to most of the significant applications used in infrastructure engineering. iModels provide a common data currency to support open and easy exchange between users and systems, and we believe that they have become a de facto standard for visibility and collaboration of digital engineering models. iModelHub, an iTwin cloud service, manages each iModel as a distributed database with an intrinsic

ledger of changes (enabling alignment, accountability, and accessibility of digital components over the lifecycle of a project or an asset) to form the backbone of an infrastructure digital twin. To foster an expanded ecosystem of digital twin innovation, our iModel.js code is available on GitHub as an open source library under the MIT license.

Our Licensing and Administration Platform

All of our applications and systems share a cloud-native platform for license pooling, management of subscription entitlements, and usage reporting for us and for accounts, including for commercial consumption metrics. Our platform also logs usage of particular "instrumented" functions within our applications to enable our success force to be of most value. Our platform can also provide in-application messaging to users from our success force.

Our Acquisitions

Since our founding, we have purposefully pursued a strategy of regularly acquiring and integrating specialized infrastructure engineering software businesses, including 18 acquisitions over the past five years. Our acquisitions have the following purposes:

- filling in the breadth and depth of our comprehensive applications portfolio across disciplines and infrastructure sectors, especially where the developer organizations have already worked on integration and compatibility with our platforms and APIs;
- extending our lifecycle comprehensiveness, especially for our Asset and Network Performance, and Digital Cities product advancement units;
- adding new horizontal technologies that we can incorporate within our platforms for the benefit of our applications and systems at large, such as reality modeling; and
- adding new distribution capacity, such as to channel partners in geographies where we wish to accelerate our scale and growth.

Our executive management and our Portfolio Development team proactively identify and develop potential acquisition subject areas and unsolicited candidates. We also are prepared, experienced, and able to respond with agility when appropriate situations may appear opportunistically. We have a disciplined and proprietary diligence and valuation process for evaluating acquisition targets. Our general practice is to fully assimilate the acquired companies' functions into our global functional structure as quickly as possible, supported by a dedicated team to manage and streamline the integration process.

We prioritize the retention and development of the acquired incoming colleagues from our acquisitions, including offering talent mobility for key personnel. Further, many of our current line executives are former founders and/or C-level officers of companies we have acquired.

Examples of key recent acquisitions, along with their purposes, include:

- *PLAXIS* (2018), *SoilVision* (2018), and *Keynetix* (2019), to become what we believe be a world leader in geotechnical engineering modeling and simulation software and in geotechnical information management;
- *SYNCHRO* (2018), to become a leading provider of 4D construction modeling software;
- *ACE Enterprise* (2018), to integrate our systems with enterprise environments such as SAP and IBM's Maximo;
- *Citilabs* (2019), to add vehicle traffic simulation software (CUBE) and roadway movement data (Streetlytics) to lead to improved mobility digital twins for Digital Cities; and
- *OrbitGT* (2019), to add specialized capabilities for mobile mapping (such as vehicle-based scanning and photogrammetry) to our reality modeling offerings for Digital Cities.

Our Competition

The market for our software solutions is highly competitive and subject to change. We compete against large, global, publicly-traded companies that have resources greater than our own, and also against small, new, or geographically-focused firms that specialize in developing niche software offerings. While we do not believe that any competitor offers a portfolio as comprehensive as ours, we do face strong competition, varying by infrastructure lifecycle phase and sector:

- our key competitors in **public works/utilities applications** include Autodesk, Inc., Trimble Inc., Hexagon AB, and Dassault Systèmes;
- our key competitors in **industrial/resources applications** include Hexagon AB and AVEVA Group plc;
- our key competitors in **commercial/facilities applications** include Autodesk Inc., Nemetschek SE, and Trimble Inc.;
- our key competitors in **project lifecycle systems** include Autodesk, Inc. and Oracle Corporation with their Primavera P6 and Aconex offerings; and
- our key competitors in **asset lifecycle systems** include Aspen Technology, Inc., AVEVA Group plc, Environmental Systems Research Institute, Inc., and General Electric Corp.

The principal competitive factors affecting our market include:

- product features, performance, and effectiveness;
- reliability and security;
- product line breadth, depth, and continuity;
- comprehensiveness of offerings across disciplines and infrastructure sectors;
- specification by and endorsement of infrastructure owners, and degree of adoption across the relevant supply chain;
- familiarity and loyalty by professionals throughout their training and careers;
- ability to integrate with other technology;
- capacity to operate at scale;
- capabilities for configurability and APIs;
- ease of use and efficient workflows;
- price, commercial model, and total cost of use;
- support of industry standards;
- strength of sales and marketing efforts; and
- brand awareness and reputation.

We believe we compete favorably against our competitors based on the factors above and that we distinguish ourselves through our comprehensive software portfolio, our commitment to both integration and interoperability across the entire infrastructure lifecycle, our flexible commercial models, and our direct sales channels.

Our Sales and Marketing

We bring our offerings to market primarily through direct sales channels that generated approximately 91% of our 2018 revenues. Our direct sales channel includes:

- Corporate Account Managers, who are responsible for our largest accounts;
- Inside Sales Specialists, who are responsible for servicing small-to mid-sized ("commercial") accounts in territories defined by geography and product lines; and
- Product Sales Specialists, who are technical experts in a specific product line who work with Corporate Account Managers and Inside Sales Specialists.

We rely on specialist channel partners in geographic regions where we do not currently have a meaningful presence and where, for many of our offerings, direct sales efforts are less economically feasible. Channel partners accounted for approximately 9% of 2018 revenue. We are establishing digital integrators such as Digital Construction Works to serve as global channel partners. In addition, we have established a new business endeavor, DXW+, which offers practitioner subscriptions that include virtual support and advice from DXW's engineering experts. DXW+ is available in selected and expanding geographies, and for individual professionals in any organization. We also benefit from additional sales resources and coverage from our digital co-venturers through various forms, including bundles of our offerings with theirs.

Sales cycles for our applications tend to be relatively short, measured in weeks. The most prevalent transactions are increases by accounts in their use of our applications already in use. Our sales model allows and encourages accounts to try usage of our applications that are new to them with minimal obligation. We act upon our logs of such new usage to assign user success colleagues to help the new users in this expanded adoption.

Our system offerings, *ProjectWise* and *AssetWise*, are generally sold through either proactive proposals or responses to RFPs, so sales cycles for those offerings range from months to several quarters. We have a comprehensive global proposals team to assure appropriate business development resources are allocated, to quality-assure efficient and effective proposal contents, and to maximize the capture ratio for our proposal pursuit.

Our marketing functions include:

- *corporate marketing*, to build brand awareness, brand equity, and thought leadership, including through corporate events and programs covering industry trends and challenges, and to conduct market research and industry studies;
- *industry and product marketing*, for demand generation through digital marketing channels, including our website, Internet advertising, webinars, and virtual events, and paid and organic social media, and though traditional marketing channels such as trade print advertising, press releases, editorial placements, industry-specific trade shows and conferences, in-person seminars, and locally-sponsored events; and
- *regional marketing*, to localize and deliver our marketing programs throughout the world.

We also invest in our annual Year in Infrastructure Conference, which brings together leading infrastructure thought leaders from around the world for presentations on innovative projects, to learn about the latest advances to our applications and cloud offerings, and to network and share best practices. Our associated Year in Infrastructure Awards, which in 2019 attracted over 500 project nominations from our accounts and are judged by independent juries in approximately 20 categories for going digital in infrastructure engineering.

Our Research and Development

We continuously make substantial investments in research and development because we believe the infrastructure engineering software market presents compelling opportunities for the application of new technologies that advance our current solutions. Our research and development roadmap balances technology advances and new offerings with continuous enhancements to existing offerings. Our allocation of research and development resources is guided by management-established priorities, input from product managers, and user and sales force feedback.

We had approximately 1,500 colleagues engaged globally in software research and development as of September 30, 2019. Each of our product advancement groups for Design Integration, Project Delivery, Asset and Network Performance, and Digital Cities have research and development resources and responsibilities. Our iTwin Services group consists of over 275 colleagues and is entirely devoted to the rapid development of new and incremental cloud-native services for infrastructure digital twins. Our separate Chief Technology Office assesses the potential of new software technologies and sources.

As part of our resource allocation process, we also conduct a cost-benefit analysis of acquiring available technology in the marketplace versus developing our own solutions. Our Portfolio Development office, in addition to pursuing appropriate acquisitions and digital-integrator startups, allocates funding for internal "acceleration" projects, to "make" rather than "buy". Each such project is staffed with colleagues dedicated to the "intrapreneurial" incubation of a new offering, which is brought back to its respective sponsoring product advancement group after market introduction.

For the years ended December 31, 2017 and 2018, and for the nine months ended September 30, 2019, our research and development spending was $151.2 million, $175.0 million, and $136.6 million, respectively, and as a percentage of total revenues was 24.0%, 25.3%, and 25.6%, respectively.

Digital co-ventures

In 2019, we and Topcon created an equally-owned joint venture, Digital Construction Works, Inc. to serve as a digital integrator for major construction projects and related enterprises. We and Topcon each contributed experienced colleagues in addition to the required capital commitments.

As part of our co-venturing with Siemens, we undertake a program of joint research and development investment in which each company bears its own costs. These investments have led to jointly offered cloud services for infrastructure digital twins, some of which are already commercially available. We and Siemens have committed to a cumulative investment of over €100 million to fund the joint innovation investment program.

Our Talent and Our Values

As of December 31, 2019, we had 3,648 full-time colleagues. Our colleagues are located in 42 countries, including 1,432 in the Americas, 1,014 in EMEA, and 1,202 in APAC. We embrace diversity among our colleagues, who collectively bring 64 languages to fulfill the needs of our globally dispersed accounts and users. Our colleagues are highly qualified with an average of seven years of total service with the Company and advanced academic credentials, including 82 doctoral degrees and 857 master's-level degrees.

We believe our culture and values are key to our mission and key to our success in competing to attract and retain highly talented colleagues. Our culture and values include a motivation to make an impact on the world's infrastructure to improve quality of life, a passion to solve our users' challenging problems through innovation and creativity, a desire to connect and collaborate, and a commitment to deliver on our promises.

In addition to competitive compensation and benefit programs, we support our colleagues' interests in their communities with civic outreach and corporate giving matching programs, as well as an annual stipend for every colleague globally to support their choice of investment in Science, Technology, Engineering, and Math (STEM) programs.

None of our colleagues in the United States is covered by a collective bargaining agreement. We have never experienced a strike or similar work stoppage, and we consider our relations with our colleagues to be favorable.

Our Intellectual Property

We believe that the success of our business depends more on the quality of our proprietary software solutions, technology, processes, and domain expertise than on copyrights, patents, trademarks, and trade secrets. While we consider our intellectual property rights to be valuable, we do not believe that our competitive position depends primarily on obtaining legal protection for our software solutions and technology. Instead, we believe that our competitive position depends primarily on our ability to maintain a leadership position by developing innovative proprietary software solutions, technology, information, processes, and know-how. Nevertheless, we rely on a combination of copyrights, patents, trademarks, and trade secrets in the United States and other jurisdictions to secure our intellectual property, and we use contractual provisions and non-disclosure agreements to protect it. As of December 31, 2019, we had 116 patents granted and 53 patents pending in the United States, the first of which expires on May 24, 2020, and 21 patents granted and 33 patents pending internationally, the first of which expires on August 14, 2022. In addition, from time to time we enter into collaboration arrangements and in-bound licensing agreements with third parties, including certain of our competitors, in order to expand the functionality and interoperability of our software solutions. We are not substantially dependent upon any one of these arrangements, and we are not obligated to pay any material royalty or license fees with respect to them.

Our patents cover systems and methods relating to various aspects of software for infrastructure design and modeling, collaboration and work sharing and infrastructure asset operations. Among other things, our patents address a broad range of issues in infrastructure domains from analyzing building energy usage and structural analysis, railway system maintenance, water network design and operation and augmented reality, as well as techniques for creating, storing, displaying, and processing infrastructure models.

To innovate and increase our strategic position, our software developers are incentivized to alert our internal patent committee to innovations that might be patentable or of strategic value. In 2019, our patent committee reviewed 20 invention disclosures submitted by our software developers, and filed 25 U.S. and eight foreign patent applications, while 16 U.S. and three foreign patents were granted. We also plan to assess appropriate occasions for seeking patent and other intellectual property protections for aspects of our technology and solutions that we believe constitute innovations providing significant competitive advantages. We have registered 129 trademarks, including "Bentley," "MicroStation," "AssetWise," and "ProjectWise," with the U.S. Patent and Trademark Office and in several jurisdictions outside the United States.

Our names, logos, website names, and addresses are owned by us or licensed by us. This prospectus contains trademarks, trade names, and service marks of other companies, which are the property of their respective owners. Solely for convenience, trademarks, and trade names referred to in this prospectus may appear without the ®, TM or SM symbols, but the lack of those references is not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the right of the applicable licensor to these trademarks, trade names, and service marks. We do not intend our use or display of other parties' trademarks, trade names, or service marks to imply,

and such use or display should not be construed to imply, endorsement or sponsorship of us by these other parties.

Our Facilities

Our corporate headquarters are located in Exton, Pennsylvania and consist of 107,051 square feet of office space, 76,392 square feet of which we own. Our lease for the remainder expires in 2025. Our headquarters accommodates our principal software engineering, sales, marketing professional services, and administrative activities. For more information, see Note 5 to our consolidated financial statements included elsewhere in this prospectus. In addition to our headquarters, we own one other location in India, which is used for office space, for an aggregate total, including our headquarters, of 106,392 square feet of real property owned by us. We lease facilities in an additional 93 locations across 35 countries.

We believe that our current facilities are suitable and adequate to meet our current needs and that suitable additional or substitute space will be available as needed in the future to accommodate our operations.

Legal Proceedings

We are subject from time to time to various legal proceedings and claims which arise in the ordinary course of our business. Although the outcome of these and other claims cannot be predicted with certainty, we do not believe that the ultimate resolution of pending matters will have a material adverse effect on our financial condition, cash flows, or results of operations. We currently believe that we do not have any material litigation pending against us.

MANAGEMENT

Executive Officers and Directors

The following table sets forth, as of December 31, 2019, the name, age, and titles of our executive officers and directors:

Name	Age	Position
Gregory S. Bentley	64	Chairman, Chief Executive Officer and President
Keith A. Bentley	61	Chief Technology Officer and Director
Barry J. Bentley, Ph.D.[1]	63	Director
Raymond B. Bentley	59	Executive Vice President and Director
Kirk B. Griswold[1]	57	Director
David J. Hollister	54	Chief Financial Officer and Chief Operations Advancement Officer
David R. Shaman	54	Chief Legal Officer and Secretary

(1) Member of the audit committee.

The following includes a brief biography for each of our executive officers and directors, with each director biography including information regarding the experiences, qualifications, attributes or skills that caused our board of directors to determine that each member of our board of directors should serve as a director as of the date of this prospectus.

Gregory S. Bentley has served as President and Chairman of our board of directors since June 1996 and Chief Executive Officer since August 2000. Prior to joining us in 1991, Mr. Bentley founded and served as Chief Executive Officer of Devon Systems International, Inc., a provider of financial trading software, which was sold to SunGard Data Systems, Inc. in 1987. Mr. Bentley served as a director of SunGard and a member of its audit committee from 1991 through 2005. He holds a B.S. in economics and an M.B.A. in finance and decision sciences from the Wharton School, University of Pennsylvania. He is a trustee of Drexel University.

We believe that Mr. Bentley is qualified to serve as a member of our board of directors due to the extensive and valuable business and managerial perspective he has and his significant experience in the software technology industry, together with a deep understanding of our history and commitment to the markets we serve.

Keith A. Bentley co-founded our Company and has served as a director since our inception in 1984. He previously served as the Company's President from 1984 to 1995 and as the Chief Executive Officer from 1984 to 2000. He currently serves as Chief Technology Officer, a position he has held since 2000. He holds a Bachelor's degree in electrical engineering from the University of Delaware and an M.S. in electrical engineering from the University of Florida.

We believe that Mr. Bentley is qualified to serve as a member of our board of directors due to the perspective and experience he brings as one of our co-founders and our Chief Technology Officer, and his experience in the software industry, especially as it relates to our technology and solutions.

Barry J. Bentley, Ph.D. co-founded our Company and has served as a director since 1984 and as an executive officer from 1984 through 2019. From September 1984 to June 1996, Dr. Bentley served as Chairman of our board of directors. Prior to co-founding our Company, in 1979, he co-founded and served as Vice President of Dynamic Solutions Corporation, a software firm. Dr. Bentley is one of the originators of MicroStation and was continuously involved in the planning and development of our software solutions and technology since our inception through 2019. He holds a Bachelor's degree in chemical engineering from the University of Delaware and an M.S. and Ph.D. in chemical engineering from the California Institute of Technology.

We believe that Dr. Bentley is qualified to serve as a member of our board of directors due to his deep knowledge and understanding of the Company's technology, history, and mission as one of our co-founders, as well as his experience in the software industry.

Raymond B. Bentley has served as a director since May 2015 and has served as an Executive Vice President since 1985. He was the lead developer for MicroStation and chief architect in the core-graphics group. He holds a Bachelor's degree in mechanical engineering from Rensselaer Polytechnic Institute and an M.S. in computer engineering from the University of Cincinnati.

We believe that Mr. Bentley is qualified to serve as a member of our board of directors due to his vast experience with our technology and the software industry, and for the business perspective he brings to the board.

Kirk B. Griswold has served as a director since 2001. He is a Founding Partner of Argosy Capital Group, Inc., a private equity and real estate firm. He holds a Bachelor's degree in Physics from the University of Virginia and an M.B.A. with a dual major in Finance and Management from the Wharton School, University of Pennsylvania.

We believe that Mr. Griswold is qualified to serve as a member of our board of directors due to his extensive experience in engineering, project management, and consulting, as well as his knowledge and experience in finance.

David J. Hollister has served as our Chief Financial Officer since 2007. In addition to providing financial leadership, Mr. Hollister is responsible for various aspects of our operations, including our IT and cloud hosting operations, financial operations, business intelligence, and portfolio development activities, including mergers and acquisitions and accelerated commercial development. Prior to joining our Company, he was the chief financial officer and a member of the board of directors of Broder Bros., Co from 2004 to 2007. Mr. Hollister previously served as a director in the M&A Transaction Services practice at PricewaterhouseCoopers LLP, where he specialized in international transactions. He holds a Bachelor's degree in Business Administration from the University of Northern Colorado and an M.B.A. from the University of Michigan.

David R. Shaman joined our Company in 1998 and has served as our Chief Legal Officer since 2016. Mr. Shaman previously served as General Counsel from 2015 to 2016 and as Deputy General Counsel from 2006 to 2015. Prior to joining us, Mr. Shaman was an associate at the law firm Covington & Burling LLP. Mr. Shaman's international experience includes eight years leading the Company's legal operations outside the United States, as well as tenures at the European Commission, Directorate-General for Informatics in Brussels and Harlequin Limited, a software company in Cambridge, United Kingdom. He holds a Bachelor's degree in mathematics from the University of Pennsylvania, a J.D. from Harvard Law School, and a Diploma in Mathematical Statistics from Cambridge University.

Director Independence

Rules 5605 and 5615 of the Nasdaq Listing Rules require that independent directors compose a majority of a listed company's board of directors within one year of listing. In addition, the Nasdaq Listing Rules require that, subject to specified exceptions, each member of a listed company's audit committee be independent and also satisfy criteria set forth in Rule 10A-3 under the Exchange Act. Under Nasdaq Listing Rule 5605(a)(2), a director will only qualify as an "independent director" if, in the opinion of the board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. To be considered independent for purposes of Rule 10A-3 under the Exchange Act, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors, or any other board committee: (1) accept, directly or indirectly, any

consulting, advisory, or other compensatory fee from the listed company or any of its subsidiaries; or (2) be an affiliated person of the listed company or any of its subsidiaries.

Based upon information requested from, and provided by, each director concerning his background, employment and affiliations, including family and other relationships, including those relationships described in the section titled "Certain Relationships and Related Party Transactions," our board of directors will have independent director. Our board of directors has determined that does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that he is "independent" as that term is defined under Rule 5605(a)(2) of the Nasdaq Listing Rules. Although the Nasdaq Listing Rules require that a majority of the board of directors be independent, because we will be a "controlled company" within the meaning of the Nasdaq Listing Rules, we are permitted to, and have elected to, not comply with this requirement. In addition, although the Nasdaq Listing Rules require that each member of our audit committee be independent, under special phase-in rules applicable to newly public companies, we will have until one year from the effective date of the registration statement of which this prospectus forms a part to comply with this independence requirement.

Controlled Company

We are a "controlled company" under the corporate governance rules of the Nasdaq Listing Rules because the Bentleys control a majority of the voting power of our outstanding capital stock. Therefore, we are not required to have a majority of our board of directors be independent, nor are we required to have a compensation committee or an independent nominating function. In light of our status as a controlled company, our board of directors has determined not to have a compensation committee or an independent nominating function and to have the full board of directors be directly responsible for reviewing and approving compensation and benefit arrangements for our executive officers and directors, as well as for nominating members of our board of directors. Additionally, as described in the section titled "Description of Capital Stock—Anti-Takeover Provisions—*Certificate of Incorporation and By-law Provisions*," so long as the outstanding shares of our Class A and Class B common stock held by the Bentleys represent a majority of the combined voting power of our common stock, the Bentleys will be able to effectively control all matters submitted to our stockholders for a vote, as well as the overall management and direction of our company.

Compensation Committee Interlocks and Insider Participation

We did not have a compensation committee during the last completed fiscal year and compensation of our executive officers was determined by our board of directors during the last completed fiscal year. None of our executive officers currently serves, or in the past year has served, as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving on our board of directors.

Election of Officers

Our executive officers are elected by, and serve at the discretion of, our board of directors. Messrs. Gregory S., Keith A., and Raymond B. Bentley, each of whom is a director and executive officer of our Company, and Dr. Barry J. Bentley, a director of our Company, are brothers.

Board of Directors

Composition of our Board of Directors upon the Effectiveness of the Registration Statement of which this Prospectus Forms a Part

Our amended and restated by-laws provide that the number of directors will be determined from time to time by resolution of our board of directors. Upon the effectiveness of the registration statement of which this prospectus forms a part, we will have directors.

Upon election, each director is elected for a one-year term and serves until a successor is duly elected and qualified. Any additional directorships resulting from death, resignation, increase in the number of directors or otherwise may be filled for the unexpired term by a majority vote of the remaining directors then in office. Directors may be removed with or without cause by the affirmative vote of a majority of the combined vote of our then-outstanding shares of Class A and Class B common stock, voting together as a single class.

Committees of our Board of Directors

Audit Committee

Our board of directors has established an audit committee (the "Audit Committee"), which will have the composition and responsibilities described below, as of the effectiveness of the registration statement of which this prospectus forms a part. We believe that the composition of the Audit Committee meets the applicable independence requirements of the Nasdaq Listing Rules and Exchange Act rules, which permit us to phase in our compliance with such requirements as follows: (1) one independent member on the effective date of the registration statement of which this prospectus forms a part, (2) a majority of independent members within 90 days of the effective date of the registration statement of which this prospectus forms a part and (3) all independent members within one year of the effective date of the registration statement of which this prospectus forms a part.

Following our listing, our Audit Committee will consist of , who satisfies the independence requirements of the applicable Nasdaq Listing Rules and Exchange Act rules, and . We expect that, within 90 days of the effective date of the registration statement of which this prospectus forms a part, the majority of our audit committee members will be independent (as determined under Nasdaq Listing Rules and Exchange Act rules) and that, within one year of the effective date of the registration statement of which this prospectus forms a part, all of the members of the audit committee will be independent under Nasdaq Listing Rules and Exchange Act rules. will be the chair of our Audit Committee, and is an "audit committee financial expert," as defined in Item 407(d)(5) of Regulation S-K, and possesses financial sophistication as required by the Nasdaq Listing Rules. This designation does not impose any duties, obligations or liabilities that are greater than those that are generally imposed on members of our Audit Committee and our board of directors. Members serve on this committee until their resignations or until otherwise determined by our board of directors.

The Audit Committee will be responsible for, among other things:

- selection, retention, termination, compensation, and oversight of the work of an independent public accounting firm to act as our independent auditors, as well as any other public accounting firm engaged to prepare or issue an audit report or other audit, review or attest services;

- considering and approving, in advance, all audit and permitted non-audit and tax services to be performed by our independent auditors;

- reviewing and discussing the adequacy and effectiveness of our financial reporting processes, internal control over financial reporting and disclosure controls and procedures and the audits of our financial statements;

- establishing procedures for the receipt, retention, and treatment of complaints received by us regarding accounting, internal accounting controls or auditing matters and the confidential, anonymous submission by our colleagues of concerns regarding questionable accounting or auditing matters;
- investigating any matter brought to its attention within the scope of its duties and engaging independent counsel and other advisers as the Audit Committee deems necessary;
- determining compensation of advisors hired by the Audit Committee;
- reviewing quarterly financial statements prior to their release;
- reviewing and assessing the adequacy of a formal written charter on an annual basis;
- reviewing and approving related-party transactions for potential conflict of interest situations on an ongoing basis;
- managing risks to the Company by monitoring, discussing, reviewing, or developing policies and procedures with respect to risk exposures, compliance with applicable laws and the Company's policies and complaints regarding accounting or auditing matters; and
- handling such other matters that are specifically delegated to the Audit Committee by our board of directors from time to time.

Our board of directors will adopt a written charter for our Audit Committee, which will be available on our website upon effectiveness of the registration statement of which this prospectus forms a part. Such written charter for the Audit Committee will satisfy the applicable rules of the SEC and the listing standards of Nasdaq.

Code of Conduct

We are committed to ethical business conduct and have a code of conduct applicable to the conduct of our business by all of our colleagues, officers, and directors. Upon the effectiveness of the registration statement of which this prospectus forms a part, our code of conduct will be posted on our website, *www.bentley.com*. We intend to disclose future amendments to certain provisions of this code of conduct, or waivers of such provisions, applicable to any principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, and our directors, on our website. Information contained on our website is not a part of this prospectus and the inclusion of our website address in this prospectus is an inactive textual reference only.

EXECUTIVE AND DIRECTOR COMPENSATION

This section discusses the material components of the executive compensation program for our executive officers who are named in the "Summary Compensation Table" below, whom we refer to as our "named executive officers" or "NEOs."

In 2019, our "named executive officers" and their positions were as follows:

- Gregory S. Bentley, Chairman, Chief Executive Officer and President;
- Keith A. Bentley, Chief Technology Officer and Director; and
- David J. Hollister, Chief Financial Officer and Chief Operations Advancement Officer.

This discussion may contain forward-looking statements that are based on our current plans, considerations, expectations, and determinations regarding future compensation programs. Actual compensation programs that we adopt in connection with or following the effectiveness of the registration statement of which this prospectus forms a part may differ materially from the currently planned programs summarized in this discussion.

Summary Compensation Table

The following table presents summary information regarding the total compensation that was awarded to, earned by or paid to our NEOs for services rendered during the year ended December 31, 2019.

Name and Principal Position	Year	Salary ($)(1)	Bonus ($)	Non-equity Incentive Plan Compensation ($)(3)	All Other Compensation ($)(4)	Total ($)
Gregory S. Bentley *Chairman, Chief Executive Officer and President*	2019	200,000	—		23,842	
Keith A. Bentley *Chief Technology Officer and Director*	2019	200,000	—		21,972	
David J. Hollister *Chief Financial Officer and Chief Operations Advancement Officer*	2019	200,000	1,000(2)		43,180	

(1) Amounts reflect the actual base salary paid to each named executive officer in respect of 2019.

(2) Amount reflects a one-time discretionary bonus paid to David J. Hollister in 2019.

(3) Reflects amounts to be paid pursuant to the Bentley Systems, Incorporated Bonus Pool Plan and our global profit sharing plan with respect to 2019. The final amounts to be paid have yet to be determined as of the date hereof, but are expected to be determined in February 2020. Please see the sections titled "2019 Bonuses—Bonus Pool Plan" and "2019 Bonuses—Global Profit Sharing Plan" below for further information.

(4) Amounts reflect: (i) for Gregory S. Bentley, a $15,000 vehicle allowance, a reimbursement of $8,618 in connection with accompanying spousal/dependent children travel, and $224 in company matching contributions to his account under our 401(k) plan; (ii) for Keith A. Bentley, a $15,000 vehicle allowance, a reimbursement of $6,748 in connection with accompanying spousal/dependent children travel, and $224 in company matching contributions to his account under our 401(k) plan; and (iii) for David J. Hollister, a $15,000 vehicle allowance, a $12,500 health and fitness club

allowance, a reimbursement of $15,456 in connection with accompanying spousal/dependent children travel, and $224 in company matching contributions under our 401(k) plan.

Narrative Disclosure to Compensation Tables

The primary elements of compensation for our NEOs are base salary, cash performance bonuses, and certain deferred compensation and retirement plans. These elements (and the amounts of compensation and benefits under each element) were selected because we believe they are necessary to help us attract and retain executive talent, which is fundamental to our success. Below is a more detailed summary of the current executive compensation program as it relates to our NEOs.

Annual Base Salary

The base salary payable to each NEO is intended to provide a fixed baseline component of compensation, which is supplemented by the significant variable-based component of their annual compensation, as described below.

As such, each of our NEOs received a base salary of $200,000 for 2019.

2019 Bonuses

Bonus Pool Plan

Our key employees, including our NEOs, participate in the Bentley Systems, Incorporated Bonus Pool Plan, as amended and restated, effective as of September 23, 2015 (the "Bonus Plan"). Pursuant to the Bonus Plan, participants are eligible to receive cash incentive bonuses that are determined based on our adjusted operating income, as determined by our internal management accounts ("MROI"). For purposes of the Bonus Plan, the bonus pool thereunder may be funded with up to an aggregate of 20% of our adjusted MROI (as adjusted for accounting anomalies and other items identified as non-GAAP charges), subject to approval by our board of directors, which payments are made to plan participants based on such participant's allocated interest in the bonus pool.

We have not yet determined the achievement of our adjusted MROI or the funding level of the bonus pool under the Bonus Plan with respect to 2019. We expect that our outside directors will determine such achievement and funding level as well as the bonus payments to be paid to participants, including our named executive officers, in February 2020.

With respect to 2019, our NEOs were allocated percentage interests in the Bonus Plan bonus pool as follows: a 36.4% (12/33) interest for Gregory S. Bentley, a 21.2% (7/33) interest for Keith A. Bentley, and a 12.1% (4/33) interest for David J. Hollister.

Global Profit Sharing Plan

Our full-time colleagues, including our NEOs, are generally eligible to participate in our global profit sharing plan (the "Profit Sharing Plan"). Under the Profit Sharing Plan, each participant is eligible for a cash bonus based upon the company's achievement of certain performance targets, which in 2019 included MROI. The target level of the MROI objective is based on our annual growth objectives and is set by members of our senior management at the beginning of the fiscal year. Under the Profit Sharing Plan, each participant receives an on-target bonus amount equal to 2% of such participant's eligible compensation with respect to 2019, with payouts ranging from 0% (if threshold achievement of 75% of the applicable performance target is not achieved) to 6% of eligible compensation (if maximum achievement of the applicable performance target is achieved). Such amounts were determined on a straight-line basis between threshold, target, and maximum achievement levels. Such bonus amounts are then adjusted (which may be negative or positive) using a weighted multiplier based on our achievement of non-financial company performance objectives, as established

by our senior management at the beginning of the fiscal year. We have not yet determined the achievement levels of the 2019 performance targets under the Profit Sharing Plan, but we expect that our senior management will determine such achievement and the bonus amounts to be paid to participants, including our NEOs, in February 2020.

Hollister Bonus

In addition to any bonuses under the Bonus Plan and the Profit Sharing Plan, David J. Hollister was paid a one-time discretionary cash bonus of $1,000 in recognition of his contributions to the company in 2019.

Equity Compensation

We maintain the Bentley Systems, Incorporated 2015 Equity Incentive Plan, as amended and restated, effective as of May 29, 2018 (the "2015 Plan"). The 2015 Plan has provided our officers, key employees, consultants, and directors the opportunity to participate in the equity appreciation of our business through the receipt of equity awards with respect to shares of our Class B common stock.

No equity awards were granted to the NEOs in 2019. David J. Hollister was previously granted on May 27, 2015 200,000 options to purchase shares of our Class B common stock under the 2015 Plan at an exercise price of $3.495 per share. All such options have fully vested, with 100,606 options outstanding and exercisable as of December 31, 2019.

Gregory S. Bentley and Keith A. Bentley do not hold any outstanding equity awards in the company.

Other Benefits and Perquisites

We offer participation in broad-based retirement, health, and welfare plans to all of our colleagues, including our NEOs. We provide a 401(k) plan to our employees, including our current NEOs, as discussed in the section below entitled "—Profit Sharing/401(k) Plan."

Profit Sharing/401(k) Plan

We sponsor a defined contribution plan intended to qualify for favorable tax treatment under Section 401(a) of the Code, containing a cash or deferred feature that is intended to meet the requirements of Section 401(k) of the Code. The plan provides for employer matching or non-elective contributions on behalf of participants. Employer matching and non-elective contributions become 25% vested after one year of service and continue vesting thereafter at 25% per year until they are 100% vested following four years of service. Up to 100% of non-elective contributions may be invested in shares of our Class B common stock. For the year ended December 31, 2019, each of our NEOs received employer matching contributions of $224 and no elective contributions.

Nonqualified Deferred Compensation

We sponsor the Bentley Systems, Incorporated Nonqualified Deferred Compensation Plan (the "DCP"), which permits our key management colleagues (including our NEOs) to defer all or any part of their incentive compensation and us to make discretionary awards on behalf of such participants, as well as a separate nonqualified deferred compensation plan that permits our non-employee directors to defer all or any part of their directors' fees. We historically credited participants with non-elective contributions to the DCP, but no such contributions have occurred since 2015. All deferrals are deemed invested in phantom shares of our Class B common stock and all benefits are distributed in actual shares of our Class B common stock (with certain grandfathered rules for those colleagues and directors who separated from service before January 1, 2015).

In 2019, Gregory S. Bentley and Keith A. Bentley elected to defer 10% and 20%, respectively, of their 2019 incentive compensation into the DCP. David J. Hollister did not defer any portion of his incentive compensation in 2019. The following table shows the number of outstanding phantom shares of our Class B common stock held by each NEO as of December 31, 2019 under the DCP, including additional phantom shares acquired as a result of dividend equivalents credited on those phantom shares:

Name	Outstanding Phantom Shares
Gregory S. Bentley	3,240,932
Keith A. Bentley	2,917,970
David J. Hollister	3,542,184

Employee Benefits and Perquisites

All of our full-time colleagues, including our NEOs, are eligible to participate in a standard suite of health and welfare benefit plans. In addition, we generally provide the following benefits to our senior executives, including our NEOs:

- Reimbursement for health and fitness memberships and programs in an amount of up to $12,500 per year;
- Reimbursement of certain costs of the executive's spouse and dependent children to accompany the executive on qualifying business trips in an amount of up to $25,000 per year; and
- An annual vehicle allowance of $15,000.

We believe the benefits and perquisites described above are necessary and appropriate to provide a competitive compensation package to our senior executives, including our NEOs.

No tax gross-ups

No NEOs received any tax gross-ups in respect of compensation received by them in 2019, nor are any NEOs currently entitled to receive any such tax gross-ups in the future.

Outstanding Equity Awards at Fiscal Year-End

The following table summarizes the number of shares of Class B common stock that was underlying outstanding equity incentive plan awards for each NEO as of December 31, 2019.

		Option Awards			
Name	Grant Date	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price ($)	Option Expiration Date
Gregory S. Bentley	—	—	—	—	—
Keith A. Bentley	—	—	—	—	—
David J. Hollister	05/27/2015	100,606(1)	—	$ 3.495	05/26/2020

(1) The options vested ratably on each of the first four anniversaries of the grant date, subject to David J. Hollister's continued service with us through the applicable vesting dates. Such options are fully vested.

Employment Agreements

We do not have employment agreements with any of our NEOs. Each of our NEOs has, however, executed customary intellectual property assignment agreements for our benefit.

Incentive Award Plans

2015 Plan

We currently sponsor the 2015 Plan, pursuant to which equity-based incentive awards may be granted to eligible service providers in order to attract, motivate, and retain the talent for which we compete.

2020 Plan

In connection with this listing, we intend to adopt a new equity compensation plan, the 2020 Incentive Award Plan (the "2020 Plan"), subject to approval by our stockholders, under which we may grant cash and equity incentive awards to eligible colleagues and consultants in order to attract, motivate, and retain the talent for which we compete. The material terms of the 2020 Plan have not yet been determined.

Director Compensation

Name	Fees Earned or Paid in Cash ($)	Stock Awards ($)[2]	Option Awards ($)[3]	Total ($)
Kirk Griswold	15,000(1)	53,351	16,500	84,851

(1) Amount reflects a cash retainer of $15,000 for Kirk Griswold's service on the audit committee of our board of directors.

(2) Kirk Griswold elected to receive shares of Class B common stock in lieu of a $50,000 annual cash retainer, which he was entitled to in connection with his service on our board of directors. This amount reflects the grant-date fair value of such stock award computed in accordance with ASC Topic 718, rather than the amounts paid to or realized by Kirk Griswold. We provide information regarding the assumptions used to calculate the value of all stock awards made to our directors in Note 13 to our consolidated financial statements included elsewhere in this prospectus.

(3) Amounts reflect the full grant-date fair value of stock options granted during 2019 computed in accordance with ASC Topic 718, rather than the amounts paid to or realized by Kirk Griswold. We provide information regarding the assumptions used to calculate the value of all option awards made to our directors in Note 13 to our consolidated financial statements included elsewhere in this prospectus.

Kirk Griswold was our only non-employee director in 2019. The below reflects the aggregate number of outstanding equity awards held by Kirk Griswold as of December 31, 2019:

Name	Outstanding at Fiscal Year End[1]
Kirk Griswold	60,000

(1) Kirk Griswold holds 60,000 outstanding options, 27,500 of which are vested and 32,500 of which are unvested.

Our employee directors, including Messrs. Gregory S. Bentley, Keith A. Bentley, and Raymond B. Bentley, do not receive any additional compensation for their service on our board of directors.

Our non-employee directors are currently entitled to receive both equity and cash compensation for their service as directors. Each non-employee director is entitled to receive an annual cash retainer of $50,000 (paid in equal quarterly installments) for service on our board of directors, as well as an additional cash retainer of $15,000 for service on the audit committee of our board of directors. Prior to each applicable year, each such director may elect to receive shares of our Class B common stock with a fair market value of $50,000 as of the commencement of such year (paid quarterly in equal installments) in lieu of the $50,000 annual cash retainer. Each non-employee director also receives an initial option award of 25,000 options upon his appointment to our board of directors and an annual option award of 10,000 options. All options granted to non-employee directors vest ratably on each of the first four anniversaries of the grant date, subject to the director's continued service with us through the applicable vesting dates.

Kirk Griswold was our only non-employee director in 2019 and elected to receive shares of our Class B common stock in lieu of any annual cash retainer payable in 2019. As a result, in 2019 Kirk Griswold received a $15,000 cash retainer for his service on the audit committee as well as an aggregate of 7,016 shares of our Class B common stock in four installments occurring on each original quarterly payment date for his annual cash retainer.

Further, on May 15, 2019, Kirk Griswold received an annual option grant to purchase 10,000 shares of Class B common stock at an exercise price per share of $7.24. Kirk Griswold previously received option grants in connection with his service on our board of directors of: 20,000 options, granted on May 11, 2016 at an exercise price per share of $5.23; 20,000 options, granted on May 10, 2017 at an exercise price per share of $5.38; and 10,000 options, granted on May 29, 2018 at an exercise price per share of $6.805.

As discussed above in "—Other Benefits and Perquisites—Nonqualified Deferred Compensation," our non-employee directors are eligible to participate in a nonqualified deferred compensation plan that permits such directors to defer all or any part of their director compensation. All deferrals are deemed invested in phantom shares of our Class B common stock and all benefits are distributed in actual shares of our Class B common stock. Kirk Griswold did not defer any compensation under such plan during 2019.

At the time of the filing of the registration statement of which this prospectus forms a part, we are in the process of determining the philosophy and design of our director compensation plans and programs going forward. We will include the relevant disclosure relating to the go-forward compensation of our directors in subsequent amendments to the registration statement, of which this prospectus is a part, and prior to the effectiveness of this registration statement of which this prospectus forms a part.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

We have not been a party to any transactions since January 1, 2017 in which the amount involved exceeded $120,000 and in which any of our executive officers, directors or beneficial holders of more than five percent of our capital stock had or will have a direct or indirect material interest, other than the arrangements described below or under the section titled "Executive and Director Compensation."

Our Relationship with Siemens AG

Common Stock Purchase Agreement

In September 2016, we entered into a Common Stock Purchase Agreement with Siemens AG ("Siemens"), as amended, pursuant to which Siemens agreed to acquire up to $100 million of our Class B common stock from our existing stockholders. Subsequent amendments increased this amount to $250 million as of September 30, 2019. For the years ended December 31, 2017 and 2018 and for the nine months ended September 30, 2019, Siemens paid $58.1 million, $39.0 million and $5.7 million, respectively, for an aggregate of 16.3 million shares of our Class B common stock. As of September 30, 2019, Siemens beneficially owns through one or more of its affiliates 30.9 million shares of our Class B common stock.

In addition to the opportunity to acquire shares of our Class B common stock, the Common Stock Purchase Agreement also granted to Siemens: (i) certain information rights, including the right to receive our financial statements and information regarding our capital structure; and (ii) certain protective rights, including provisions that limited our ability to amend our certificate of incorporation and by-laws and to engage in repurchases of our common stock. Subject to certain exceptions, we, along with the Bentleys, also granted to Siemens a right of first refusal and, as applicable, tag-along rights on any fundamental sale transaction undertaken by the Company, as well as any new issuance of stock, and, subject to certain exceptions, sales of stock by the Bentley family.

In connection with or following the effectiveness of the registration statement of which this prospectus forms a part, as applicable, certain rights and restrictions set forth in the Common Stock Purchase Agreement continue to apply, including the following:

Right of Participation. Following the effectiveness of the registration statement of which this prospectus forms a part, we and the Bentley family have agreed, as applicable, to notify Siemens of our intent to undertake any fundamental sale transaction, non-public offering of stock or sale by any member of the Bentley family of more than 1% of our fully-diluted capital stock, including any such transaction that may come about as a result of a non-public offer from a third party. Upon receipt of such notice, Siemens has twenty days to submit to the Company or the Bentley family member, as applicable, a binding offer to engage in such transaction and to propose material transaction terms. Siemens may from time to time improve its proposed terms subject to our or the relevant seller's right to request "best and final" offers from Siemens and any other relevant third party. Neither we nor any member of the Bentley family is obligated to accept any offer submitted by Siemens, subject only to our agreement not to consummate any subject transaction with a third party on terms less favorable in the aggregate than those proposed by Siemens during the period beginning on the date Siemens proposes such offer and expiring twelve months thereafter or upon the expiration, withdrawal or revocation of Siemens' offer, whichever comes first.

Rights in a Public Offering. If, following the effectiveness of the registration statement of which this prospectus forms a part, we issue primary shares in a registered public offering, Siemens has the right to purchase, at the price per share used as the basis for the applicable offering, additional shares as are necessary so that the Siemens' percentage ownership in the Company on a fully diluted basis at the time of such offering, is unchanged as a result of each such public offering.

Standstill Agreement. Siemens has agreed that following the effectiveness of the registration statement of which this prospectus forms a part it will not directly or indirectly acquire shares of our Class B common stock such that following such acquisition Siemens and its affiliates, and the Company's affiliates (each as determined under Rule 144) would beneficially own 80% or more of our issued and outstanding shares of capital stock.

Disclaimer of Corporate Opportunity. We have waived to the fullest extent permitted by applicable law any claim against Siemens based upon the corporate opportunity doctrine or otherwise that could limit Siemens' ability to pursue other opportunities, including acquisitions or investments, that may compete with or be complimentary to our business, and Siemens is under no obligation to offer any such opportunities to us.

Registration Rights Agreement

In connection with the Common Stock Purchase Agreement, we and an affiliate of Siemens entered into a registration rights agreement. Beginning eighteen months following the effectiveness of the registration statement of which this prospectus forms a part, Siemens may request one consummated registration by the Company of its shares on Form S-1 and unlimited registrations on Form S-3 (to the extent available, and no more than two per year). In addition, subject to certain exceptions, if we propose to register any of our securities under the Securities Act in connection with the public offering of such securities, upon the request of Siemens, we will register all of the capital stock that Siemens has requested to be included in such registration, subject to any proportionate cut back at the request of any underwriter used in connection with such registration. In connection with any of these the registrations, we will indemnify Siemens and we will bear all fees, costs, and expenses (except underwriting commissions and discounts).

Strategic Collaboration Agreement

In conjunction with the Common Stock Purchase Agreement, we entered into a strategic collaboration agreement with Siemens. This agreement governs our collaboration with Siemens and certain of its divisions on the development, marketing, and distribution of agreed-upon software and software development projects. The initial term of the agreement lasts until December 31, 2026 and automatically renews for successive one-year terms unless either party elects to terminate the agreement by providing notice of termination at least one year prior to the expiration of the then-current term. In addition, Siemens has the right to terminate the agreement and any related collaboration projects if the Bentleys no longer own a majority of our voting power or if we otherwise undergo a change of control.

Licensing Transactions

Siemens, through its various affiliates, has historically been and continues to be a user of our software, including pursuant to one or more SELECT Agreements.

We are also party to several royalty-bearing license agreements with certain Siemens affiliates pursuant to which each party has licensed technology from the other for use in its own software products. Certain of these arrangements generally pre-date Siemens' acquisition of our Class B common stock. In addition, under the framework of the strategic collaboration agreement referenced above, we are party to several agreements with Siemens affiliates pursuant to which each party has the right to offer licenses and subscriptions to certain technology of the other party both independent of, and in connection with, interoperable solutions developed under the strategic collaboration agreement. For the years ended December 31, 2017 and 2018 and for the nine months ended September 30, 2019, Siemens paid us $1.9 million, $2.6 million, and $1.4 million, respectively, pursuant to the foregoing arrangements. For the years ended December 31, 2017 and 2018 and for the nine months ended

September 30, 2019, we paid Siemens approximately $903,000, $968,000, and $775,000, respectively, pursuant to the foregoing arrangements.

Second Amended and Restated Stockholders Agreement

On March 28, 2013, we entered into the Second Amended and Restated Stockholders Agreement with the Bentleys and certain of their permitted transferees (the "Stockholders Agreement"). The Stockholders Agreement contains, among other things, certain restrictions on the Bentleys and their permitted transferees on their ability to freely transfer shares of our stock. It also provides that the Bentleys have the right to nominate a single slate of nominees for election in each election of our board of directors, and each party to the stockholders' agreement agrees to vote all of their shares to elect such slate of nominees to our board. The Stockholders Agreement also provides for customary tag-along rights, rights of first refusal, and rights to purchase. Upon the effectiveness of the registration statement of which this prospectus forms a part, the provisions of the Stockholders Agreement (subject to the survival of certain obligations) will terminate.

Upon the effectiveness of the registration statement of which this prospectus forms a part, we will amend and restate our Stockholders Agreement to eliminate certain provisions thereof (related to termination and matters related to our status as a public company).

Indemnification Agreements with our Directors and Officers

Upon the effectiveness of the registration statement of which this prospectus forms a part, we will have entered into indemnification agreements with each of our directors and executive officers. The indemnification agreements and our amended and restated by-laws require us to indemnify our directors and officers to the fullest extent permitted by Delaware law. Subject to certain limitations, the indemnification agreements and our amended and restated by-laws also require us to advance expenses incurred by our directors and officers. For more information regarding these agreements, see the section titled "Executive and Director Compensation—Limitations on Liability and Indemnification Matters."

Procedures for Approval of Related-Party Transactions

In connection with the registration of our Class B common stock, we have adopted a written policy relating to the approval of related-party transactions. We will review relationships and transactions in which we and our directors, executive officers or certain stockholders or their immediate family members are participants to determine whether such persons have a direct or indirect material interest. Our legal, accounting, and finance staff will be primarily responsible for the development and implementation of processes and controls to obtain information from our directors and executive officers with respect to related-party transactions and for determining, based on the facts and circumstances, whether we or a related person have a direct or indirect material interest in the transaction.

In addition, our Audit Committee will review and approve or ratify any related-party transaction reaching a certain threshold of significance. In approving or rejecting any such transaction, we expect that our Audit Committee will consider the relevant facts and circumstances available and deemed relevant to the Audit Committee.

Any member of the Audit Committee who is a related person with respect to a transaction under review will not be permitted to participate in the deliberations or vote on approval or ratification of the transaction.

PRINCIPAL AND REGISTERED STOCKHOLDERS

The following table sets forth:

- certain information with respect to the beneficial ownership of our common stock as of   , 2020 for: (i) each of our executive officers; (ii) each of our directors; (iii) all of our directors and executive officers as a group; and (iv) each person known by us to be the beneficial owner of more than five percent of any class of our voting securities; and

- the number of shares of common stock held by and registered for resale by means of this prospectus for the Registered Stockholders.

The Registered Stockholders include (i) our affiliates and certain other stockholders with "restricted securities" (as defined in Rule 144) who, because of their status as affiliates pursuant to Rule 144 or because they acquired their shares of common stock from an affiliate or from us within the prior 12 months, would be unable to sell their securities pursuant to Rule 144 until we have been subject to the reporting requirements of Section 13 or Section 15(d) of the Exchange Act for a period of at least 90 days, and (ii) our non-executive officer service providers who acquired shares from us within the prior 12 months under Rule 701 of the Securities Act ("Rule 701") and hold "restricted securities" (as defined in Rule 144). The Registered Stockholders may, or may not, elect to sell their shares of Class B common stock covered by this prospectus, as and to the extent they may determine. Such sales, if any, will be made through brokerage transactions on The Nasdaq Global Select Market at prevailing market prices. As such, we will have no input if and when any Registered Stockholder may, or may not, elect to sell their shares of Class B common stock or the prices at which any such sales may occur.

We currently intend to use our reasonable efforts to keep the registration statement effective for a period of 90 days after the effectiveness of the registration statement. As a result, we have registered shares of Class B common stock currently held by Registered Stockholders, as well as shares of Class B common stock that can become beneficially owned by such Registered Stockholder while the registration statement of which this prospectus forms a part is effective.

We are not party to any arrangement with any Registered Stockholder or any broker-dealer with respect to sales of the shares of Class B common stock by the Registered Stockholders. However, we have engaged financial advisors with respect to certain other matters relating to our listing. See the section titled "Plan of Distribution."

We have determined beneficial ownership in accordance with the rules of the SEC, and thus it represents sole or shared voting or investment power with respect to our securities. Unless otherwise indicated below, to our knowledge, the persons and entities named in the table have sole voting and sole investment power with respect to all shares that they beneficially owned as set forth opposite such person's name, subject to community property laws where applicable. We have deemed shares of our common stock to be outstanding and beneficially owned by a person for the purpose of computing their percentage ownership if that person has the right to acquire voting or investment power in respect of such common stock within 60 days of   , 2020. Prior to giving effect to the preceding sentence, we have based percentage ownership of our common stock on 11,601,757 shares of our Class A common stock and 243,241,192 shares of our Class B common stock outstanding as of December 31, 2019.

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Except as otherwise indicated, the address of each of the persons in this table is c/o Bentley Systems, Incorporated, 685 Stockton Drive, Exton, PA 19341.

	Common stock beneficially owned before the listing					
	Class A		Class B		% of total voting power after effectiveness[1]	Number of Class B shares to be registered
	Number	%	Number	%		
Executive Officers and Directors:						
Keith A. Bentley[2][3]						
Barry J. Bentley[2][4]						
Gregory S. Bentley[2][5]						
Raymond B. Bentley[2][6]						
Kirk B. Griswold[7]						
David J. Hollister[8]						
David R. Shaman[9]						
All executive officers and directors as a group (7 persons)[10]						
5% Stockholders:						
Siemens Corporation[11]						
Other Registered Stockholders:						
Non-executive officer service providers[12]						
All other registered stockholders						

* Represents beneficial ownership of less than 1% of class.

(1) Percentage of total voting power represents voting power with respect to all shares of our Class A and Class B common stock, as a single class, and assumes the effectiveness of our Charter Amendments. Upon the effectiveness of the registration statement of which this prospectus forms a part, the holders of our Class A common stock are entitled to votes per share, and holders of our Class B common stock will be entitled to one vote per share. For more information about the voting rights of our Class A and Class B common stock, see the section titled "Description of Capital Stock." We have deemed shares of our common stock to be outstanding and beneficially owned by a person for the purpose of computing the percentage ownership of that person if that person has the right to acquire voting or investment power in respect of such common stock within 60 days of , 2020.

(2) Pursuant to a stockholders' agreement among (i) Bentley Systems, Incorporated, (ii) each of the Bentleys, (iii) certain of their permitted transferees, and (iv) certain trusts established by the Bentleys or their permitted transferees, each of the Bentleys has agreed to vote his respective voting shares for purposes of elections of our board of directors and all other purposes as directed by a majority vote of Class A common stock held by the Bentleys. Voting power subject to this stockholders' agreement includes an aggregate of shares of Class A common stock and shares of Class B common stock, representing % of total voting power, including shares of Class B common stock issuable under our DCP within 60 days of , 2020. In addition to the shares subject to the voting provisions of the stockholders' agreement, the Bentleys may be deemed to beneficially own shares of Class B common stock, or %, held by various trusts of which their respective spouses are trustees. The stockholders' agreement generally restricts transfers of any shares of our common stock to permitted transferees and imposes take-along rights and rights of first refusal on such shares.

(3) Includes (i) shares of Class B common stock held by various trusts, of which Keith A. Bentley's spouse is a trustee and (ii) shares of Class B common stock issuable under our DCP within 60 days of , 2020.

(4) Includes (i) shares of Class B common stock held by various trusts, of which Barry J. Bentley's spouse is a trustee, and by his children and (ii) shares of Class B common stock issuable under our DCP within 60 days of , 2020.

(5) Includes (i) shares of Class B common stock pledged as security for loans from WSFS Bank, FSB and PNC Bank, N.A., (ii) shares of Class B common stock held by various trusts, of which Gregory S. Bentley or his spouse is a trustee, and by his children and (iii) shares of Class B common stock issuable under our DCP within 60 days of , 2020.

(6) Includes (i) shares of Class B common stock held by a trust of which Raymond B. Bentley's spouse is a trustee and (ii) shares of Class B common stock issuable under our DCP within 60 days of , 2020.

(7) Includes (i) shares of Class B common stock issuable pursuant to options that are exercisable within 60 days of , 2020 and (ii) shares of Class B common stock issuable under our DCP within 60 days of , 2020.

(8) Includes (i) shares of Class B common stock issuable pursuant to options that are exercisable within 60 days of , 2020 and (ii) shares of Class B common stock issuable under our DCP within 60 days of , 2020.

(9) Includes (i) shares of Class B common stock issuable pursuant to options that are exercisable within 60 days of , 2020, (ii) shares of Class B common stock issuable under our DCP within 60 days of , 2020 and (iii) restricted shares of Class B common stock for which voting or investment power will vest within 60 days of , 2020.

(10) Includes (i) an aggregate total of shares of Class B common stock pledged as security for loans from WSFS Bank, FSB and PNC Bank, N.A., (ii) shares of Class B common stock issuable pursuant to options that are exercisable within 60 days of , 2020, (iii) shares of Class B common stock issuable under our DCP within 60 days of , 2020, (iv) RSUs representing shares of Class B common stock issuable within 60 days of , 2020, and (v) restricted shares of Class B common stock for which voting or investment power will vest within 60 days of , 2020.

(11) Includes shares of Class B common stock held of record by Siemens Corporation, the address of which is c/o Siemens AG, Werner-von-Siemens-Str. 50 91052 Erlangen, Germany.

(12) Includes (i) shares of Class B common stock issuable pursuant to options that are exercisable within 60 days of , 2020 , (ii) shares of Class B common stock issuable under our DCP within 60 days of , 2020, (iii) RSUs representing shares of Class B common stock issuable within 60 days of , 2020, and (iv) restricted shares of Class B common stock for which voting or investment power will vest within 60 days of , 2020.

DESCRIPTION OF CAPITAL STOCK

General

The following is a summary of certain of the rights of our capital stock and related provisions of our amended and restated certificate of incorporation and amended and restated by-laws that will be in effect shortly following the effectiveness of the registration statement of which this prospectus forms a part. For more detailed information, we refer you to the forms of our amended and restated certificate of incorporation and amended and restated by-laws that are filed as exhibits to the registration statement of which this prospectus is a part and to applicable provisions of Delaware law. Note 11 to our consolidated financial statements included elsewhere in this prospectus includes a description of the terms of our Class B common stock pursuant to our amended and restated certificate of incorporation then in effect for the periods reported and does not reflect the Charter Amendments.

Upon the effectiveness of the registration statement of which this prospectus forms a part, under our amended and restated certificate of incorporation, we will provide for two classes of common stock: Class A common stock, which will have   votes per share, and Class B common stock, which will have one vote per share. The beneficial owners of our Class A common stock are primarily the Bentleys, many of whom serve as our directors and executive officers. Any holder of Class A common stock may convert all or a portion of such holder's shares at any time into shares of Class B common stock on a share-for-share basis. In addition, Class A common stock will convert automatically into Class B common stock upon the occurrence of specified events, including transfers, except for certain permitted transfers described below. Except as specified below, the holders of Class A and Class B common stock will vote together as a single class. Except as expressly provided in our amended and restated certificate of incorporation, including with respect to voting rights and conversion rights, the rights of the two classes of common stock are identical. In addition, our amended and restated certificate of incorporation authorizes shares of undesignated preferred stock, the rights, preferences and privileges of which may be designated from time to time by our board of directors.

Shortly following the effectiveness of the registration statement of which this prospectus forms a part, our authorized capital stock will consist of   shares, each with a par value of $0.01 per share, of which:

- shares are designated as Class A common stock;
- shares are designated as Class B common stock; and
- shares are undesignated preferred stock.

As of December 31, 2019, we had outstanding 11,601,757 shares of Class A common stock held of record by   stockholders, 243,241,192 shares of Class B common stock held of record by   stockholders, and no shares of preferred stock, 19,602,042 shares of Class B common stock issuable upon exercise of stock options outstanding, 54,771 shares of Class B common stock issuable upon the settlement of restricted stock units outstanding, 28,101,504 shares of Class B common stock reserved for future issuance under our 2015 Equity Incentive Plan and 30,756,936 shares of Class B common stock held by colleagues and directors as phantom shares under our DCPs.

Common Stock

Dividend Rights

Subject to preferences that may apply to shares of preferred stock outstanding at the time, the holders of outstanding shares of our common stock are entitled to receive dividends out of funds legally available if our board of directors, in its discretion, determines to issue dividends and only then at the times and in the amounts that our board of directors may determine. See the section titled "Dividend Policy" for more information.

Voting Rights

Shortly following the effectiveness of the registration statement of which this prospectus forms a part, the holders of our Class A common stock will be entitled to votes per share, provided, however, that at any such time, and thereafter, as none of the Bentleys is an executive officer or director of the Company, the holders of our Class A common stock will be entitled to one vote per share. Shortly following the effectiveness of the registration statement of which this prospectus forms a part, holders of our Class B common stock, which is the class of common stock that the Registered Stockholders are selling pursuant to this prospectus and is the only class that will be publicly traded and listed, will be entitled to one vote per share. The holders of our Class A common stock and Class B common stock vote together as a single class, unless otherwise required by our amended and restated certificate of incorporation or law. Delaware law could require either holders of our Class A common stock or our Class B common stock to vote separately as a single class in the following circumstances:

- If we were to seek to amend our amended and restated certificate of incorporation to increase or decrease the par value of a class of stock, then that class would be required to vote separately to approve the proposed amendment; and

- If we were to seek to amend our amended and restated certificate of incorporation in a manner that alters or changes the powers, preferences or special rights of a class of stock in a manner that affected its holders adversely, then that class would be required to vote separately to approve the proposed amendment.

In addition, the affirmative vote of the holders of the Class A common stock is required to amend the provisions of our amended and restated certificate of incorporation that relate to our dual class structure.

Under our amended and restated certificate of incorporation, we are not able to engage in certain mergers or other transactions in which the holders of Class A common stock and Class B common stock are not given the same consideration, without the affirmative vote of the holders of a majority of the outstanding shares of Class A common stock, voting separately as a class, and Class B common stock, voting separately as a class. No such separate class vote will be required, however, if the holders of each class of common stock receive equity securities in the surviving entity with voting and related rights substantially similar to the rights of the class of common stock held by such holders prior to the merger or other transaction.

Stockholders do not have the ability to cumulate votes for the election of directors. Our amended and restated by-laws provide that the number of directors will be determined from time to time by resolution of our board of directors.

No Preemptive or Similar Rights

Holders of our common stock are not entitled to preemptive rights and are not subject to redemption or sinking fund provisions.

Right to Receive Liquidation Distributions

Upon our dissolution, liquidation or winding-up, the assets legally available for distribution to our stockholders are distributable ratably among the holders of our common stock, subject to prior satisfaction of all outstanding debt and liabilities and the preferential rights of and the payment of liquidation preferences, if any, on any outstanding shares of preferred stock.

Conversion

Our Class B common stock is not convertible into any other shares of capital stock. Each outstanding share of Class A common stock is convertible at any time at the option of the holder into one share of Class B common stock. In addition, each share of Class A common stock will convert automatically into one share of Class B common stock upon the occurrence of specified events, including any transfer, whether or not for value, except for certain transfers described in our amended and restated certificate of incorporation, including transfers to family members, trusts primarily for the benefit of the stockholder or the stockholder's family members, certain entities or fiduciaries controlled by the stockholder or the stockholder's family members, and transfers by operation of law pursuant to a qualified domestic order or in connection with a divorce settlement. Each share of Class A common stock will also convert automatically into one share of Class B common stock upon the death of a Class A common stockholder, except if such shares are transferred in accordance with the foregoing sentence. Further, each share of Class A common stock will convert into one share of Class B common stock if such conversion is approved by the holders of at least 90% of the then-outstanding shares of Class A common stock or if the Bentleys and their permitted transferees cease to beneficially own, in the aggregate, at least 20% of the issued and outstanding shares of Class B common stock (on a fully diluted basis and assuming the conversion of all issued and outstanding shares of Class A common stock). Once converted into Class B common stock, a share of Class A common stock may not be reissued.

Options

As of December 31, 2019, there were outstanding options to purchase 19,602,042 shares of our Class B common stock.

Restricted Stock Units

As of December 31, 2019, there were outstanding restricted stock units representing 54,771 shares of our Class B common stock.

Restricted Stock

As of December 31, 2019, there were outstanding 476,466 shares of restricted Class B common stock.

DCP Phantom Shares

As of December 31, 2019, there were outstanding 30,756,936 phantom shares of our Class B common stock pursuant to the our DCPs. See the section titled "Executive and Director Compensation—Other Benefits and Perquisites—Nonqualified Deferred Compensation."

Registration Rights

See the section titled "Certain Relationships and Related Party Transactions—Registration Rights Agreement" for more information about registration rights of existing stockholders.

Anti-Takeover Provisions

The provisions of our amended and restated certificate of incorporation and amended and restated by-laws and of the DGCL summarized below may have an anti-takeover effect and may delay, deter, or prevent a tender offer or takeover attempt that you might consider in your best interest, including an attempt that might result in your receipt of a premium over the market price for your shares of Class B common stock. We believe that the benefits of increased protection of our potential ability to negotiate

with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

Section 203 of the Delaware General Corporation Law

We intend to opt out of Section 203 of the DGCL. However, our amended and restated certificate of incorporation will contain provisions that are similar to Section 203. Specifically, our amended and restated certificate of incorporation will provide that, subject to certain exceptions, we will not be able to engage in a "business combination" with any "interested stockholder" for three years following the date that the person became an interested stockholder, unless the interested stockholder attained such status with the approval of our board of directors or unless the business combination is approved in prescribed manner. A "business combination" includes, among other things, a merger or consolidation involving us and the "interested stockholder" and the sale of more than 10% of our assets. In general, an "interested stockholder" is any entity or person beneficially owning 15% or more of our outstanding voting stock and any entity or person affiliated with or controlling or controlled by such entity or person. However, in our case, the Bentleys and any of their respective affiliates and any of their respective direct or indirect transferees receiving   % or more of our outstanding voting stock will not be deemed to be interested stockholders regardless of the percentage of our outstanding voting stock owned by them, and accordingly will not be subject to such restrictions.

Certificate of Incorporation and By-law Provisions

Our amended and restated certificate of incorporation and our amended and restated by-laws will include a number of provisions that could deter hostile takeovers or delay or prevent changes in control of our board of directors or management team, including the following:

- *Stockholder Action by Written Consent.* Pursuant to Section 228 of the DGCL, any action required to be taken at any annual or special meeting of the stockholders may be taken without a meeting, without prior notice and without a vote if a consent or consents in writing, setting forth the action so taken, is signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares of our stock entitled to vote thereon were present and voted, unless our amended and restated certificate of incorporation provides otherwise. Our amended and restated certificate of incorporation prohibits stockholder action by written consent (and, thus, requires that all stockholder actions be taken at a meeting of our stockholders), if the Bentleys cease to own a majority of the voting power of our outstanding capital stock.

- *Special Meetings of Stockholders.* Our amended and restated certificate of incorporation and amended and restated by-laws further provide that special meetings of our stockholders may be called only by a majority of our total number of directors, the chair of our board of directors, our chief executive officer, or our president (in the absence of a chief executive officer). This provision could have the effect of preventing or delaying significant corporate actions that would otherwise be taken by the holders of at least a majority of the combined voting power of our Class A and Class B common stock.

- *Advance Notice Requirements for Stockholder Proposals and Director Nominations.* Our amended and restated by-laws provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders or to nominate candidates for election as directors at any meeting of stockholders. Our amended and restated by-laws also specify certain requirements regarding the form and content of a stockholder's notice. These provisions may preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our meetings of stockholders if proper procedures are not followed. We expect that these provisions may also discourage or deter a potential acquirer

from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company.

- *Authorized but Unissued Shares.* The authorized but unissued shares of our Class A and Class B common stock will be available for future issuance without stockholder approval, subject to any limitations imposed by the listing standards of The Nasdaq Global Select Market. These additional shares may be utilized for a variety of corporate purposes, including future public offerings to raise additional capital, corporate acquisitions and employee benefit plans. The existence of authorized but unissued shares of Class A and Class B common stock enables our board of directors to make more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise.

- *"Blank Check" Preferred Stock.* Our amended and restated certificate of incorporation allows our board of directors to, without prior stockholder approval, issue shares of authorized, undesignated preferred stock with dividend, liquidation, conversion, voting or other rights that could adversely affect the relative voting power or other rights of our common stock. The existence of such authorized but unissued shares of preferred stock may enable our board of directors to discourage an attempt to acquire control of our company, whether by means of a merger, tender offer, proxy contest or otherwise.

- *No Cumulative Voting.* The DGCL provides that stockholders are not entitled to cumulate votes in the election of directors unless a corporation's certificate of incorporation provides otherwise. Our amended and restated certificate of incorporation will not provide for cumulative voting.

- *Amendment of Certificate of Incorporation or By-laws.* The DGCL provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or by-laws, unless a corporation's certificate of incorporation, or by-laws, as the case may be, requires a greater percentage. Our by-laws may be amended or repealed by a majority vote of our board of directors or pursuant to the affirmative vote of the holders of at least $66^2/3$% of the voting power of the capital stock of the corporation. In addition, the affirmative vote of the holders of at least $66^2/3$% of the voting power of the capital stock of the corporation will be required to amend or repeal or to adopt any provisions inconsistent with any of the provisions of our certificate described above.

Stockholder Litigation Matters

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty owed to us; any action asserting a claim arising pursuant to the DGCL, our amended and restated certificate of incorporation or our amended and restated by-laws; any action to interpret, apply, enforce or determine the validity of any provision of our amended and restated certificate of incorporation or our amended and restated by-laws; or any action asserting a claim that is governed by the internal affairs doctrine. Nothing in our amended and restated certificate of incorporation or amended and restated by-laws will preclude stockholders that assert claims under the Securities Act or the Exchange Act from bringing such claims in state or federal court, subject to applicable law. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable.

Limitations on Liability and Indemnification

See the section titled "Executive and Director Compensation—Limitations on Liability and Indemnification Matters."

Listing

We intend to apply to have our Class B common stock approved for listing on The Nasdaq Global Select Market under the symbol "BSY." Our Class A common stock will not be listed on any stock market or exchange.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.

SHARES ELIGIBLE FOR FUTURE SALE

Prior to the listing of our Class B common stock on The Nasdaq Global Select Market, there has been no public market for our common stock, and we cannot predict the effect, if any, that market sales of shares of our common stock or the availability of shares of our common stock for sale will have on the market price of our common stock prevailing from time to time. Future sales of substantial amounts of our Class B common stock in the public market following our listing on The Nasdaq Global Select Market, or the perception that such sales could occur, could adversely affect the public price of our Class B common stock from time to time, may make it more difficult for you to sell your Class B common stock at a time and price that you deem appropriate and could impair our ability to raise capital through the sale of our equity securities. We will have no input if and when any Registered Stockholder may, or may not, elect to sell its shares of Class B common stock or the prices at which any such sales may occur. Future sales of our Class B common stock in the public market, or the availability of such shares for sale in the public market, could adversely affect market prices prevailing from time to time.

Upon the effectiveness of the registration statement of which this prospectus forms a part, based on the number of shares outstanding as of December 31, 2019, we will have a total of 11,601,757 shares of our Class A common stock and 243,241,192 shares of our Class B common stock outstanding.

Shares of our Class A common stock and Class B common stock will be deemed "restricted securities" (as defined in Rule 144). Restricted securities may be sold in the public market only if they are registered or if they qualify for an exemption from the registration requirement of the Securities Act, including under Rule 144 or Rule 701, which rules are summarized below. Following the listing of our Class B common stock on The Nasdaq Global Select Market, shares of our Class B common stock may be sold either by the Registered Stockholders pursuant to this prospectus or by our other existing stockholders in accordance with Rule 144.

As further described below, until we have been a reporting company for at least 90 days, only non-affiliates who have beneficially owned their shares of Class B common stock for a period of at least one year will be able to sell their shares of Class B common stock under Rule 144.

Our Class B common stock will be available for sale in the public market after our listing as follows:

Date Available for Sale	Shares Eligible for Sale Pursuant to the Registration Statement	Shares Eligible for Sale Pursuant to Rule 144 or Rule 701
Date of Listing		
90 Days after Effectiveness of Registration Statement	—	

Rule 144

In general, under Rule 144 as currently in effect, once we have been subject to public company reporting requirements for at least 90 days, a person who is not deemed to have been one of our affiliates for purposes of the Securities Act at any time during the 90 days preceding a sale and who has beneficially owned the shares proposed to be sold for at least six months, including the holding period of any prior owner other than our affiliates, is entitled to sell those shares without complying with the manner of sale, volume limitation or notice provisions of Rule 144, subject to compliance with the public information requirements of Rule 144. If such a person has beneficially owned the shares proposed to be sold for at least one year, including the holding period of any prior owner other than our affiliates, then that person is entitled to sell those shares immediately after the effectiveness of the registration statement without complying with any of the requirements of Rule 144.

In general, under Rule 144, as currently in effect, our affiliates or persons selling shares on behalf of our affiliates are entitled to sell, within any three-month period beginning 90 days after the date of this prospectus, a number of shares that does not exceed the greater of:

- 1% of the number of shares of our Class B common stock then outstanding; or
- the average weekly trading volume of our Class B common stock during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale.

Sales under Rule 144 by our affiliates or persons selling shares on behalf of our affiliates are also subject to certain manner of sale provisions and notice requirements and to the availability of current public information about us.

Rule 701

Under Rule 701, common stock acquired upon the exercise of certain currently outstanding options or pursuant to other rights granted under our stock plans may be resold beginning 90 days after the effective date of our listing (a) by persons other than affiliates without compliance with the manner-of-sale, volume limitations, current public information, and filing requirements of Rule 144, and (b) by affiliates, subject to the manner-of-sale, volume limitations, current public information and filing requirements of Rule 144, in each case, without compliance with the holding period requirement of Rule 144.

Registration Rights

In connection with the Common Stock Purchase Agreement, we and an affiliate of Siemens entered into a registration rights agreement. Beginning eighteen months following the effectiveness of the registration statement of which this prospectus forms a part, Siemens may request one consummated registration by the Company of its shares on Form S-1 and unlimited registrations on Form S-3 (to the extent available, and no more than two per year). In addition, subject to certain exceptions, if we propose to register any of our securities under the Securities Act in connection with the public offering of such securities, upon the request of Siemens, we will register all of the capital stock that Siemens has requested to be included in such registration, subject to any proportionate cut back at the request of any underwriter used in connection with such registration. In connection with any of these the registrations, we will indemnify Siemens and we will bear all fees, costs and expenses (except underwriting commissions and discounts).

Form S-8 Registration Statement

We intend to file a registration statement on Form S-8 under the Securities Act covering all of the shares of our Class B common stock issuable or reserved for issuance under our 2015 Equity Incentive Plan, the DCP and our future compensation plans and programs currently under consideration. We expect to file that registration statement as soon as practicable after the effectiveness of the registration statement of which this prospectus forms a part.

SALE PRICE HISTORY OF OUR CAPITAL STOCK

We intend to apply to list our Class B common stock on The Nasdaq Global Select Market. Prior to the initial listing, no public market existed for our Class B common stock. However, pursuant to our Common Stock Purchase Agreement with Siemens AG, our stockholders have sold an aggregate of 30.9 million shares of our Class B common stock to an affiliate of Siemens AG since 2016. In May of 2019, an affiliate of Siemens AG acquired 791,873 shares of our Class B common stock from existing Company stockholders at a per share price of $7.24. See the section entitled "Certain Relationships and Related Party Transactions—Common Stock Purchase Agreement" for more information about the Common Stock Purchase Agreement.

This and prior transactions in our Class B common stock may, however, have little or no relation to broader market demand for our Class B common stock and thus the opening public price and subsequent public price of our Class B common stock on The Nasdaq Global Select Market. As a result, you should not place undue reliance on such historical private sales prices as they may differ materially from the opening public price and subsequent public price of our Class B common stock on The Nasdaq Global Select Market. See the section titled "Risk Factors—Risks Related to Ownership of Our Class B Common Stock—The public price of our Class B common stock, upon listing on The Nasdaq Global Select Market, may have little or no relationship to the historical sales prices of our capital stock in private transactions."

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-US HOLDERS

The following discussion is a summary of the material U.S. federal income tax consequences to Non-U.S. Holders (as defined below) of the purchase, ownership, and disposition of our common stock, but does not purport to be a complete analysis of all potential tax effects. The effects of other U.S. federal tax laws, such as estate and gift tax laws, and any applicable state, local or non-U.S. tax laws are not discussed. This discussion is based on the U.S. Internal Revenue Code of 1986, as amended (the "Code"), Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the U.S. Internal Revenue Service (the "IRS"), in each case in effect as of the date hereof. These authorities may change or be subject to differing interpretations. Any such change or differing interpretation may be applied retroactively in a manner that could adversely affect a Non-U.S. Holder of our common stock. We have not sought and will not seek any rulings from the IRS regarding the matters discussed below. There can be no assurance the IRS or a court will not take a contrary position to that discussed below regarding the tax consequences of the purchase, ownership and disposition of our common stock.

This discussion is limited to Non-U.S. Holders that hold our common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all U.S. federal income tax consequences relevant to a Non-U.S. Holder's particular circumstances, including the impact of the alternative minimum tax or the Medicare contribution tax on net investment income. In addition, it does not address consequences relevant to Non-U.S. Holders subject to special rules, including, without limitation:

- U.S. expatriates and former citizens or long-term residents of the United States;
- persons holding our common stock as part of a hedge, straddle or other risk reduction strategy or as part of a conversion transaction or other integrated investment;
- banks, insurance companies, and other financial institutions;
- brokers, dealers or traders in securities;
- "controlled foreign corporations," "passive foreign investment companies," and corporations that accumulate earnings to avoid U.S. federal income tax;
- partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes (and investors therein);
- tax-exempt organizations or governmental organizations;
- persons deemed to sell our common stock under the constructive sale provisions of the Code;
- persons who hold or receive our common stock pursuant to the exercise of any employee stock option or otherwise as compensation;
- tax-qualified retirement plans;
- "qualified foreign pension funds" as defined in Section 897(l)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds; and
- persons subject to special tax accounting rules as a result of any item of gross income with respect to the stock being taken into account in an "applicable financial statement" (as defined in the Code).

If an entity treated as a partnership for U.S. federal income tax purposes holds our common stock, the tax treatment of a partner in the partnership will depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. Accordingly, partnerships

holding our common stock and the partners in such partnerships should consult their tax advisors regarding the U.S. federal income tax consequences to them.

THIS DISCUSSION IS FOR INFORMATION PURPOSES ONLY AND IS NOT TAX OR LEGAL ADVICE. INVESTORS SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES OF THE PURCHASE, OWNERSHIP AND DISPOSITION OF OUR COMMON STOCK ARISING UNDER THE U.S. FEDERAL ESTATE OR GIFT TAX LAWS OR UNDER THE LAWS OF ANY STATE, LOCAL OR NON-U.S. TAXING JURISDICTION OR UNDER ANY APPLICABLE INCOME TAX TREATY.

Definition of a Non-U.S. Holder

For purposes of this discussion, a "Non-U.S. Holder" is any beneficial owner of our common stock that is neither a "U.S. person" nor an entity treated as a partnership for U.S. federal income tax purposes. A U.S. person is any person that, for U.S. federal income tax purposes, is or is treated as any of the following:

- an individual who is a citizen or resident of the United States;
- a corporation created or organized under the laws of the United States, any state thereof, or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust that (1) is subject to the primary supervision of a U.S. court and the control of one or more "United States persons" (within the meaning of Section 7701(a)(30) of the Code), or (2) has a valid election in effect to be treated as a United States person for U.S. federal income tax purposes.

Distributions

As described in the section titled "Dividend Policy," the declaration and payment of dividends is within the discretion of our board of directors. If we do make distributions of cash or property on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Amounts not treated as dividends for U.S. federal income tax purposes will constitute a return of capital and first be applied against and reduce a Non-U.S. Holder's adjusted tax basis in its common stock, but not below zero. Any excess will be treated as capital gain and will be treated as described below under "—Sale or Other Taxable Disposition."

Subject to the discussion below on effectively connected income, dividends paid to a Non-U.S. Holder of our common stock will be subject to U.S. federal withholding tax at a rate of 30% of the gross amount of the dividends (or such lower rate specified by an applicable income tax treaty, provided the Non-U.S. Holder furnishes a valid IRS Form W-8BEN or W-8BEN-E (or other applicable documentation) certifying qualification for the lower treaty rate). If a Non-U.S. Holder holds the stock through a financial institution or other intermediary, the Non-U.S. Holder will be required to provide appropriate documentation to the intermediary, which then will be required to provide certification to the applicable withholding agent, either directly or through other intermediaries. A Non-U.S. Holder that does not timely furnish the required documentation, but that qualifies for a reduced treaty rate, may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS. Non-U.S. Holders should consult their tax advisors regarding their entitlement to benefits under any applicable income tax treaty.

If dividends paid to a Non-U.S. Holder are effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, the Non-U.S. Holder maintains a permanent establishment in the United States to which such dividends are attributable), the Non-U.S. Holder will be exempt from the U.S. federal withholding tax described above. To claim the exemption, the Non-U.S. Holder must furnish to the applicable withholding agent a valid IRS Form W-8ECI, certifying that the dividends are effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States.

Any such effectively connected dividends will be subject to U.S. federal income tax on a net income basis at the regular graduated rates applicable to U.S. persons (as defined in the Code). A Non-U.S. Holder that is a corporation also may be subject to a branch profits tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty) on such effectively connected dividends, as adjusted for certain items. Non-U.S. Holders should consult their tax advisors regarding any applicable tax treaties that may provide for different rules.

Any documentation provided to an applicable withholding agent may need to be updated in certain circumstances. The certification requirements described above also may require a Non-U.S. Holder to provide its U.S. taxpayer identification number.

Sale or Other Taxable Disposition

A Non-U.S. Holder will not be subject to U.S. federal income tax on any gain realized upon the sale or other taxable disposition of our common stock unless:

- the gain is effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, the Non-U.S. Holder maintains a permanent establishment in the United States to which such gain is attributable);
- the Non-U.S. Holder is a nonresident alien individual present in the United States for 183 days or more during the taxable year of the disposition and certain other requirements are met; or
- our common stock constitutes a U.S. real property interest ("USRPI"), by reason of our status as a U.S. real property holding corporation ("USRPHC"), for U.S. federal income tax purposes.

Gain described in the first bullet point above generally will be subject to U.S. federal income tax on a net income basis at the regular graduated rates. A Non-U.S. Holder that is a corporation also may be subject to a branch profits tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty) on such effectively connected gain, as adjusted for certain items.

Gain described in the second bullet point above will be subject to U.S. federal income tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty), which may be offset by U.S. source capital losses of the Non-U.S. Holder (even though the individual is not considered a resident of the United States), provided the Non-U.S. Holder has timely filed U.S. federal income tax returns with respect to such losses.

With respect to the third bullet point above, we believe we currently are not, and do not anticipate becoming, a USRPHC. Because the determination of whether we are a USRPHC depends, however, on the fair market value of our USRPIs relative to the fair market value of our non-U.S. real property interests and our other business assets, there can be no assurance we currently are not a USRPHC or will not become one in the future. Even if we are or were to become a USRPHC, gain arising from the sale or other taxable disposition by a Non-U.S. Holder of our common stock will not be subject to U.S. federal income tax if our common stock is "regularly traded," as defined by applicable Treasury Regulations, on an established securities market, and such Non-U.S. Holder owned, actually and

constructively, 5% or less of our common stock throughout the shorter of the five-year period ending on the date of the sale or other taxable disposition or the Non-U.S. Holder's holding period.

Non-U.S. Holders should consult their tax advisors regarding potentially applicable income tax treaties that may provide for different rules.

Information Reporting and Backup Withholding

Payments of dividends on our common stock to a Non-U.S. Holder generally will not be subject to backup withholding, provided the Non-U.S. Holder certifies its non-U.S. status, such as by furnishing a valid IRS Form W-8BEN, W-8BEN-E or W-8ECI, or otherwise establishes an exemption. Notwithstanding the foregoing, backup withholding may apply if the applicable withholding agent has actual knowledge, or reason to know, that the holder is a United States person that is not an exempt recipient. However, information returns are required to be filed with the IRS in connection with any dividends on our common stock paid to the Non-U.S. Holder, regardless of whether any tax was actually withheld. In addition, proceeds of the sale or other taxable disposition of our common stock within the United States or conducted through certain U.S.-related brokers generally will not be subject to backup withholding or information reporting, if the applicable withholding agent receives the certification described above and does not have actual knowledge or reason to know that such holder is a United States person, or the holder otherwise establishes an exemption. Proceeds of a disposition of our common stock conducted through a non-U.S. office of a non-U.S. broker generally will not be subject to backup withholding or information reporting.

Copies of information returns that are filed with the IRS may also be made available under the provisions of an applicable treaty or agreement to the tax authorities of the country in which the Non-U.S. Holder resides or is established.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against a Non-U.S. Holder's U.S. federal income tax liability, provided the required information is timely furnished to the IRS.

Additional Withholding Tax on Payments Made to Foreign Accounts

Withholding taxes may be imposed under Sections 1471 to 1474 of the Code (such Sections commonly referred to as the Foreign Account Tax Compliance Act ("FATCA")) on certain types of payments made to non-U.S. financial institutions and certain other non-U.S. entities. Specifically, a 30% withholding tax may be imposed on dividends on, or (subject to the proposed Treasury Regulations discussed below) gross proceeds from the sale or other disposition of, our common stock paid to a "foreign financial institution" or a "non-financial foreign entity" (each as defined in the Code), unless (1) the foreign financial institution undertakes certain diligence and reporting obligations, (2) the non-financial foreign entity either certifies it does not have any "substantial United States owners" (as defined in the Code) or furnishes identifying information regarding each substantial United States owner, or (3) the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from these rules. If the payee is a foreign financial institution and is subject to the diligence and reporting requirements in (1) above, it must enter into an agreement with the U.S. Department of the Treasury requiring, among other things, that it undertake to identify accounts held by certain "specified United States persons" or "United States owned foreign entities" (each as defined in the Code), annually report certain information about such accounts, and withhold 30% on certain payments to non-compliant foreign financial institutions and certain other account holders. Foreign financial institutions located in jurisdictions that have an intergovernmental agreement with the United States governing FATCA may be subject to different rules.

Under the applicable Treasury Regulations and administrative guidance, withholding under FATCA generally applies to payments of dividends on our common stock. While withholding under FATCA

would have applied also to payments of gross proceeds from the sale or other disposition of stock on or after January 1, 2019, recently proposed Treasury Regulations eliminate FATCA withholding on payments of gross proceeds entirely. Taxpayers generally may rely on these proposed Treasury Regulations until final Treasury Regulations are issued.

Prospective Non-U.S. Holders should consult their tax advisors regarding the potential application of withholding under FATCA to their investment in our common stock.

PLAN OF DISTRIBUTION

The Registered Stockholders may sell their shares of Class B common stock covered hereby pursuant to brokerage transactions on The Nasdaq Global Select Market, or other public exchanges or registered alternative trading venues, at prevailing market prices at any time after the shares of Class B common stock are listed for trading. We are not party to any arrangement with any Registered Stockholder or any broker-dealer with respect to sales of shares of Class B common stock by the Registered Stockholders, except we have engaged financial advisors with respect to certain other matters relating to our listing, as further described below. As such, we will have no input if and when any Registered Stockholder may, or may not, elect to sell their shares of Class B common stock or the prices at which any such sales may occur, and there can be no assurance that any Registered Stockholders will sell any or all of the shares of Class B common stock covered by this prospectus.

We will not receive any proceeds from the sale of shares of Class B common stock by the Registered Stockholders. We expect to recognize certain direct listing costs as part of our transition to a publicly-traded company, consisting of advisory, legal and accounting fees and other expenses. As part of our listing of our Class B common stock on The Nasdaq Global Select Market, these fees will be expensed in the period incurred and not deducted from net proceeds to us as they would be in an initial public offering.

At market open on the day that shares of our Class B common stock are initially listed on The Nasdaq Global Select Market, the Nasdaq Stock Market will begin accepting, but not executing, orders. Once , in its capacity as our financial advisor, has notified the Nasdaq Stock Market that our Class B common stock is ready to trade, the Nasdaq Stock Market will calculate the Current Reference Price for our Class B common stock, in accordance with the Nasdaq Listing Rules. If then approves proceeding at the Current Reference Price, the applicable orders that have been entered will be executed at such price and regular trading of our Class B common stock on The Nasdaq Global Select Market will commence, subject to the Nasdaq Stock Market conducting validation checks in accordance with the Nasdaq Listing Rules. Under the Nasdaq Listing Rules, the "Current Reference Price" means: (i) the single price at which the maximum number of orders to buy or sell our Class B common stock can be paired; (ii) if more than one price exists under (i), then the price that minimizes the number of our Class B common stock for which orders cannot be matched; (iii) if more than one price exists under (ii), then the entered price at which our Class B common stock will remain unexecuted in the cross; and (iv) if more than one price exists under (iii), a price determined by the Nasdaq Stock Market after consultation with in its capacity as our financial advisor.

will determine when our Class B common stock is ready to trade and approve proceeding at the Current Reference Price primarily based on consideration of volume, timing and price. In particular, will determine when a reasonable amount of volume will cross on the opening trade such that sufficient price discovery has been made to open trading at the Current Reference Price.

If does not approve proceeding at the Current Reference Price (for example, due to the absence of adequate preopening buy and sell interest), will request that the Nasdaq Stock Market delay the open until such a time that sufficient price discovery has been made to ensure a reasonable amount of volume crosses on the opening trade. Further, in the highly unlikely event that the Nasdaq Stock Market consults with as described in clause (iv) of the definition of Current Reference Price, would request that the Nasdaq Stock Market delay the open to ensure a single opening price within clauses (i), (ii) or (iii) of the definition of the Current Reference Price. The length of such delay could vary greatly, from a short period of time such as one day, to a decision to not list our shares on The Nasdaq Global Select Market at all.

Similar to a Nasdaq-listed underwritten initial public offering, in connection with the listing of our Class B common stock, buyers and sellers who have subscribed will have access to the Nasdaq Stock

Market's Order Imbalance Indicator (sometimes referred to as the Net Order Imbalance Indicator), a widely available, subscription-based data feed, prior to submitting buy or sell orders. The Nasdaq Stock Market's electronic trading platform simulates auctions every second to calculate a Current Reference Price, the number of shares that can be paired off the Current Reference Price, the number of shares that would remain unexecuted at the Current Reference Price and whether a buy-side or sell-side imbalance exists, or whether there is no imbalance, in order to disseminate that information continuously to buyers and sellers via the Order Imbalance Indicator data feed.

However, because this is not an underwritten initial public offering, there will be no book building process. Moreover, prior to the opening trade, there will not be a price at which underwriters initially sold shares of Class B common stock to the public as there would be in an underwritten initial public offering. This lack of an initial public offering price could impact the range of buy and sell orders collected by The Nasdaq Global Select Market from various broker-dealers. Consequently, the public price of our Class B common stock may be more volatile than in an underwritten initial public offering and could, upon listing on The Nasdaq Global Select Market, decline significantly and rapidly. See the section titled "Risk Factors—Risks Related to Ownership of Our Class B Common Stock."

In addition, in order to list on The Nasdaq Global Select Market, we are also required to have at least three registered and active market makers. We expect the financial advisors that we have engaged in connection with our listing to act as registered and active market makers. We have also engaged to act as an active market maker. Further, our financial advisors may assist interested Registered Shareholders with the establishment of brokerage accounts.

In addition to sales made pursuant to this prospectus, the shares of Class B common stock covered by this prospectus may be sold by the Registered Stockholders in private transactions exempt from the registration requirements of the Securities Act.

Under the securities laws of some states, shares of Class B common stock may be sold in such states only through registered or licensed brokers or dealers.

If any of the Registered Stockholders utilize a broker-dealer in the sale of the shares of Class B common stock being offered by this prospectus, such broker-dealer may receive commissions in the form of discounts, concessions, or commissions from such Registered Stockholder or commissions from purchasers of the shares of Class B common stock for whom they may act as agent or to whom they may sell as principal (which discounts, concessions, or commissions as to particular broker-dealers may be in excess of those customary in the types of transactions involved).

We have engaged Goldman Sachs & Co. LLC and BofA Securities, Inc. as our financial advisors to advise and assist us with respect to certain matters relating to our listing. However, the financial advisors have not been engaged to participate in investor meetings or to otherwise facilitate or coordinate price discovery activities or sales of our Class B common stock in consultation with us, except as described herein with respect to the opening public price in accordance with Nasdaq Listing Rules.

LEGAL MATTERS

Our principal legal advisor is Simpson Thacher & Bartlett LLP, New York, New York. Goodwin Procter LLP, Redwood City, California, is legal advisor to the financial advisors.

EXPERTS

The consolidated financial statements of Bentley Systems, Incorporated as of and for the year ended December 31, 2018, have been included herein and in the registration statement in reliance upon the report of KPMG LLP, independent registered public accounting firm, appearing elsewhere herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of Class B common stock covered by this prospectus. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement, some of which is contained in exhibits to the registration statement as permitted by the rules and regulations of the SEC. For further information with respect to us and our Class B common stock, we refer you to the registration statement of which this prospectus forms a part, including the exhibits filed as a part of the registration statement. Statements contained in this prospectus concerning the contents of any contract or any other document are not necessarily complete. If a contract or document has been filed as an exhibit to the registration statement of which this prospectus forms a part, please see the copy of the contract or document that has been filed. Each statement in this prospectus relating to a contract or document filed as an exhibit is qualified in all respects by the filed exhibit. The SEC maintains an Internet website that contains reports, proxy statements and other information about issuers, like us, that file electronically with the SEC. The address of that website is www.sec.gov.

Immediately upon the effectiveness of the registration statement of which this prospectus forms a part, we will become subject to the information and reporting requirements of the Exchange Act and, in accordance with this law, will file periodic reports, proxy statements, and other information with the SEC. These periodic reports, proxy statements, and other information will be available for inspection and copying at the website of the SEC referred to above. We also maintain a website at www.bentley.com. Upon the effectiveness of the registration statement of which this prospectus forms a part, you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. Information contained on our website is not a part of this prospectus and the inclusion of our website address in this prospectus is an inactive textual reference only.

BENTLEY SYSTEMS, INCORPORATED AND SUBSIDIARIES
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Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Bentley Systems, Incorporated

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheet of Bentley Systems, Incorporated and subsidiaries (the Company) as of December 31, 2018, the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows for the year ended December 31, 2018, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018, and the results of its operations and its cash flows for the year ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audit. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

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

/s/ KPMG LLP

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

Philadelphia, Pennsylvania
January 10, 2020

BENTLEY SYSTEMS, INCORPORATED AND SUBSIDIARIES

Consolidated Balance Sheets

(in thousands, except share and per share data)

	December 31, 2018	September 30, 2019 (unaudited)
Assets		
Current assets:		
Cash and cash equivalents	$ 81,183	$ 125,997
Accounts receivable, net of allowances of $7,611 and $8,614, respectively	184,565	139,359
Prepaid income taxes	5,085	11,744
Prepaid and other current assets	12,390	24,438
Total current assets	283,223	301,538
Property and equipment, net	29,393	29,739
Intangible assets, net	54,001	41,989
Goodwill	446,318	447,965
Deferred income taxes	81,066	55,569
Other assets	29,595	31,801
Total assets	$ 923,596	$ 908,601
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 8,567	$ 11,800
Accruals and other current liabilities	136,699	143,042
Deferred revenues	287,682	164,837
Income taxes payable	2,794	2,705
Total current liabilities	435,742	322,384
Long-term debt	258,750	248,000
Deferred revenues	49,769	4,887
Deferred income taxes	10,470	7,769
Income taxes payable	12,904	12,709
Other liabilities	8,530	6,269
Total liabilities	776,165	602,018
Commitments and contingencies (Note 16)		
Stockholders' equity:		
Class A Common Stock, $0.01 par value, Authorized 320,000,000 shares; issued 11,601,757 shares as of December 31, 2018 and September 30, 2019 (unaudited), and Class B Common Stock, $0.01 par value, Authorized 600,000,000 shares; issued 238,681,756 and 243,475,681 shares as of December 31, 2018 and September 30, 2019 (unaudited), respectively	2,502	2,550
Additional paid-in capital	392,896	405,117
Accumulated other comprehensive loss	(29,414)	(23,636)
Accumulated deficit	(218,553)	(77,448)
Total stockholders' equity	$ 147,431	$ 306,583
Total liabilities and stockholders' equity	$ 923,596	$ 908,601

See accompanying notes to consolidated financial statements.

BENTLEY SYSTEMS, INCORPORATED AND SUBSIDIARIES

Consolidated Statements of Operations

(in thousands, except share and per share data)

	Year Ended December 31, 2018	Nine Months Ended September 30,	
		2018	2019
	Topic 605	Topic 605 (unaudited)	Topic 606 (unaudited)
Revenues:			
Subscriptions	$ 557,421	$ 414,701	$ 445,338
Perpetual licenses	61,065	46,149	38,255
Subscriptions and licenses	618,486	460,850	483,593
Services	73,224	54,110	50,139
Total revenues	691,710	514,960	533,732
Cost of revenues:			
Cost of subscriptions and licenses	55,113	40,796	48,201
Cost of services	76,211	57,467	56,048
Total cost of revenues	131,324	98,263	104,249
Gross profit	560,386	416,697	429,483
Operating expenses:			
Research and development	175,032	127,598	136,617
Selling and marketing	160,635	113,168	111,889
General and administrative	89,328	66,491	71,415
Amortization of purchased intangibles	14,000	9,961	10,402
Total operating expenses	438,995	317,218	330,323
Income from operations	121,391	99,479	99,160
Interest expense, net	(8,765)	(6,363)	(6,503)
Other income (expense), net	236	(1,966)	(14,053)
Income before income taxes	112,862	91,150	78,604
Provision for income taxes	(29,250)	11,375	11,759
Net income	142,112	79,775	66,845
Less: Net income attributable to participating securities	(4)	(7)	(10)
Net income attributable to Class A and Class B common stockholders	$ 142,108	$ 79,768	$ 66,835
Per share information:			
Net income per share, basic	$ 0.50	$ 0.28	$ 0.23
Net income per share, diluted	$ 0.49	$ 0.27	$ 0.23
Weighted average shares outstanding, basic	285,805,096	285,684,596	286,024,263
Weighted average shares outstanding, diluted	292,624,496	291,845,931	294,586,354

See accompanying notes to consolidated financial statements.

BENTLEY SYSTEMS, INCORPORATED AND SUBSIDIARIES

Consolidated Statements of Comprehensive Income

(in thousands, except share and per share data)

	Year Ended December 31,	Nine Months Ended September 30,	
	2018	2018	2019
	Topic 605	Topic 605 (unaudited)	Topic 606 (unaudited)
Net income	$ 142,112	$ 79,775	$ 66,845
Other comprehensive income (loss), net of taxes:			
Foreign currency translation adjustments	(11,020)	(4,828)	5,763
Actuarial gain on retirement plan, net of tax effect of ($62), ($12), and ($8)	146	30	15
Total other comprehensive income (loss)	(10,874)	(4,798)	5,778
Comprehensive income	$ 131,238	$ 74,977	$ 72,623

See accompanying notes to consolidated financial statements.

BENTLEY SYSTEMS, INCORPORATED AND SUBSIDIARIES

Consolidated Statements of Stockholders' Equity

(in thousands, except share and per share data)

	Stockholders' Equity					
	Class A and Class B Common Stock		Additional paid-in capital	Accumulated other comprehensive loss	Accumulated deficit	Total stockholders' equity
	Shares	Par value				
Balance as of December 31, 2017	247,465,176	$ 2,474	$ 377,809	$ (18,540)	$ (309,576)	$ 52,167
Net income	—	—	—	—	142,112	142,112
Other comprehensive loss	—	—	—	(10,874)	—	(10,874)
Dividends declared	—	—	—	—	(20,005)	(20,005)
Profit sharing plan shares, net	(465,979)	(5)	—	—	(3,382)	(3,387)
Shares issued in connection with deferred compensation plan	2,332,585	23	—	—	(6,884)	(6,861)
Deferred compensation plan voluntary contributions and vesting of awards	—	—	4,504	—	—	4,504
Payment of shareholder Put and Call rights	(1,131,928)	(11)	—	—	(8,560)	(8,571)
Common Stock Purchase Agreement, net	(1,281,633)	(13)	13	—	(9,673)	(9,673)
Stock option exercises, net	2,812,998	28	2,151	—	(1,569)	610
Stock-based compensation expense	—	—	7,882	—	—	7,882
Shares related to restricted stock, net	546,783	6	494	—	(637)	(137)
Other	5,511	—	43	—	—	43
Cumulative effect adjustment on deferred tax expense	—	—	—	—	(379)	(379)
Balance as of December 31, 2018	250,283,513	2,502	392,896	(29,414)	(218,553)	147,431
Cumulative effect of accounting changes (unaudited)	—	—	—	—	107,822	107,822
Net income (unaudited)	—	—	—	—	66,845	66,845
Other comprehensive income (unaudited)	—	—	—	5,778	—	5,778
Dividends declared (unaudited)	—	—	—	—	(19,023)	(19,023)
Profit sharing plan shares, net (unaudited)	(258,103)	(3)	—	—	(1,936)	(1,939)
Shares issued in connection with deferred compensation plan (unaudited)	2,233,807	22	—	—	(4,994)	(4,972)
Deferred compensation plan voluntary contributions and vesting of awards (unaudited)	—	—	2,664	—	—	2,664
Payment of shareholder Put and Call rights (unaudited)	(632,859)	(6)	—	—	(4,946)	(4,952)
Common Stock Purchase Agreement, net (unaudited)	64,509	1	466	—	(47)	420
Stock option exercises, net (unaudited)	2,979,031	30	3,009	—	(2,255)	784
Stock-based compensation expense (unaudited)	—	—	6,046	—	—	6,046
Shares related to restricted stock, net (unaudited)	402,250	4	(4)	—	(344)	(344)
Other (unaudited)	5,290	—	40	—	(17)	23
Balance as of September 30, 2019 (unaudited)	255,077,438	$ 2,550	$ 405,117	$ (23,636)	$ (77,448)	$ 306,583

See accompanying notes to consolidated financial statements.

BENTLEY SYSTEMS, INCORPORATED AND SUBSIDIARIES

Consolidated Statements of Cash Flows

(in thousands, except share and per share data)

	Year Ended December 31, 2018	Nine Months Ended September 30, 2018 (unaudited)	Nine Months Ended September 30, 2019 (unaudited)
Cash flows from operating activities:			
Net income	$ 142,112	$ 79,775	$ 66,845
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	29,200	21,112	23,334
Provision for accounts receivable allowance	2,393	2,320	2,109
Deferred income taxes	(60,060)	(11,256)	833
Deferred compensation plan activity	4,323	3,504	2,968
Stock-based compensation expense	7,882	5,713	6,046
Amortization and write-off of deferred debt issuance costs	552	415	415
Decrease in fair value of call options	487	—	159
Change in fair value of contingent consideration	272	—	62
Foreign currency remeasurement loss (gain)	(1,645)	147	13,956
Changes in assets and liabilities, net of effect from acquisitions:			
Accounts receivable, net	(41,787)	23,808	40,847
Prepaid and other assets	2,831	3,513	(6,505)
Accounts payable, accruals and other liabilities	37,249	19,264	18,545
Deferred revenues	21,247	(23,136)	(39,655)
Current income taxes	16,409	13,202	(11,710)
Net cash provided by operating activities	161,465	138,381	118,249
Cash flows from investing activities:			
Purchases of property and equipment and investment in capitalized software	(18,616)	(11,523)	(11,622)
Capitalization of costs to translate software products into foreign languages	(877)	(661)	(553)
Acquisitions, net of cash acquired of $7,774, $7,655, and $980, respectively	(135,264)	(131,413)	(9,662)
Net cash used in investing activities	(154,757)	(143,597)	(21,837)
Cash flows from financing activities:			
Proceeds from credit facilities	148,250	85,250	136,750
Payments of credit facilities	(159,500)	(106,250)	(147,500)
Payments of acquisition debt and other consideration	9	—	(9,878)
Payments of dividends	(20,059)	(14,800)	(18,830)
Payments for shares acquired including shares withheld for taxes	(46,451)	(30,862)	(18,417)
Proceeds from Common Stock Purchase Agreement	16,220	8,500	4,510
Net proceeds from exercise of common stock options and restricted stock	2,732	2,092	3,039
Net cash provided by (used in) financing activities	(58,799)	(56,070)	(50,326)
Effect of exchange rate changes on cash and cash equivalents	(1,193)	(425)	(1,272)
Increase (decrease) in cash and cash equivalents	(53,284)	(61,711)	44,814
Cash and cash equivalents, beginning of year	134,467	134,467	81,183
Cash and cash equivalents, end of period	$ 81,183	$ 72,756	$ 125,997
Supplemental information:			
Cash paid for income taxes	$ 25,782	$ 16,198	$ 24,453
Income tax refunds	7,285	6,541	1,126
Interest paid	8,863	6,270	7,214
Non-cash contingent acquisition consideration	13,456	13,206	50
Non-cash deferred acquisition consideration in goodwill and liabilities	690	689	—

See accompanying notes to consolidated financial statements.

Note 1: Basis of Presentation and Significant Accounting Policies

Description of Business and Operations—Bentley Systems, Incorporated (Bentley or the Company) is a Delaware corporation that was founded in 1984 and is headquartered in Exton, Pennsylvania. The Company, together with its subsidiaries, is a leading global provider of infrastructure engineering software solutions for professionals and organizations involved in the project delivery and operational performance of infrastructure assets. The Company is dedicated to advancing infrastructure through its comprehensive software solutions that span engineering disciplines, assets, and lifecycle processes. The Company's integrated software platform encompasses both the design and construction of infrastructure, which the Company refers to as project delivery, and the operation of infrastructure assets, which the Company refers to as asset performance. The Company's software solutions are designed to enable information mobility for a more complete flow of information among applications, across distributed project teams, from offices to the field, and throughout the infrastructure lifecycle. The Company believes its solutions extend the reach and scope of digital engineering models from the project delivery phase into the asset performance phase of the infrastructure lifecycle, which enables engineers to make infrastructure assets more intelligent and sustainable. Users of the Company's solutions include engineers and construction professionals who collaborate on project delivery, and owner-operators who maintain, adapt, and optimize the performance of infrastructure assets.

Basis of Presentation and Consolidation—The consolidated financial statements and accompanying notes have been prepared in United States (U.S.) dollars and in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP). The accompanying consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation.

The Company's principal subsidiaries are Bentley Systems International Limited (Ireland), Bentley Software International, Limited (Bermuda), Bentley Canada Inc. (Canada), Bentley Systems Europe BV (the Netherlands), Bentley Systems Pty Ltd. (Australia), Bentley Systems Co., Ltd (Japan), Bentley Systems Germany GmbH (Germany), Bentley Systems Ltd (UK), and Bentley Systems India Private Limited (India).

Unaudited Interim Financial Information—The accompanying interim consolidated balance sheet as of September 30, 2019, the consolidated statements of operations, comprehensive income, and cash flows for the nine months ended September 30, 2018 and 2019, the consolidated statement of stockholders' equity for the nine months ended September 30, 2019, and the related note disclosures are unaudited. These unaudited interim consolidated financial statements have been prepared in accordance with U.S. GAAP. In management's opinion, the unaudited interim consolidated financial statements have been prepared on the same basis as the audited consolidated financial statements for fiscal year 2018, and include all adjustments necessary to state fairly the financial position as of September 30, 2019; the results of operations and cash flows for the nine months ended September 30, 2018 and 2019; and the statement of stockholders' equity for the nine months ended September 30, 2019. The financial data and the other information disclosed in these notes to the consolidated financial statements related to these nine-month periods are unaudited. The results for the nine months ended September 30, 2018 and 2019 are not necessarily indicative of the operating results to be expected for the full fiscal year or any future period.

Note 1: Basis of Presentation and Significant Accounting Policies (Continued)

Stock Dividend—On May 1, 2018, the Company paid a previously declared stock dividend (the Dividend) to all holders of the Company's common stock as of April 30, 2018. Under the terms of the Dividend, each stockholder received one share of the Company's Class B Common Stock for each share of either Class A or Class B Common Stock then owned, including shares held in the Company's 401(k)/Profit Sharing plan. Because the Dividend had the economic effect of a 2-for-1 stock split (with twice as many shares issued, each worth half the original value of a share), all prior period share and per share amounts presented in the consolidated financial statements and notes have been adjusted on a retroactive basis to give effect to the Dividend.

In addition, under the terms of the Company's equity incentive plans and instruments, all outstanding awards and instruments were automatically adjusted as required by their terms to reflect the Dividend, including, as it relates to stock options, by doubling the number of outstanding options and reducing by one-half the exercise prices of all outstanding options.

Use of Estimates—The preparation of consolidated financial statements and related disclosures in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the dates of the financial statements and the reported amounts of revenues and expenses during the reporting periods. The Company's critical estimates and assumptions include revenue recognition, adequacy of allowance for accounts receivable, determination of the fair value of acquired assets and liabilities, the fair value of derivative financial instruments, the fair value of stock-based compensation, useful lives for depreciation and amortization, impairment of goodwill and intangible assets, and accounting for income taxes. Actual results could differ materially from these estimates.

Reclassifications—Certain prior year amounts have been reclassified for consistency with the current period presentation. These reclassifications had no effect on the reported results of operations.

Cash and Cash Equivalents—The Company considers all highly liquid investments with a maturity of three months or less at the date of purchase to be cash equivalents. At September 30, 2019 and December 31, 2018, all of the Company's cash and cash equivalents consisted of money market funds and cash held in checking accounts maintained at various financial institutions. Cash equivalents are recorded at cost, which approximates fair value.

Revenues—On January 1, 2019, the Company adopted ASU No. 2014-09, *Revenue from Contracts with Customers*, and related amendments (Topic 606) as discussed further in Recently Adopted Accounting Guidance below. Results for reporting periods beginning on or after January 1, 2019 are presented under Topic 606, while prior period amounts are not adjusted and continue to be reported in accordance with the guidance provided by ASC 985-605, *Software-Revenue Recognition,* and revenues for non-software deliverables in accordance with Topic 605 (ASC 985-605 and Topic 605 are collectively referred to as Topic 605).

The accounting policies for the Company's revenue recognition are explained in Note 3, Revenue from Contracts with Customers.

Cost of Revenues—Cost of subscriptions and licenses includes salaries and other related costs, including the depreciation of property and equipment and the amortization of capitalized software costs

Note 1: Basis of Presentation and Significant Accounting Policies (Continued)

associated with servicing software subscriptions, the amortization of intangible assets associated with acquired software and technology, channel partner compensation for providing sales coverage to subscribers, as well as cloud-related costs incurred for servicing our customers using cloud deployed hosted solutions and those using our SELECT program. Cost of services includes salaries for internal and third-party personnel and related overhead costs, including depreciation of property and equipment, for providing training, implementation, configuration, and customization services to customers, amortization of capitalized software costs, and related out-of-pocket expenses incurred.

Property and Equipment—Property and equipment are recorded at cost less accumulated depreciation. Depreciation is calculated using the straight-line method over the estimated useful lives of the assets, which range from three to twenty-five years. Leasehold improvements are depreciated over the shorter of the estimated useful life of the leasehold improvements or the lease term. Land is not depreciated. Depreciation for equipment commences once it is placed in service and depreciation for buildings and leasehold improvements commences once they are ready for their intended use. Estimated useful lives of property and equipment are as follows:

	Useful life
Building and improvements	25 years
Computer equipment and software	3 years
Furniture, fixtures, and equipment	5 years
Aircraft	6 years
Automobiles	3 years

Cost of maintenance and repairs is charged to expense as incurred. Upon retirement or other disposition, the cost of the asset and the related accumulated depreciation are removed from the accounts and any resulting gain or loss is reflected in the consolidated statements of operations.

Goodwill and Other Intangibles—Intangible assets arise from acquisitions and principally consist of goodwill, trademarks, customer relationships, in-process research and development, and acquired software and technology. Intangibles, other than goodwill and in-process research and development, are amortized on a straight-line basis over their estimated useful lives, which range from two to ten years (see Note 6).

Goodwill consists of the excess of cost over the fair value of net assets acquired in business combinations. Goodwill is not amortized, but instead is tested annually for impairment, or more frequently if events occur or circumstances change that would more likely than not reduce its fair value below its carrying amount. The Company operates as a single reporting unit.

The initial step in evaluating goodwill for impairment requires the Company to determine the reporting unit's fair value and compare it to the carrying value, including goodwill, of such reporting unit. As part of the assessment, the Company may first qualitatively assess whether it is more likely than not (a likelihood of more than 50 percent) that a goodwill impairment exists. In evaluating whether it is more likely than not that a goodwill impairment exists, the Company considers the factors identified in ASC 350, *Intangibles—Goodwill and Other*. The Company also considers whether there are significant differences between the carrying amount and the estimated fair value of its assets and liabilities, and the existence of significant unrecognized intangible assets. Based upon the Company's

Note 1: Basis of Presentation and Significant Accounting Policies (Continued)

most recent annual impairment assessment completed as of October 1, 2018, it is not more likely than not that a goodwill impairment exists. There was no impairment of goodwill as a result of the Company's annual impairment assessments conducted during the year ended December 31, 2018 or during the nine months ended September 30, 2018 and 2019.

Long-Lived Assets—The Company evaluates the recoverability of long-lived assets, such as property and equipment and amortizable intangible assets, in accordance with authoritative guidance on accounting for the impairment or disposal of long-lived assets, which includes evaluating long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying value of these assets may not be recoverable. If circumstances require a long-lived asset to be tested for possible impairment, the Company first compares the undiscounted cash flows expected to be generated by that asset to its carrying value. If the carrying value of the long-lived asset is not recoverable on an undiscounted cash flow basis, an impairment is recognized to the extent that the carrying value exceeds its fair value. No impairment of long-lived assets occurred during the year ended December 31, 2018 or during the nine months ended September 30, 2018 and 2019.

Research and Development—Research and development expenses, which are generally expensed as incurred, primarily consist of personnel and related costs of our research and development staff, including salaries, benefits, bonuses, stock-based compensation, and costs of certain third-party contractors, as well as allocated overhead costs. The Company expenses software development costs, including costs to develop software products or the software component of products to be sold, leased, or marketed to external accounts, before technological feasibility is reached. Technological feasibility is typically reached shortly before the release of such products and as a result, development costs that meet the criteria for capitalization were not material for the periods presented.

The Company capitalizes certain development costs related to certain projects under its Accelerated Commercial Development Program (the Company's structured approach to an in-house business incubator function) once technological feasibility is established. Technological feasibility is established when a detailed program design has been completed and documented, the Company has established that the necessary skills, hardware, and software technology are available to produce the product, and there are no unresolved high-risk development issues. Once the software is ready for its intended use, amortization is recorded over the software's estimated useful life (generally three years). During the year ended December 31, 2018 and the nine months ended September 30, 2018 and September 30, 2019, total costs capitalized under the Accelerated Commercial Development Program were $5,735, $4,155, and $3,807, respectively. Additionally, during the year ended December 31, 2018 and the nine months ended September 30, 2018 and September 30, 2019, total Accelerated Commercial Development Program related amortization recorded in *Costs of subscriptions and licenses* was $2,052, $1,307, and $2,337, respectively.

Certain costs related to the creation of foreign language translations are capitalized and amortized over the economic life of the software.

Advertising Expense—The Company expenses advertising costs as incurred. Advertising expense of $2,378, $1,562, and $976 is included in *Selling and marketing* expense in the accompanying consolidated statements of operations for the year ended December 31, 2018 and the nine months ended September 30, 2018 and September 30, 2019, respectively.

Note 1: Basis of Presentation and Significant Accounting Policies (Continued)

Income Taxes—The Company recognizes deferred income tax assets and liabilities for the expected future tax consequences of net operating loss carryforwards, credit carryforwards, and temporary differences between financial statement carrying amounts of assets and liabilities and their respective tax bases, using enacted tax rates in effect for the year in which the items are expected to reverse.

The Company accounts for uncertain tax positions based on an evaluation as to whether it is more likely than not that a tax position will be sustained on audit, including resolution of any related appeals or litigation processes. This evaluation is based on all available evidence and assumes that the appropriate tax authorities have full knowledge of all relevant information concerning the tax position. The tax benefit recognized is based on the largest amount that is greater than 50% likely of being realized upon ultimate settlement. Interest expense and penalties are included in *Provision for income taxes* in the consolidated statements of operations.

U.S. Tax Reform—On December 22, 2017, the Tax Cuts and Jobs Act (the Act or U.S. tax reform) was enacted. U.S. tax reform, among other things, reduces the U.S. federal income tax rate to 21% from 35% in 2018, institutes a dividends received deduction for foreign earnings with a related tax for the deemed repatriation of unremitted foreign earnings, and creates a new U.S. minimum tax on earnings of foreign subsidiaries. The Company has completed its accounting for the effects of the Act in 2018 and has included those effects in *Provision for income taxes* in the consolidated statements of operations.

Segment—Operating segments are defined as components of an enterprise about which separate financial information is evaluated regularly by the chief operating decision maker (CODM) to allocate resources and assess performance. The Company defines its CODM to be its chief executive officer. The chief executive officer reviews the financial information presented on a consolidated basis for purposes of making operating decisions, allocating resources, and evaluating the Company's financial performance. Accordingly, the Company has determined it operates and manages its business in a single reportable operating segment, the development and marketing of computer software and related services. The Company markets its products and services through the Company's offices in the United States and its wholly-owned branches and subsidiaries internationally.

Foreign Currency Translation—Gains and losses resulting from foreign currency transactions denominated in currencies other than the functional currency are included in *Other income (expense), net* (see Note 19). The assets and liabilities of foreign subsidiaries are translated from their respective functional currencies into U.S. Dollars at the rates in effect at the balance sheet date, and revenue and expense amounts are translated at average rates during the period. Foreign currency translation adjustments are recorded as a component of *Other comprehensive income (loss), net of taxes* in the consolidated statements of comprehensive income.

Concentration of Credit Risk—Financial instruments that potentially subject the Company to concentration of credit risk consist primarily of its cash and cash equivalents and receivables. To reduce credit risk, the Company performs ongoing credit evaluations of its customers and limits the amount of credit extended when deemed necessary. Generally, the Company requires no collateral from its customers. The Company maintains an allowance for potential credit losses, but historically has not experienced any significant losses related to individual customers or groups of customers in any particular industry or geographic area. No single customer accounted for more than 2% of the

Note 1: Basis of Presentation and Significant Accounting Policies (Continued)

Company's revenue in the year ended December 31, 2018 or the nine months ended September 30, 2018 and 2019.

The Company's cash and cash equivalents are deposited with financial institutions and invested in money market funds that the Company believes are of high credit quality.

Accounts Receivable and Allowance for Doubtful Accounts—Accounts receivable represent receivables from customers for products and services invoiced by the Company for which payment is outstanding. Receivables are recorded at the invoiced amount and do not bear interest.

The Company establishes an allowance for doubtful accounts for estimated losses expected during the accounts receivable collection process. The allowance for doubtful accounts reduces the accounts receivable balance to the net realizable value of the outstanding accounts and installment receivables. The development of the allowance for doubtful accounts is based on a review of past due amounts, historical write-off and recovery experience, as well as aging trends affecting specific accounts and general operational factors affecting all accounts. Account balances are charged off against the allowance after all means of collection have been exhausted and the potential for recovery is considered remote.

The Company considers current economic trends when evaluating the adequacy of the allowance for doubtful accounts. If circumstances relating to specific customers change or unanticipated changes occur in the general business environment, the Company's estimate of the recoverability of receivables could be further adjusted.

Activity related to the Company's allowance for doubtful accounts was as follows:

	Year Ended December 31,	Nine Months Ended September 30,	
	2018	2018	2019
Balance, beginning of period	$ 5,669	$ 5,669	$ 7,611
Allowances (recoveries) recorded	1,620	1,679	1,023
Foreign currency translation adjustments	322	38	(20)
Balance, end of period	$ 7,611	$ 7,386	$ 8,614

Stock-Based Compensation—The Company records all stock-based compensation as an expense in the consolidated statements of operations measured at the grant date fair value of the award. The fair value of stock option awards is determined using the Black-Scholes option pricing model. For all other equity-based arrangements, the share-based compensation expense is based on the share price at the grant date (see Note 13).

Guarantees—The Company's software license agreements typically provide for indemnification of customers for intellectual property infringement claims. The Company also warrants to customers, when requested, that its software products operate substantially in accordance with standard specifications for a limited period of time. The Company has not incurred significant obligations under customer indemnification or warranty provisions historically and does not expect to incur significant obligations in

Note 1: Basis of Presentation and Significant Accounting Policies (Continued)

the future. Accordingly, the Company does not maintain accruals for potential customer indemnification or warranty-related obligations.

Fair Value Measurements—The Company categorizes its assets and liabilities measured at fair value into a three-level hierarchy, based on the priority of the inputs to the respective valuation technique. The fair value hierarchy gives the highest priority to quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). An asset or liability's classification within the fair value hierarchy is based on the lowest level of significant input to its valuation. The Company's assessment of the significance of a particular input to the fair value measurement requires judgment and may affect the valuation of fair value assets and liabilities and their placement within the fair value hierarchy levels (see Note 15).

Note 2: Recent Accounting Pronouncements

In August 2018, the Financial Accounting Standards Board (FASB) issued ASU No. 2018-15, Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): *Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract*, which clarifies the accounting for implementation costs in cloud computing arrangements. ASU 2018-15 is effective for the Company for the annual reporting period beginning after December 15, 2020, and interim periods beginning after December 15, 2021. Early adoption is permitted, including adoption in an interim period. The Company is currently evaluating the accounting, transition, and disclosure requirements of the standard and its impact on the Company's consolidated results of operations and financial position.

In August 2018, the FASB issued ASU No. 2018-13, Fair Value Measurement (Topic 820): *Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement*. ASU 2018-13 modifies certain required disclosures and establishes new requirements related to fair value measurement. Additionally, the disclosure requirement to state the reasons for transfers between Level 1 and Level 2, the policy for timing transfers between levels, and the valuation process for Level 3 measurements have been removed. The ASU is effective for the Company for the annual period beginning after December 15, 2019, including interim periods within that annual period. Early adoption is permitted. The Company does not believe the adoption of this guidance will have a material impact on the Company's consolidated results of operations and financial position.

In January 2017, the FASB issued ASU No. 2017-04, Intangibles—Goodwill and Other (Topic 350): *Simplifying the Test for Goodwill Impairment*, which removes Step 2 of the goodwill impairment test. A goodwill impairment will now be calculated as the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. This ASU is effective for the Company for the interim and annual reporting periods beginning after December 15, 2021. Early adoption is permitted, including adoption in an interim period. The Company does not believe that this ASU will have a material impact on the Company's consolidated results of operations and financial position.

In August 2016, the FASB issued ASU No. 2016-15, Statement of Cash Flows (Topic 230): *Classification of Certain Cash Receipts and Cash Payments*. ASU 2016-15 addresses eight specific cash flow issues with the objective of reducing diversity in how certain cash receipts and cash payments are

Note 2: Recent Accounting Pronouncements (Continued)

presented and classified in the statement of cash flows. This new standard is effective for the Company for the fiscal year beginning after December 15, 2018 and interim periods within the fiscal year beginning after December 15, 2019. Early adoption is permitted. The Company does not believe that this ASU will have a material impact on the Company's consolidated statements of cash flows.

In February 2016, the FASB issued ASU No. 2016-02 regarding ASC 842, *Leases*. This ASU requires balance sheet recognition of lease assets and lease liabilities by lessees for leases classified as operating leases, with an optional policy election to not recognize lease assets and lease liabilities for leases with a term of 12 months or less. The amendments also require new disclosures, including qualitative and quantitative requirements, providing additional information about the amounts recorded in the financial statements. The new standard is effective for the Company for the fiscal year beginning after December 15, 2020, including interim periods within the fiscal year beginning after December 15, 2020. Early adoption is permitted. Subsequent to the issuance of ASU 2016-02, the FASB issued ASU Nos. 2018-01, *Land Easement Practical Expedient for Transition to Topic 842*, 2018-10, *Codification Improvements to Topic 842, Leases*, 2018-11, Leases (Topic 842): *Targeted Improvements*, and 2018-20, *Narrow-Scope Improvements for Lessors*. These ASUs do not change the core principle of the guidance in ASU 2016-02. Instead, these amendments are intended to clarify and improve operability of certain topics included within the lease standard. These ASUs will have the same effective date and transition requirements as ASU 2016-02. The Company is currently evaluating the accounting, transition, and disclosure requirements of the standards and their impact on the Company's consolidated results of operations and financial position.

Recently Adopted Accounting Guidance

Revenue Recognition—On January 1, 2019, the Company adopted Topic 606, which supersedes substantially all existing revenue recognition guidance under U.S. GAAP. The Company adopted Topic 606 using the modified retrospective method, under which the cumulative effect of initially applying Topic 606 of $125,464 ($101,489, net of tax) was recorded as a reduction to the opening balance of *Accumulated deficit* as of January 1, 2019. The Company applied the standard only to contracts that were not completed as of the date of initial application. The comparative information has not been adjusted and continues to be reported under Topic 605.

The core principle of Topic 606 is to recognize revenue when promised goods or services are transferred to a customer in an amount that reflects the consideration that is expected to be received for those goods or services. Under the new guidance, the Company is required to evaluate revenue recognition through a five-step process: (1) identify a contract with a customer; (2) identify the performance obligations in the contract; (3) determine the transaction price; (4) allocate the transaction price to the performance obligations in the contract; and (5) recognize revenue when (or as) the Company satisfies a performance obligation. The standard also requires disclosure of the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers. In applying the principles of Topic 606, more judgment and estimates are required within the revenue recognition process than was required under previous U.S. GAAP, including identifying performance obligations, estimating the amount of variable consideration to include in the transaction price, and estimating the value of each performance obligation to allocate the total transaction price to each separate performance obligation.

Note 2: Recent Accounting Pronouncements (Continued)

The most significant impact to the Company resulting from the adoption of Topic 606 relates to timing of revenue recognition for perpetual licenses and the accounting for certain of the Company's subscription arrangements that include term-based software licenses bundled with support. Under prior guidance, revenue for perpetual licenses was recognized over a three-year period, while revenue attributable to the term-based software licenses was recognized ratably over the term. Under Topic 606, both perpetual license and term-based software license revenue will be recognized upfront upon delivery of the software license. Revenue recognition related to support, hosting, usage-based offerings, and services is substantially unchanged, with support and hosting revenue recorded ratably over the contract term, usage-based revenue recognized upon usage or delivery, and services revenue as delivered.

Costs to Obtain a Contract with a Customer—With the adoption of Topic 606, the Company also adopted ASC 340-40, *Other Assets and Deferred Costs—Contracts with Customers* (Topic 340-40). Prior to the adoption of Topic 340-40, the Company previously recognized compensation paid to sales employees and certain channel partners related to obtaining customer contracts when incurred. Under Topic 340-40, the Company recognizes an asset for the incremental costs of obtaining a contract with a customer if the Company expects the benefit of those costs to be longer than one year. The contract costs are amortized based on the economic life of the goods and services to which the contract costs relate. The Company has determined that certain sales incentive programs meet the requirements to be capitalized. The Company applies a practical expedient to expense costs as incurred for costs to obtain a contract with a customer when the amortization period would have been one year or less. These costs include the Company's internal sales force compensation program and certain channel partner sales incentive programs for which the annual compensation is commensurate with annual sales activities. Under the modified retrospective method, the Company recorded a cumulative decrease of $7,734 ($6,333, net of tax) to the opening balance of *Accumulated deficit* as of January 1, 2019. The comparative information has not been adjusted and continues to be reported as incurred.

Note 2: Recent Accounting Pronouncements (Continued)

Quantitative Effect of Topics 606 and 340-40 Adoption

The following tables compare the reported consolidated balance sheet and statements of operations, as of and for the nine months ended September 30, 2019, to the amounts had Topic 605 been in effect.

	December 31, 2018	September 30, 2019		
	As reported Topic 605	As adjusted Topic 605	Impact from the adoption of Topic 606 and Topic 340-40	As reported Topic 606
Assets				
Current assets				
Cash and cash equivalents	$ 81,183	$ 125,997	$ —	$ 125,997
Accounts receivable, net	184,565	138,851	508	139,359
Prepaid income taxes	5,085	17,583	(5,839)	11,744
Prepaid and other current assets[(1)]	12,390	20,791	3,647	24,438
Total current assets	283,223	303,222	(1,684)	301,538
Property and equipment, net	29,393	29,739	—	29,739
Intangible assets, net	54,001	41,989	—	41,989
Goodwill	446,318	447,965	—	447,965
Deferred income taxes	81,066	74,803	(19,234)	55,569
Other assets[(1)]	29,595	26,084	5,717	31,801
Total assets	$ 923,596	$ 923,802	$ (15,201)	$ 908,601
Liabilities and Stockholders' Equity				
Current liabilities				
Accounts payable	$ 8,567	$ 11,800	$ —	$ 11,800
Accruals and other current liabilities	136,699	142,749	293	143,042
Deferred revenues current	287,682	238,415	(73,578)	164,837
Income taxes payable	2,794	2,357	348	2,705
Total current liabilities	435,742	395,321	(72,937)	322,384
Long-term debt	258,750	248,000	—	248,000
Deferred revenues long-term	49,769	47,876	(42,989)	4,887
Deferred income taxes	10,470	7,604	165	7,769
Income taxes payable long-term	12,904	12,709	—	12,709
Other long-term liabilities	8,530	6,269	—	6,269
Total liabilities	776,165	717,779	(115,761)	602,018
Stockholders' equity				
Common Stock	2,502	2,550	—	2,550
Additional paid-in capital	392,896	405,117	—	405,117
Accumulated other comprehensive loss	(29,414)	(21,192)	(2,444)	(23,636)
Accumulated deficit[(2)]	(218,553)	(180,452)	103,004	(77,448)
Total stockholders' equity	$ 147,431	$ 206,023	$ 100,560	$ 306,583
Total liabilities and stockholders' equity	$ 923,596	$ 923,802	$ (15,201)	$ 908,601

(1) As of September 30, 2019, contract cost assets of $2,535 were included in *Other current assets* and $5,221 were included in *Other assets (non-current).*

Note 2: Recent Accounting Pronouncements (Continued)

(2) Included in *Accumulated deficit* on the opening balance of January 1, 2019 is $107,822, net of tax, for the cumulative effect adjustment of adopting Topics 606 and 340-40.

	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2019		
	As reported Topic 605	As adjusted Topic 605	Impact from the adoption of Topics 606 and 340-40	As reported Topic 606
Revenues:				
Subscriptions	$ 414,701	$ 449,957	$ (4,619)	$ 445,338
Perpetual licenses	46,149	38,899	(644)	38,255
Subscriptions and licenses	460,850	488,856	(5,263)	483,593
Services	54,110	49,244	895	50,139
Total revenues	514,960	538,100	(4,368)	533,732
Cost of revenues				
Cost of subscriptions and licenses	40,796	48,129	72	48,201
Cost of services	57,467	56,048	—	56,048
Total cost of revenues	98,263	104,177	72	104,249
Gross profit	416,697	433,923	(4,440)	429,483
Operating expenses:				
Research and development	127,598	136,617	—	136,617
Selling and marketing	113,168	111,985	(96)	111,889
General and administrative	66,491	71,415	—	71,415
Amortization of purchased intangibles	9,961	10,402	—	10,402
Total operating expenses	317,218	330,419	(96)	330,323
Income from operations	99,479	103,504	(4,344)	99,160
Interest expense, net	(6,363)	(6,503)	—	(6,503)
Other expense, net	(1,966)	(14,053)	—	(14,053)
Income before income taxes	91,150	82,948	(4,344)	78,604
Provision for income tax expense	11,375	11,285	474	11,759
Net income	$ 79,775	$ 71,663	$ (4,818)	$ 66,845

Note 3: Revenue from Contracts with Customers

On January 1, 2019, the Company adopted Topic 606 using the modified retrospective method, under which the cumulative effect of initially applying Topic 606 of $125,464 ($101,489, net of tax) was recorded as a reduction to the opening balance of *Accumulated deficit*. The impact from adoption was primarily derived from the timing of revenue recognition for perpetual licenses and the accounting for certain of the Company's subscription arrangements that include term-based software licenses bundled with support. Under prior guidance, revenue for perpetual licenses was recognized over a three-year period, while revenue attributable to the term-based software licenses was recognized ratably over the

Note 3: Revenue from Contracts with Customers (Continued)

term. Under Topic 606, both perpetual license and term-based software license revenue will be recognized up-front upon delivery of the software license. The comparative information has not been adjusted and continues to be reported under Topic 605. Refer to Note 2, Recent Accounting Pronouncements, for a qualitative and quantitative discussion of the adoption impact.

Topic 606 establishes a principle for recognizing revenue upon the transfer of promised goods or services to customers, in an amount that reflects the expected consideration received in exchange for those goods or services.

Nature of Products and Services

The Company generates revenues from subscriptions, perpetual licenses, and professional services.

Subscriptions

SELECT subscriptions—A prepaid annual recurring subscription that accounts can elect to add to a new or previously purchased perpetual license. SELECT provides accounts with benefits, including upgrades, comprehensive technical support, pooled licensing benefits, annual portfolio balancing exchange rights, learning benefits, certain Azure-based collaboration services, mobility advantages, and access to other available benefits. Under Topic 606, SELECT subscription revenues are recognized as distinct performance obligations are satisfied. The performance obligations within the SELECT offering, outside of the portfolio balancing exchange right, are concurrently delivered and have the same pattern of recognition. These performance obligations are accounted for ratably over the term as a single performance obligation. Under Topic 605, SELECT subscriptions revenue was recognized on a ratable basis, over the subscription term.

Enterprise subscriptions—The Company also provides enterprise subscription offerings which provide its largest accounts with complete and unlimited global access to the Company's comprehensive portfolio of solutions. Enterprise License Subscriptions (ELS) provide access for a prepaid annual fee. E365 subscriptions (E365), which were introduced during the fourth quarter of 2018, have unrestricted access to the Company's comprehensive software portfolio, similar to ELS, however are charged based upon daily usage. The daily usage fee also includes maintenance and Success Plan services, which are designed to achieve business outcomes through more efficient and effective use of our software. The ELS and E365 programs both contain a distinct term license component. Under Topic 606, ELS revenue is recognized as the distinct performance obligations are satisfied. Under Topic 605, ELS revenue was recognized on a ratable basis, over the subscription term. E365 revenues are recognized based upon usage incurred by the account under both Topic 606 and 605.

Term license subscriptions—The Company provides annual, quarterly, and monthly term licenses for its software products. Annual term licenses (ATL) are generally prepaid annually for named user access to specific products. Quarterly term license (QTL) subscriptions allow accounts to pay quarterly in arrears for license usage that is beyond their SELECT contracted quantities. Monthly term license (MTL) subscriptions are identical to QTL subscriptions, except for the term of the license, and the manner in which they are monetized. MTL subscriptions require a Cloud Services Subscription (CSS), which are described below.

Note 3: Revenue from Contracts with Customers (Continued)

Visas and Passports are quarterly or annual term licenses enabling users to access specific project or enterprise information and entitle certain functionality of the Company's *ProjectWise* and *AssetWise* systems. The Company's standard offerings are usage based with monetization through the Company's CSS program.

Under Topic 606, annual, quarterly, and monthly term licenses revenues are recognized as the distinct performance obligations for each are satisfied. Billings in advance are recorded as *Deferred revenues* in the consolidated balance sheets. Under Topic 605, the subscriptions revenue was recognized on a ratable basis, over the subscription term. QTL, MTL, Visas and Passports subscriptions are recognized based upon usage incurred by the account under both Topic 606 and 605.

Cloud Services Subscription is a program designed to streamline the procurement, administration, and payment process. The program requires an account to estimate their annual usage for CSS eligible offerings and deposit funds in advance. Actual consumption is monitored and invoiced against the deposit on a calendar quarter basis. CSS balances not utilized for eligible products or services may roll over to future periods or are refundable. Paid and unconsumed CSS balances are recorded in *Accruals and other current liabilities* in the consolidated balance sheets. Software and services consumed under CSS are recognized pursuant to the applicable revenue recognition guidance for the respective software or service and classified as subscriptions or services based on their respective nature.

Perpetual licenses

Perpetual licenses may be sold with or without attaching a SELECT subscription. Historically, attachment and retention of the SELECT subscription has been high given the benefits of the SELECT subscription. Perpetual license revenue is recognized upon delivery of the license to the user under Topic 606. Under Topic 605, the Company recognized perpetual licenses revenue ratably over a three-year term due to the portfolio balancing feature users obtain through their SELECT subscriptions.

Services

The Company provides professional services including training, implementation, configuration, customization, and strategic consulting services. The Company performs projects on both a time and materials and a fixed fee basis. The Company's recent and preferred contractual structures for delivering professional services include (i) delivery of the services in the form of subscription-like, packaged offerings which are annually recurring in nature, and (ii) delivery of the Company's growing portfolio of Success Plans in standard offerings which offer a level of subscription service over and above the standard technical support offered to all accounts as part of their SELECT or Enterprise agreement. Revenues are recognized as services are performed under both Topic 606 and 605.

The Company primarily utilizes its direct internal sales force and also has arrangements through independent channel partners to promote and sell Bentley products and subscriptions to end-users. Channel partners are authorized to promote the sale of an authorized set of Bentley products and subscriptions within an authorized geography under a Channel Partner Agreement.

Note 3: Revenue from Contracts with Customers (Continued)

Significant Judgments and Estimates

The Company's contracts with customers may include promises to transfer licenses (perpetual or term-based), maintenance, and services to a user. Judgment is required to determine if the promises are separate performance obligations, and if so, the allocation of the transaction price to each performance obligation. When an arrangement includes multiple performance obligations which are concurrently delivered and have the same pattern of transfer to the customer, the Company accounts for those performance obligations as a single performance obligation. For contracts with more than one performance obligation, the transaction price is allocated among the performance obligations in an amount that depicts the relative standalone selling price (SSP) of each obligation. Judgment is required to determine the SSP for each distinct performance obligation. In instances where SSP is not directly observable, such as when the Company does not sell the product or service separately, the Company determines the SSP using information that may include market conditions and other observable inputs. The Company uses a range of amounts to estimate SSP when it sells each of the products and services separately and needs to determine whether there is a discount that should be allocated based on the relative SSP of the various products and services.

The Company's SELECT agreement provides users with perpetual licenses a right to exchange software for other eligible perpetual licenses on an annual basis upon renewal. The Company concluded that the portfolio balancing feature represents a material right resulting in the deferral of the associated revenue. Judgment is required to estimate the percentage of users who may elect to portfolio balance and considers inputs such as historical user elections. As of September 30, 2019, the Company has deferred $17,846 related to portfolio balancing exchange rights which is included in *Deferred revenues* on the consolidated balance sheet.

Contract Assets and Contract Liabilities

	January 1, 2019	September 30, 2019
Contract assets	$ 173	$ 1,112
Deferred revenues	212,529	169,724

As of September 30, 2019, the Company's contract assets relate to performance obligations completed in advance of the right to invoice and are included in *Prepaid and other current assets*. Contract assets were not impaired as of September 30, 2019.

Deferred revenues consist of billings made or payments received in advance of revenue recognition from subscriptions, SELECT, and professional services. The timing of revenue recognition may differ from the timing of billings to users.

During the nine months ended September 30, 2019, $178,304 of revenue that was included in the January 1, 2019 deferred revenue opening balance was recognized. There were additional deferrals of $139,390, which were primarily related to new billings.

Note 3: Revenue from Contracts with Customers (Continued)

Remaining Performance Obligations

The Company's contracts with customers include amounts allocated to performance obligations that will be satisfied at a later date. As of September 30, 2019, amounts allocated to these remaining performance obligations are $169,724, of which the Company expects to recognize 97.1% over the next 12 months with the remaining amount thereafter.

Disaggregation of Revenues

The following table details revenues:

	Year Ended December 31, 2018	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2019	
	Topic 605	Topic 605	Topic 605	Topic 606
Revenues:				
Subscriptions:				
SELECT subscription revenues	$ 273,745	$ 206,250	$ 204,049	$ 196,564
Enterprise license subscriptions	182,816	137,540	143,366	135,959
Term license subscriptions	100,860	70,911	102,542	112,815
Subscriptions	557,421	414,701	449,957	445,338
Perpetual licenses:				
Perpetual licenses	61,065	46,149	38,899	38,255
Subscriptions and licenses	618,486	460,850	488,856	483,593
Services:				
Professional services (recurring)	25,981	19,080	17,170	15,682
Professional services (all other)	47,243	35,030	32,074	34,457
Services	73,224	54,110	49,244	50,139
Total revenues	$ 691,710	$ 514,960	$ 538,100	$ 533,732

The Company recognizes perpetual licenses and the term license component of subscriptions as revenue when either the licenses are delivered or at the start of the subscription term. For the nine months ended September 30, 2019, the Company recognized $225,921 of license related revenues, of which $187,666 was attributable to the term license component of the Company's subscription based commercial offerings recorded in Subscriptions.

Note 3: Revenue from Contracts with Customers (Continued)

Under Topic 606, the Company derived 8% of its total revenues through channel partners for the nine months ended September 30, 2019.

	Year Ended December 31, 2018	Nine Months Ended September 30,		
		2018	2019	2019
	Topic 605	Topic 605	Topic 605	Topic 606
Revenues:				
Americas[1]	$ 328,749	$ 243,194	$ 265,374	$ 259,216
Europe, the Middle East, and Africa	231,486	173,366	171,100	171,604
Asia Pacific	131,475	98,400	101,626	102,912
Total Revenues	$ 691,710	$ 514,960	$ 538,100	$ 533,732

(1) Americas includes the United States, Canada, and Latin America (including the Caribbean).

Adoption of the standards had no impact to net cash provided by or used in operating, financing, or investing activities on the Company's consolidated statement of cash flows.

Note 4: Acquisitions

During the year ended December 31, 2018 and the nine months ended September 30, 2019, the Company completed a number of acquisitions, none of which were material, individually or in the aggregate, to the Company's consolidated statements of operations. The aggregate details of the Company's acquisition activity are as follows:

	Acquisitions completed in	
	Year Ended December 31, 2018	Nine Months Ended September 30, 2019
Number of acquisitions	7	2
Cash paid at closing	$ 143,038	$ 10,642
Cash acquired	(7,774)	(980)
Net cash paid	$ 135,264	$ 9,662

As of December 31, 2018, the fair value of the contingent consideration related to acquisitions totaled $4,316, of which $2,390 is included in *Accruals and other current liabilities* and $1,926 is included in *Other liabilities* on the consolidated balance sheet.

As of September 30, 2019, the fair value of the contingent consideration related to acquisitions totaled $3,235 which is included in *Accruals and other current liabilities* on the consolidated balance sheet.

One of the 2018 acquisitions requires the Company to pay former shareholders a revenue based earn-out contingent on meeting certain 2018 revenue targets. As of December 31, 2018, such revenue targets were met and as a consequence $8,516 was reclassified to non-contingent consideration from

Note 4: Acquisitions (Continued)

acquisitions within *Accruals and other current liabilities*. The remaining contingent consideration as of December 31, 2018 is payable to former shareholders across 2017 and 2018 acquisitions if certain acquisition related key employees remain employed with the Company through certain periods.

As of December 31, 2018 and September 30, 2019, total current deferred payment obligations including contingent consideration for all acquisitions were $11,019 and $4,140, respectively and are included in *Accruals and other current liabilities* on the consolidated balance sheet.

As of December 31, 2018, total long-term deferred payment obligations including contingent consideration for all acquisitions were $2,826 and are included in *Other liabilities* on the consolidated balance sheets. There were no long-term deferred payment obligations including contingent consideration for all acquisitions as of September 30, 2019.

The operating results of the acquired businesses are included in the Company's consolidated financial statements from the closing date of each respective acquisition. The purchase price for each acquisition has been allocated to the net tangible and intangible assets and liabilities based on their estimated fair values at the acquisition date. Independent valuations are obtained to support purchase price allocations when deemed appropriate.

In connection with the purchase price allocations related to the Company's acquisitions, the Company has estimated the fair values of the support obligations assumed relative to acquired deferred revenue. The estimated fair values of the support obligations assumed were determined using a cost-build-up approach. The cost-build-up approach determines fair value by estimating the costs related to fulfilling the obligations plus a normal profit margin. For accounting purposes, the sum of the costs and operating profit approximates the amount that the Company would be required to pay a third party to assume the support obligations. These fair value adjustments reduce the revenues recognized over the remaining support contract term of the Company's acquired contracts. During the year ended December 31, 2018 and the nine months ended September 30, 2019, the fair value adjustments to reduce revenue were $2,469 and $310, respectively.

The purchase accounting for one of our acquisitions, which was completed during the nine months ended September 30, 2019, is not yet finalized. Identifiable assets acquired and liabilities assumed were provisionally recorded at their estimated fair values on the acquisition date. The initial accounting for the business combination is not complete because the evaluation necessary to assess the fair values of certain net assets acquired is still in process. The provisional amounts are subject to revision until the evaluations are completed to the extent that additional information is obtained about the facts and circumstances that existed as of the acquisition date. The allocation of the purchase price may be modified from the date of the acquisition as more information is obtained about the fair values of assets acquired and liabilities assumed, however such measurement period cannot exceed one year.

Acquisition and integration costs are expensed as incurred. During the year ended December 31, 2018 and the nine months ended September 30, 2019, the Company incurred acquisition and integration costs of $1,361 and $447, respectively, which include costs related to legal, accounting, valuation, general administrative, and other consulting fees. Such costs are recorded in *General and administrative* in the Company's consolidated statements of operations.

Note 4: Acquisitions (Continued)

The following summarizes the fair values of the assets acquired and liabilities assumed as well as the weighted average useful lives assigned to acquired intangible assets at the respective date of each acquisition (including contingent consideration):

	Acquisitions completed in	
	Year Ended December 31, 2018	Nine Months Ended September 30, 2019
Consideration:		
Cash paid at closing	$ 143,038	$ 10,642
Contingent consideration	13,456	50
Deferred payment obligations to sellers	690	—
Other	—	(90)
Total consideration	$ 157,184	$ 10,602
Assets acquired and liabilities assumed:		
Cash	$ 7,774	$ 980
Prepaid and other current assets	4,790	330
Property and equipment	340	—
Customer relationship asset (weighted average useful life of 5 years)	27,294	1,043
Software and technology (weighted average useful life of 3 years)	9,332	827
In-process research and development	1,366	—
Trademarks (weighted average useful life of 7 and 5 years, respectively)	2,090	403
Total identifiable assets acquired excluding goodwill	52,986	3,583
Deferred tax liability	(8,917)	(247)
Other current liabilities	(3,848)	(550)
Deferred revenues	(6,181)	(1,012)
Total liabilities assumed	(18,946)	(1,809)
Net identifiable assets acquired excluding goodwill	34,040	1,774
Goodwill	123,144	8,828
Net assets acquired	$ 157,184	$ 10,602

The fair values of the working capital, other assets (liabilities), and property and equipment approximated their respective carrying values as of the acquisition date.

As discussed above, the fair values of deferred revenues were determined using the cost-build-up approach.

The fair values of the intangible assets were primarily determined using the income approach. When applying the income approach, indications of fair values were developed by discounting future

Note 4: Acquisitions (Continued)

net cash flows to their present values at market-based rates of return. The cash flows were based on estimates used to price the acquisitions and the discount rates applied were benchmarked with reference to the implied rate of return from the Company's pricing model and the weighted average cost of capital.

Goodwill recorded in connection with the acquisition was attributable to synergies expected to arise from cost saving opportunities as well as future expected cash flows.

Note 5: Property and Equipment, Net

Property and equipment, net consist of the following at December 31, 2018 and September 30, 2019:

	December 31, 2018	September 30, 2019
Land	$ 2,811	$ 2,811
Building and improvements	30,585	31,361
Computer equipment and software	46,938	51,588
Furniture, fixtures, and equipment	11,595	12,301
Aircraft	3,910	3,910
Other	61	79
Property and equipment, at cost	95,900	102,050
Less accumulated depreciation	(66,507)	(72,311)
Total property and equipment, net	$ 29,393	$ 29,739

Depreciation expense for the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019 was $9,300, $7,046, and $7,212, respectively.

Note 6: Goodwill and Other Intangible Assets

The changes in the carrying amount of goodwill for the year ended December 31, 2018 and nine months ended September 30, 2019 are as follows:

Balance, December 31, 2017	$ 336,982
Acquisitions	123,144
Foreign currency translation adjustments	(13,808)
Balance, December 31, 2018	446,318
Acquisitions	8,828
Foreign currency translation adjustments	(7,208)
Other adjustments	27
Balance, September 30, 2019	$ 447,965

Note 6: Goodwill and Other Intangible Assets (Continued)

Details of intangible assets other than goodwill as of December 31, 2018 and September 30, 2019 are as follows:

		December 31, 2018			September 30, 2019		
	Estimated Useful Life	Gross Carrying Amount	Accumulated Amortization	Net Book Value	Gross Carrying Amount	Accumulated Amortization	Net Book Value
Intangible assets subject to amortization							
Software and technology	3 years	$ 66,251	$ (57,937)	$ 8,314	$ 63,330	$ (56,956)	$ 6,374
Customer relationships	3 - 10 years	86,364	(52,753)	33,611	82,140	(56,121)	26,019
Trademarks	3 - 10 years	20,799	(8,952)	11,847	20,995	(11,399)	9,596
		173,414	(119,642)	53,772	166,465	(124,476)	41,989
Intangible assets not subject to amortization							
In-process research and development		229	—	229	—	—	—
Total intangible assets		$ 173,643	$ (119,642)	$ 54,001	$ 166,465	$ (124,476)	$ 41,989

The aggregate amortization expense for purchased intangible assets with finite lives recorded for the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019 was reflected in our consolidated statements of operations as follows:

	Year Ended December 31, 2018	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2019
Cost of subscriptions and licenses	$ 2,840	$ 2,006	$ 2,760
Amortization of purchased intangibles	14,000	9,961	10,402
Total amortization expense	$ 16,840	$ 11,967	$ 13,162

Amortization expense for the years following December 31, 2018 are estimated as follows:

2019	$ 17,340
2020	15,413
2021	9,230
2022	6,715
2023	2,477
Thereafter	2,597
	$ 53,772

Note 7: Accruals and Other Current Liabilities

Accruals and other current liabilities consist of the following:

	December 31, 2018	September 30, 2019
Accrued compensation	$ 30,484	$ 27,560
Accrued benefits	25,863	30,854
Cloud Services Subscription deposits	25,541	40,376
Non-contingent consideration from acquisitions	8,629	905
Due to customers	8,467	7,872
Accrued hosting costs	6,740	8,195
Accrued severance and realignment costs	6,555	745
Sales taxes payable	3,467	3,034
Accrued rent	2,574	2,067
Contingent consideration from acquisitions	2,390	3,235
Accrued professional fees	2,347	2,966
Accrued facility costs	2,269	2,490
Accrued acquisition stay bonuses	1,650	3,908
Other accrued and current liabilities	9,723	8,835
Total accruals and other current liabilities	$ 136,699	$ 143,042

Note 8: Long-Term Debt

Long-term debt consists of the following at December 31, 2018 and September 30, 2019:

	December 31, 2018	September 30, 2019
Bank credit facility:		
Senior secured revolver	$ 258,750	$ 248,000
Total long-term debt	$ 258,750	$ 248,000

Bank Credit Facility—On December 19, 2017, the Company entered into an amended and restated credit agreement (the Credit Facility), which matures on December 18, 2022. Upon entry into the Credit Facility, the Company obtained a $500,000 senior secured revolving facility and refinanced all indebtedness outstanding under its prior facility.

In addition to the revolving line of credit, the Credit Facility also provides up to $50,000 of letters of credit and other incremental borrowings subject to availability, including a $50,000 multi-currency swing-line sub-facility and a $100,000 incremental "accordion" sub-facility. The Company had $631 and $546 of letters of credit and surety bonds outstanding as of December 31, 2018 and September 30, 2019, respectively. As of December 31, 2018 and September 30, 2019, the Company had $240,619 and $251,454 available under the Credit Facility.

Under the Credit Facility, the Company may make either Euro currency or non-Euro currency interest rate elections. Interest on the Euro currency borrowings is at the one-month London Interbank

Note 8: Long-Term Debt (Continued)

Offered Rate (LIBOR) plus a spread ranging from 100 basis points (bps) to 225 bps as determined by the Company's net leverage ratio. Under non-Euro currency elections, Credit Facility borrowings bear a base interest rate of the greater of (i) the prime rate, (ii) the overnight bank funding effective rate plus 50 bps, or (iii) LIBOR plus 100 bps, plus a spread ranging from 0 bps to 125 bps as determined by the Company's leverage ratio. In addition, a commitment fee for the unused Credit Facility ranges from 15 bps to 30 bps as determined by the Company's net leverage ratio.

Borrowings under the Credit Facility are guaranteed by all of the Company's first tier domestic subsidiaries and are secured by a first priority security interest in substantially all of the Company's and the guarantors' U.S. assets and 65% of the stock of their directly owned foreign subsidiaries. The Credit Facility contains both affirmative and negative covenants, including maximum leverage ratios. At December 31, 2018, and September 30, 2019, the Company was in compliance with all covenants in its debt agreements.

For the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, the weighted average interest rate under the Credit Facility was 3.28%, 3.16%, and 3.63%, respectively. As of December 31, 2018 and September 30, 2019, accrued interest and fees were $31 and $70, respectively. Interest expense was $8,800, $6,276, and $6,905 for the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, respectively.

In addition, interest expense includes amortization of deferred financing costs of $552, $415, and $415 for the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, respectively.

Other—Interest expense related to other obligations was $255, $159, and $157 for the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, respectively.

Note 9: Executive Bonus Plan

The Company has an incentive compensation program under which up to 20% of the Company's adjusted operating profits, as defined in the plan agreement and before deductions for such plan payments, may be paid to plan participants in the form of cash bonuses, subject to approval by the Company's board of directors and certain limitations imposed by the Company's Credit Facility. The plan permits the deduction of certain holdback amounts from the plan's pool, from which amounts can then be allocated to fund items including equity and/or cash incentive compensation for non-plan participants and participant charitable contributions. During the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, the incentive compensation, including cash payments and deferred compensation to plan participants, recognized under this plan (net of all applicable holdbacks) was $27,641, $20,508, and $22,036, respectively.

Note 10: Retirement Plans

The Company maintains a qualified 401(k) profit sharing plan (the Plan) for the benefit of substantially all U.S.-based full-time colleagues. The Company may make discretionary profit-sharing contributions to the Plan up to a maximum of 5% of "qualified cash compensation" for each eligible participating colleague. Nondiscretionary (matching) 401(k) contributions to the Plan, for full-time U.S. colleagues, were $3,337, $2,552, and $2,423 for the year ended December 31, 2018 and the nine months

Note 10: Retirement Plans (Continued)

ended September 30, 2018 and 2019, respectively. The Company also maintains various retirement benefit plans (primarily defined contribution plans) for colleagues of its international subsidiaries. Contributions to these plans were $7,613, $5,987, and $5,956 for the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, respectively

The Company also has a nonqualified deferred compensation plan (the DCP), under which certain officers and key colleagues may elect to defer the receipt of all or a portion of their bonus compensation. In addition, the Company may make discretionary awards under the DCP on behalf of the participants. Elective participant deferrals and discretionary Company awards are required to be in the form of phantom shares of the Company's Class B Non-Voting Common Stock (Class B Common Stock), which are valued for tax and accounting purposes in the same manner as actual shares of Class B Common Stock. All DCP distributions to current colleague participants are made in the form of shares of Class B Common Stock. The Company's discretionary awards made prior to January 1, 2016 vest 20% on the date of grant and 20% on each of the four subsequent anniversary dates. The Company's discretionary awards made on or after January 1, 2016 are 100% vested at the time of grant. No discretionary contributions were made to the DCP during the year ended December 31, 2018 or the nine months ended September 30, 2018 or 2019.

Amounts in the DCP attributable to certain non-colleague participants are settled in cash and are classified as liabilities which are marked to market at the end of each reporting period. The total liability related to the DCP for non-colleague participants was $2,275 and $2,441 as of December 31, 2018 and September 30, 2019, respectively.

The table below shows compensation (income) expense related to the DCP recorded during the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019:

	December 31, 2018	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2019
DCP related compensation (income) expense	$ (75)	$ 166	$ 304

Note 11: Common Stock

Authorized Common Shares—The Company amended and restated its Certificate of Incorporation on April 20, 2018 to authorize 320,000,000 shares of Class A Voting Common Stock (Class A Common Stock) and 600,000,000 shares of Class B Common Stock. As of December 31, 2018 and September 30, 2019, outstanding shares of Class A Common Stock totaled 11,601,757 and outstanding shares of Class B Common Stock totaled 238,681,756 and 243,475,681, respectively.

Sales, Repurchases, and Issuances of Company Capital Stock

In September 2016, the Company entered into a Class B Common Stock Purchase Agreement with a strategic investor, (the Common Stock Purchase Agreement), pursuant to which the investor could acquire in a series of transactions up to $200,000 of the Company's Class B Common Stock at the then prevailing fair market value, either directly from selling stockholders, in which case the Company would

Note 11: Common Stock (Continued)

act as pass through agent, or by funding the Company's repurchase and subsequent sale to the investor of shares acquired by the Company from existing Company stockholders.

The Common Stock Purchase Agreement grants to the strategic investor certain informational and protective rights, including, for so long as the Company remains party to a long-term strategic collaboration agreement with the investor, a pre-initial public offering (IPO) right of first refusal on any sale of the Company and a post-IPO right to participate in any sale process the Company may undertake.

On April 23, 2018, the Company entered into an amendment to the Common Stock Purchase Agreement, which (i) increased the maximum purchase amount from $200,000 to $250,000 thereunder, (ii) extended the expiration of the agreement from 2026 to 2030, and (iii) granted the Company the right to retain a portion of the shares that would otherwise be sold to the investor.

During the year ended December 31, 2018, the investor acquired 5,151,019 shares of Class B Common Stock, with 2,139,466 of such shares having been repurchased by the Company and re-sold to the investor for consideration of $16,220 and 3,011,553 shares were acquired directly by the investor for consideration of $22,792.

During the nine months ended September 30, 2019, the investor purchased 791,873 shares under the Common Stock Purchase Agreement, with 622,873 of such shares having been repurchased by the Company and re-sold to the investor for consideration of $4,510 and 169,000 shares acquired directly by the investor for consideration of $1,224.

During the year ended December 31, 2018, the Company issued net 2,812,998 shares of Class B Common Stock to colleagues who exercised their stock options. Of the total options exercised for 3,726,606 shares, 1,235,204 shares were issued for cash totaling $2,187, and the remaining options for 2,491,402 shares were exercised on a cashless basis, and accordingly, 913,608 shares were sold back to the Company to pay for the cost of the options as well as applicable income tax withholdings of $1,577. During 2018, the Company paid $8,571 for 1,131,928 shares sold back to the Company upon exercise of the Put and Call provisions under the amended option plan (see Note 13).

During the nine months ended September 30, 2019, the Company issued net 2,979,031 shares of Class B Common Stock to colleagues who exercised their stock options. Of the total options exercised for 4,372,294 shares, 1,125,506 shares were issued for cash totaling $3,054, and the remaining options for 3,246,788 shares were exercised on a cashless basis, and accordingly, 1,393,263 shares were sold back to the Company to pay for the cost of the options as well as applicable income tax withholdings of $2,270. During the nine months ended September 30, 2019, the Company paid $4,952 for 632,859 shares sold back to the Company upon exercise of the Put and Call provisions under the amended option plan (see Note 13).

During the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, the Company issued 2,332,585, 2,243,222, and 2,233,807, respectively, of shares of Class B Common Stock to DCP participants for their distribution. The distribution in shares for the year ended December 31, 2018 totaled 3,340,904 of which 1,008,319 shares were sold back to the Company to pay for the cost of applicable income tax withholding of $6,861. The distribution in shares for the nine months ended September 30, 2018 totaled 3,172,661 of which 929,439 shares were sold back to the

Note 11: Common Stock (Continued)

Company to pay for applicable income tax withholdings of $6,177. The distribution in shares for the nine months ended September 30, 2019 totaled 2,913,613 shares of which 679,806 shares were sold back to the Company in the same period to pay for applicable income tax withholdings of $4,972.

Selected Terms of Class B Common Stock—Pursuant to the terms of the Company's amended and restated Certificate of Incorporation in effect for the periods reported, each share of Class B Common Stock has the same rights and privileges as each share of Class A Common Stock, except that the holders of outstanding shares of Class B Common Stock do not have any right to vote on, or consent with respect to, any matters to be voted on or consented to by the stockholders of the Company except as required by law, and the shares of Class B Common Stock are not included in determining the number of shares voting or entitled to vote on any such matters. Each outstanding share of Class B Common Stock may be converted into one share of Class A Common Stock upon the determination of the Company's board of directors. Additionally, absent a conversion by the board of directors, upon an IPO by the Company, each outstanding share of Class B Common Stock may be automatically converted into the class of common stock being offered.

Dividends—The Company declared cash dividends during the periods presented as follows:

	Dividend Per Share	Amount
2019:		
Third quarter	$ 0.025	$ 6,380
Second quarter	0.025	6,375
First quarter	0.025	6,268
Total	$ 0.075	$ 19,023
2018:		
Fourth quarter	$ 0.020	$ 4,990
Third quarter	0.020	5,016
Second quarter	0.020	5,020
First quarter	0.020	4,979
Total	$ 0.080	$ 20,005

Note 12: Accumulated Other Comprehensive Loss

Accumulated other comprehensive loss consists of the following:

	Foreign Currency Translation	Actuarial (Loss) Gain on Retirement Plan	Total
Balance, December 31, 2017	$ (17,847)	$ (693)	$ (18,540)
Other comprehensive income (loss), before taxes	(11,020)	208	(10,812)
Tax expense	—	(62)	(62)
Other comprehensive income (loss), net of taxes	(11,020)	146	(10,874)
Balance, December 31, 2018	(28,867)	(547)	(29,414)
Other comprehensive income, before taxes	5,763	23	5,786
Tax expense	—	(8)	(8)
Other comprehensive income, net of taxes	5,763	15	5,778
Balance, September 30, 2019	$ (23,104)	$ (532)	$ (23,636)

Note 13: Equity Awards and Instruments

The Company has equity awards outstanding under its 2005 Stock Option Plan and 2015 Equity Incentive Plan. The 2015 Equity Incentive Plan provides for the granting of awards in the form of stock options, stock appreciation rights, dividend equivalent rights, restricted stock, restricted stock units, and stock grants. The 2005 Stock Option Plan expired in April 2015, and no further options may be granted thereunder. The 2015 Equity Incentive Plan, which has substantially similar terms to the 2005 Stock Option Plan as it relates to options, has 50,000,000 shares of Class B Common Stock reserved for issuance and terminates in November 2024.

The following is a summary of activity under these two stockholder-approved plans.

Stock Options—The Company has stock options outstanding under its 2005 Stock Option Plan and 2015 Equity Incentive Plan. Stock options generally vest ratably on each of the first four anniversaries of the grant date. Stock options granted under these plans include Put and Call provisions that allow colleagues who have exercised an option to sell all or part of their shares acquired upon such exercise to the Company at the fair market value at the time of the sale. The exercise period for the Put right begins on the second day after the six-month anniversary of the date the option was exercised and ends after an additional 30 days. The Call right provision allows the Company to purchase all or a part of the shares acquired by a colleague upon exercise of an option, at the fair market value at the time of such purchase. The Company may exercise the Call right at any time within seven months of the later of i) the optionee's termination of service with the Company, or ii) the optionee's (or his or her beneficiary's) exercise of such option after a termination of service.

The Company granted a total of 20,000 options on March 22, 2018, 5,096,000 options on May 29, 2018, and 10,000 options on September 6, 2018. The fair value of the awards was estimated on the date of grant using the Black-Scholes option pricing model. The grant date fair value of each option was $1.43, $1.46, and $1.96, respectively.

Note 13: Equity Awards and Instruments (Continued)

The Company granted a total of 4,816,000 options on March 22, 2019 and 10,000 options on May 15, 2019. The fair value of the awards was estimated on the date of grant using the Black-Scholes option pricing model. The grant date fair value of each option was $1.66 and $1.65, respectively.

Acquisition Options—In connection with an acquisition completed in March 2018, the Company issued to certain selling shareholder entities options to acquire an aggregate of up to 900,000 shares of Class B Common Stock. The options have a five-year term, vest on the fourth anniversary of the closing of the acquisition, and an initial exercise price of $6.805 per share. The exercise price of the options is subject to a cap and collar adjustment mechanism that automatically reduces (but not to less than $0.01) or increases the exercise price based on the difference between the exercise price and the fair market value of the Company's Class B Common Stock on the exercise date. The fair value of the awards was estimated on the date of grant using the Black-Scholes option pricing model. The grant date fair value of each option was $3.44. Any shares of Class B Common Stock acquired upon exercise of the options are generally entitled to the Put and Call rights summarized above under "Stock Options," and the options contain customary adjustment provisions in case of stock splits, stock dividends, or other corporate transactions (see Note 1 regarding the Dividend). As of September 30, 2019, all 900,000 options remain outstanding.

Stock Grants—Under the 2015 Equity Incentive Plan, the Company may grant unrestricted, fully vested shares of Class B Common Stock to eligible colleagues. Any such shares awarded have Put and Call rights similar to those described above with respect to stock options.

The Company did not grant fully vested shares of Class B Common Stock during 2018 or 2019.

Restricted Stock—Under the 2015 Equity Incentive Plan, the Company may grant both time and performance-based shares of restricted Class B Common Stock to eligible colleagues.

During the year ended December 31, 2018, the Company granted 512,616 shares of restricted stock, all of which were subject to performance-based vesting with quarterly and annual performance periods ending on December 31, 2018. These restricted shares carry dividend, but not voting rights. During the year ended December 31, 2018, the performance conditions to vesting were satisfied in respect of 451,784 of these shares, of which 76,375 shares were sold back to the Company to settle applicable income tax withholdings of $637. Additionally, during the year ended December 31, 2018, the Company granted 57,570 shares of restricted stock subject to a cliff vesting after three years. These restricted shares also carry dividend, but not voting rights.

For the nine months ended September 30, 2019, the Company granted 493,840 shares of restricted stock, all of which were subject to performance-based vesting with quarterly and annual performance periods ending on December 31, 2019. These restricted shares carry dividend, but not voting rights. During the period ended September 30, 2019, the performance conditions to vesting were satisfied in respect of 172,714 of these shares, of which 42,106 shares were sold back to the Company to settle applicable income tax withholdings of $306.

Restricted Stock Units—Under the 2015 Equity Incentive Plan, the Company may grant both time and performance based restricted stock units (RSUs) to eligible colleagues, which entitle the grantee to receive a specific number of shares of our Class B Common Stock upon vesting. These shares also have dividend equivalent rights.

Note 13: Equity Awards and Instruments (Continued)

No restricted stock units were granted during the year ended December 31, 2018 or the nine months ended September 30, 2019. The Company did grant RSUs in 2016 in which certain colleagues elected to defer receipt of such shares upon vesting, of which 16,746 shares were delivered to colleagues during the nine months ended September 30, 2019.

The following is a summary of option activity under the Company's equity incentive plans:

		Exercise Price Per Share	
	Options Outstanding	Range	Weighted Average
Balance, December 31, 2017	18,629,380	$0.31 - $5.38	$ 3.72
Option activity:			
Granted	5,126,000	6.81 - 8.67	6.81
Exercised	(3,738,182)	0.31 - 5.38	1.89
Canceled	(502,750)	0.31 - 8.67	5.04
Balance, December 31, 2018	19,514,448	$1.79 - $6.81	$ 4.85
Option activity:			
Granted	4,826,000	7.24	7.24
Exercised	(4,372,294)	1.79 - 6.81	2.56
Canceled	(630,348)	1.79 - 7.24	5.97
Balance, September 30, 2019	19,337,806	$2.15 - $7.24	$ 5.93

As of December 31, 2018 and September 30, 2019, options and other equity awards available for future grants under the 2015 Equity Incentive Plan were 30,607,529 and 27,667,760, respectively.

The following is a summary of options outstanding and exercisable by exercise price as of December 31, 2018:

Exercise Prices	Number of Options Outstanding	Weighted Remaining Contractual Life (in years)	Exercisable
$1.79 – $2.00	2,975,942	0.31	2,975,942
2.01 – 4.00	3,187,134	1.35	2,306,684
4.01 – 6.00	8,337,872	2.77	3,040,393
6.01 – 6.81	5,013,500	4.41	—
Total	19,514,448		8,323,019

During the year ended December 31, 2018 and the nine months ended September 30, 2018, and 2019, the Company received cash proceeds of $2,732, $2,092 and $3,039, respectively, related to the exercise of stock options.

Note 13: Equity Awards and Instruments (Continued)

The following is a summary of the intrinsic value of options outstanding and exercisable as of September 30, 2019:

	Number of Options	Weighted Average Exercise Price	Aggregate Intrinsic Value	Weighted Remaining Contractual Life (in years)
Options as of September 30, 2019				
Outstanding	19,337,806	$ 5.93	39,721	2.9
Exercisable	8,055,094	$ 4.99	24,068	1.8

Compensation expense is recognized on a straight-line basis over the vesting period during which colleagues perform related services. In the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, the Company recorded $4,808, $3,574, and $4,795, respectively, of stock-based compensation expense related to stock options and $3,074, $2,139, and $1,251, respectively, of compensation expense in connection with restricted stock. As of September 30, 2019, there was $13,530 of unrecognized compensation cost related to unvested stock options, which is expected to be recognized over a weighted average period of approximately 2.8 years.

The total intrinsic value of stock options exercised in the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019 was $18,291, $17,100, and $21,555, respectively.

The value of each stock option award was estimated on the date of grant using the Black-Scholes option pricing model. The determination of the fair value of share-based payment awards using an option pricing model is affected by the Company's stock price as well as assumptions regarding a number of complex and subjective variables. These variables include the Company's expected stock price volatility over the term of the awards, actual and projected colleague stock option exercise behaviors, risk-free interest rates, and expected dividends, which are estimated as follows:

Expected volatility. The expected stock price volatility for the Company's common stock was estimated by taking the average historic price volatility for industry peers based on daily price observations over a period equivalent to the expected term of the stock option grants. The Company intends to continue to consistently apply this process using the same or similar public companies until a sufficient amount of historical information regarding the volatility of the Company's own common stock share price becomes available.

Expected dividend yield. Prior to 2015, the Company had never declared or paid a cash dividend. Consequently, the Company used an expected dividend yield of zero for all option grants prior to 2015. In February 2015, the Company's board of directors established a policy to pay a quarterly dividend with the first such quarterly dividend paid in June 2015. While the Company intends to continue paying quarterly dividends, any future determination and amount per share will be subject to the discretion of the Company's board of directors and will be dependent on a number of factors, including the Company's operating results, capital requirements, restrictions under Delaware law, and overall financial conditions, as well as any other factors the Company's board of directors considers relevant.

Note 13: Equity Awards and Instruments (Continued)

Expected term. The expected term represents the period that the Company's stock-based awards are expected to be outstanding. The expected term is based on the simplified method, which represents the average period from vesting to the expiration of the award.

Risk-free rate. The risk-free interest rate is based on the yields of U.S. Treasury securities with maturities similar to the expected term of the options for each option group.

	Year Ended December 31, 2018	Nine Months Ended September 30, 2019
Expected volatility	26.32% - 27.18%	29.57%
Expected dividend yield	1.18%	1.38%
Expected term (in years)	3.75	3.75
Risk-free interest rate	2.40%	2.48%
Weighted average grant date fair value of options issued	$1.46	$ 1.66

The fair value of the common stock was determined by the board of directors at each award grant date based upon a variety of factors, including the results obtained from independent third-party valuations, the Company's financial position, and historical financial performance.

The Company paid $8,571, $6,511, and $4,952 during the year ended December 31, 2018 and the nine months ended September 30, 2018, and 2019, respectively, to stockholders who exercised their options and elected to sell the shares back to the Company after the mandatory six-month holding period.

Note 14: Income Taxes

The components of income before income taxes consist of the following:

	Year Ended December 31, 2018	Nine Months Ended September 30, 2019
Domestic	$ 56,426	$ 35,879
International	56,436	42,725
Income before income taxes	$ 112,862	$ 78,604

Note 14: Income Taxes (Continued)

The provision for income taxes consists of the following at December 31, 2018:

	December 31, 2018
Current:	
Federal	$ 18,634
State	873
Foreign	11,303
	$ 30,810
Deferred:	
Federal	$ (7,655)
State	508
Foreign	(52,913)
	(60,060)
Provision for income tax (benefit) expense	$ (29,250)

A reconciliation of the statutory federal income tax rate to the Company's effective income tax rate is as follows:

	Year Ended December 31, 2018
Federal statutory rate	21.0%
State income taxes, net of federal benefit	0.9
Permanent book/tax differences	(2.6)
Tax credits	(3.3)
Foreign tax rate differential	(4.2)
Income tax reserves	(0.2)
Intercompany sales of certain operating assets	(41.2)
Other	(0.1)
U.S. tax reform	3.8
Effective income tax rate	(25.9)%

During 2018, the Company had intercompany sales of certain intangible operating assets between its foreign subsidiaries. The sales resulted in a 2018 net tax benefit of $46,369.

Note 14: Income Taxes (Continued)

The following is a summary of the significant components of the Company's deferred tax assets and liabilities:

	December 31, 2018
Deferred tax assets:	
Compensation accruals and DCP	$ 37,816
Deferred revenue	8,185
Intangible assets including goodwill	15,199
NOL and credit carryforwards	10,013
Expenses not currently deductible	581
Allowance for accounts receivable	345
Other comprehensive income	195
Valuation allowance	(2,082)
Other	615
	70,867
Deferred tax liabilities:	
Depreciation	240
Unrealized exchange loss	31
	271
Net deferred tax assets	$ 70,596

The federal net operating loss (NOL) carryforwards with a future benefit of $412 expire in 2033 through 2036. The federal foreign tax credit with a future benefit of $71 expires in the year 2028. The Canadian credit carryforwards of $1,543 have an indefinite carryforward. The Company's state NOL carryforwards and state credit carryforwards with a future benefit of $938 expire in 2020 through 2038. In addition, the Company has foreign NOL and credit carryforwards with a future benefit of $4,967 (net of a $2,082 valuation allowance), which predominately have indefinite expirations.

Some transactions can change the aggregate ownership of certain stockholders, which could cause a shift in the ownership of the Company, which pursuant to Internal Revenue Code (IRC) Section 382 could then limit on an annual basis the Company's ability to utilize its U.S. federal NOL carryforwards (and possibly its state NOL carryforwards as well). If that occurred, the Company's NOL carryforwards would continue to be available to offset taxable income and tax liabilities in future years (until such NOL carryforwards are either used or expire) subject to any IRC Section 382 annual limitation.

The Company regularly assesses the need for a valuation allowance against its deferred tax assets by considering both positive and negative evidence related to whether it is more likely than not that the deferred tax assets will be realized. In evaluating the need for a valuation allowance, the Company considers a cumulative loss in recent years as a significant piece of negative evidence.

As of December 31, 2018, the Company has recorded a valuation allowance against its net deferred tax assets of $2,082. The valuation allowance is principally related to the U.K. net operating losses for which the Company has determined that realization is not more likely than not.

Note 14: Income Taxes (Continued)

On December 22, 2017, the Act was enacted. U.S. tax reform, among other things, reduces the U.S. federal income tax rate to 21% from 35% in 2018, institutes a dividends received deduction for foreign earnings with a related tax for the deemed repatriation of unremitted foreign earnings, and creates a new U.S. minimum tax on earnings of foreign subsidiaries. The Company completed its accounting for the effects of the Act in 2018 and has included those effects in *Provision for income taxes* in the consolidated statement of operations. The Company will elect to pay the liability for the deemed repatriation of foreign earnings in installments, as specified by the Act.

As of December 31, 2018, the Company has accumulated undistributed earnings generated by its foreign subsidiaries of approximately $342,124, of which $272,323 was subject to the one-time transition tax on foreign earnings required by the Act. The Company intends to indefinitely reinvest these earnings, as well as future earnings from its foreign subsidiaries, in order to fund its international operations. In addition, the Company expects future U.S. cash generation will be sufficient to meet future U.S. cash needs. The Company has not provided for any additional outside basis difference inherent in its foreign subsidiaries, as these amounts continue to be indefinitely reinvested in foreign operations. Determining the amount of unrecognized deferred tax liability related to any additional outside basis difference in these entities is not practicable.

In accordance with the indefinite reversal criteria, the foreign currency translation adjustments recorded in other comprehensive loss related to the foreign currency translations have not been tax effected.

The following is a reconciliation of the total amounts of unrecognized tax benefits:

	Year Ended December 31, 2018
Unrecognized tax benefit, beginning of year	$ 872
Additions based on tax positions related to:	
Current year	—
Prior years	80
Reductions for tax positions related to prior years	(39)
Settlements	—
Lapse of statute of limitations	(275)
Unrecognized tax benefit, end of year	$ 638

The amount of unrecognized tax benefits at December 31, 2018 was $638, of which $627 would impact the Company's effective tax rate if recognized. In the year ended December 31, 2018, interest expense and penalties related to income taxes resulted in an income tax expense (benefit) of $8. Interest expense and penalties are included in *Provision for income taxes* in the consolidated statements of operations. Accrued interest and penalties as of December 31, 2018 totaled $252. The Company records the amount of uncertain taxes expected to be paid in the next 12 months as a current liability and records the remaining amount as a non-current liability in the accompanying consolidated balance sheets.

Note 14: Income Taxes (Continued)

The Company calculates its interim income tax provision in accordance with ASC 270, *Interim Reporting*, and ASC 740, *Income Taxes.* At the end of each interim period, the Company makes an estimate of the annual United States domestic and foreign jurisdictions' expected effective tax rates and applies these rates to its respective year-to-date taxable income or loss. The computation of the estimated effective tax rates at each interim period requires certain estimates and assumptions including, but not limited to, the expected operating income for the fiscal year, projections of the proportion of income (or loss) earned and taxed in the United States and foreign tax jurisdictions, along with permanent differences, and the likelihood of deferred tax asset utilization. The Company's estimates and assumptions may change as new events occur, additional information is obtained, or as the tax environment changes. Should facts and circumstances change during a period causing a material change to the estimated effective income tax rate, a cumulative adjustment will be recorded.

The income tax provisions for the nine months ended September 30, 2018 and 2019 were based on the estimated annual effective income tax rates applicable for the periods presented.

During the nine months ended September 30, 2018 and 2019, the Company recognized an aggregate consolidated income tax expense of $11,375 and $11,759, respectively, for U.S. domestic and foreign income taxes. The effective income tax rate of 12.5% for the nine months ended September 30. 2018 was lower than the effective rate of 15.0% for the same period in the current year primarily as a result of a change in the timing and mix of U.S. and foreign income.

The Company is subject to income tax in the United States as well as numerous state and foreign jurisdictions. The Company is currently under audit in the U.K. for years 2014 through 2017. The Company's 2016 through 2018 tax years remain subject to examination by the Irish Revenue Commissioners for Irish tax purposes. The Company's 2017 through 2018 tax years remain subject to examination by the IRS. In addition, the Company is under audit in various other foreign taxing jurisdictions that are not material to the consolidated financial statements.

Note 15: Fair Value of Financial Instruments

Derivatives Not Designated As Hedging Instrument

In November 2018, the Company entered into an agreement with financial institutions to purchase call options to buy British pounds (GBP) with a notional amount of 65,000 GBP at a strike price of $1.3750. The call options were purchased at a premium of $645. These derivative instruments do not qualify for hedge accounting and as such, are not designated as hedges. The gains or losses from changes in the fair value of such derivative instruments are recognized in *Other income (expense), net* in the consolidated statements of operations. The fair value of the call options in the accompanying consolidated balance sheets was $158 at December 31, 2018. The call options had an expiration date of February 28, 2019.

Fair Value

The Company applies the provisions of ASC 820, *Fair Value Measurement*, for fair value measurements of financial assets and financial liabilities and for fair value measurements of non-financial items that are recognized or disclosed at fair value in the consolidated financial statements.

Note 15: Fair Value of Financial Instruments (Continued)

The Company's financial instruments include cash equivalents, account receivables, certain other assets, accounts payable, accruals, other current liabilities, and long-term debt.

The carrying values of the Company's financial instruments excluding long-term debt approximate their fair value due to the short-term nature of those instruments. Additionally, as of December 31, 2018 and September 30, 2019, the fair value of the Company's long-term debt approximated its carrying value based upon discounted cash flows at current market rates for instruments with similar remaining terms. The Company considers these valuation inputs to be Level 2 inputs in the fair value hierarchy. Considerable judgment is necessary to interpret the market data and develop estimates of fair values. Accordingly, the estimates presented are not necessarily indicative of the amounts at which these instruments could be purchased, sold, or settled.

A financial asset or liability classification is determined based on the lowest level input that is significant to the fair value measurement. The fair value hierarchy consists of the following three levels:

Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities.

Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument.

Level 3 inputs are unobservable inputs based on management's own assumptions used to measure assets and liabilities at fair value.

The following tables provide the financial assets and financial liabilities carried at fair value measured on a recurring basis:

September 30, 2019	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds[1]	$ 74,372	$ —	$ —	$ 74,372
Total assets	$ 74,372	$ —	$ —	$ 74,372
Liabilities:				
Acquisition contingent consideration[3]	$ —	$ —	$ 3,235	$ 3,235
Total liabilities	$ —	$ —	$ 3,235	$ 3,235

Note 15: Fair Value of Financial Instruments (Continued)

December 31, 2018	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds[1]	$ 30,197	$ —	$ —	$ 30,197
Call options[2]	—	158	—	158
Total assets	$ 30,197	$ 158	$ —	$ 30,355
Liabilities:				
Acquisition contingent consideration[3]	$ —	$ —	$ 4,316	$ 4,316
Total liabilities	$ —	$ —	$ 4,316	$ 4,316

(1) Included in *Cash and cash equivalents* in the accompanying consolidated balance sheets.

(2) Included in *Other assets* in the accompanying consolidated balance sheets.

(3) Included in *Accruals and other current liabilities* and *Other liabilities* in the accompanying consolidated balance sheets. Acquisition contingent consideration liability is measured at fair value and is based on significant inputs not observable in the market, which represents a Level 3 measurement within the fair value hierarchy. The valuation of contingent consideration uses assumptions the Company believes would be made by a market participant.

The following table is a reconciliation of the changes in fair value of the Company's financial liabilities which have been classified as Level 3 in the fair value hierarchy for the year ended December 31, 2018 and the nine months ended September 30, 2019.

	Year Ended December 31, 2018	Nine Months Ended September 30, 2019
Beginning balance, Acquisition contingent consideration	$ 241	$ 4,316
Payments	(9)	(1,355)
Addition	13,206	50
Reclassification[1]	(8,516)	180
Change in fair value	167	62
Foreign currency translation adjustments	(773)	(18)
Balance, end of period	$ 4,316	$ 3,235

(1) One of the 2018 acquisitions requires the Company to pay former shareholders a revenue based earn-out contingent on meeting certain 2018 revenue targets. As of December 31, 2018, such revenue targets were met and as a consequence $8,516 was reclassified to non-contingent consideration from acquisitions within *Accruals and other current liabilities*.

The Company did not have any transfers between levels within the fair value hierarchy.

Note 16: Commitments and Contingencies

Purchase Commitment—In the normal course of business, the Company enters into various purchase commitments for goods and services. As of December 31, 2018, the non-cancelable future cash purchase commitment for services related to the provisioning of our software solutions was $15,377 through June 2020. As of September 30, 2019, the non-cancelable future cash purchase commitment for services related to the provisioning of the Company's software solutions was fully consumed.

Operating Leases—The Company leases certain facilities, cars, and equipment under operating leases having initial or remaining non-cancelable terms in excess of one year.

The future minimum lease payments for the years following December 31, 2018 are as follows:

2019	$ 16,158
2020	13,172
2021	10,530
2022	8,207
2023	4,759
Thereafter	1,887
	$ 54,713

Rent expense is recorded on straight-line basis over the life of the lease. During the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, total rent expense was $16,726, $13,005, and $13,587, respectively.

Litigation—From time to time, the Company is involved in certain legal actions arising in the ordinary course of business. In management's opinion, based upon the advice of counsel, the outcome of such actions is not expected to have a material adverse effect on the Company's future financial position or results of operations.

Note 17: Geographic Data

Revenues by geographic area are presented as part of the discussion in Note 3. The following table presents the Company's long-lived assets by geographic region.

	December 31, 2018	September 30, 2019
Long-lived assets:		
Americas[1]	$ 32,490	$ 29,525
Europe, the Middle East, and Africa	43,933	34,908
Asia/Pacific	6,971	7,295
Total long-lived assets	$ 83,394	$ 71,728

(1) Americas includes the United States, Canada, and Latin America (including the Caribbean).

Note 18: Interest Expense, Net

Interest expense, net is comprised of the following:

	Year Ended December 31, 2018	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2019
Interest expense	$ (9,607)	$ (6,850)	$ (7,477)
Interest income	842	487	974
Total interest expense, net	$ (8,765)	$ (6,363)	$ (6,503)

Note 19: Other Income (Expense), Net

Other income (expense), net is comprised of the following:

	Year Ended December 31, 2018	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2019
Foreign exchange loss(1)	$ (418)	$ (2,087)	$ (14,053)
Other income (expense), net(2)	654	121	—
Total other income (expense), net	$ 236	$ (1,966)	$ (14,053)

(1) Foreign exchange loss is primarily attributable to foreign currency translation losses derived primarily from U.S. Dollar denominated cash and cash equivalents, account receivables, and intercompany balances held by foreign subsidiaries. In October 2018, the Company had intercompany sales of certain intangible operating assets between foreign subsidiaries, which resulted in significant U.S. dollar denominated finance transactions and balances between certain of its foreign subsidiaries. For the nine months ended September 30, 2019, such finance transactions resulted in unrealized foreign currency translation losses of $13,982. For the year ended December 31, 2018, the foreign exchange loss includes a loss of $487 relating to the remeasurement of a derivative instrument (see Note 15).

(2) For the year ended December 31, 2018, other income (expense), net includes a gain of $707 relating to insurance proceeds received in excess of the net book value of the replaced assets.

Note 20: Realignment Costs

During 2015, the Company initiated a strategic realignment program in order to better serve the Company's users and to better align resources with the evolving needs of the business. The Company incurred total realignment costs of $6,778, ($131), and ($492) for the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019, respectively. As of September 30, 2019, accrued realignment costs totaled $585 and are included in *Accruals and other current liabilities* in the consolidated balance sheets.

Note 20: Realignment Costs (Continued)

The following table sets forth realignment activity during the year ended December 31, 2018 and the nine months ended September 30, 2019:

	Year Ended December 31, 2018	Nine Months Ended September 30, 2019
Balance, beginning of year	$ 1,458	$ 6,437
Realignment costs	6,778	(492)
Payments	(1,640)	(5,326)
Adjustments[1]	(159)	(34)
Balance, end of period	$ 6,437	$ 585

(1) Adjustments includes foreign currency translation.

The following table sets forth the realignment costs by expense classification for the year ended December 31, 2018 and the nine months ended September 30, 2018 and 2019:

	Year Ended December 31, 2018	Nine Months Ended September 30,	
		2018	2019
Cost of revenues:			
Cost of subscriptions	$ 256	$ (116)	$ (51)
Cost of services	845	(11)	(185)
Total cost of revenues	1,101	(127)	(236)
Operating expenses:			
Research and development	3,380	(10)	(79)
Selling and marketing	2,252	(24)	(263)
General and administrative	45	30	86
Total operating expenses	5,677	(4)	(256)
Total realignment costs	$ 6,778	$ (131)	$ (492)

Note 21: Earnings Per Share

Earnings per share (EPS) of Class A and Class B Common Stock amounts are computed using the two-class method required for participating securities. The Company issues certain restricted stock awards determined to be participating securities because holders of such shares have non-forfeitable dividend rights in the event of the Company's declaration of a dividend for common shares.

Undistributed earnings allocated to participating securities are subtracted from net income in determining net income attributable to common stockholders. Basic EPS is computed by dividing net income attributable to common stockholders by the weighted-average number of shares of Class A and Class B Common Stock outstanding.

Note 21: Earnings Per Share (Continued)

For the calculation of diluted EPS, net income attributable to common stockholders for basic EPS is adjusted by the effect of dilutive securities, including awards under the Company's equity compensation plans. Diluted EPS attributable to common stockholders is computed by dividing the resulting net income attributable to common stockholders by the weighted-average number of fully diluted common shares outstanding.

Except with respect to voting and conversion, the rights of the holders of the Company's Class A Common Stock and the Company's Class B Common Stock are identical. Each class of shares has the same rights to dividends and allocation of income (loss) and therefore, earnings per share would not differ under the two-class method. The details of basic and diluted EPS are as follows (in thousands, except per share amounts):

	Year ended December 31, 2018	Nine months ended September 30, 2018	Nine months ended September 30, 2019
	Topic 605	Topic 605	Topic 606
Numerator:			
Net income	$ 142,112	$ 79,775	$ 66,845
Less: Net income attributable to participating securities	(4)	(7)	(10)
Net income attributable to Class A and Class B common stockholders	$ 142,108	$ 79,768	$ 66,835
Denominator:			
Denominator for basic net income per share—weighted average shares	285,805,096	285,684,596	286,024,263
Effect of dilutive securities:			
Stock options	6,819,400	6,161,335	8,562,091
Denominator for dilutive net income per share	292,624,496	291,845,931	294,586,354
Basic net income per share	$ 0.50	$ 0.28	$ 0.23
Diluted net income per share	$ 0.49	$ 0.27	$ 0.23

No shares were excluded from the computation of diluted net income per share attributable to common stockholders for the periods presented.

Note 22: Subsequent Events

In preparing the consolidated financial statements as of and for the year ended December 31, 2018 and the nine months ended September 30, 2019, the Company evaluated subsequent events for recognition and measurement through January 10, 2020, the date when the consolidated financial statements were issued.

Note 22: Subsequent Events (Continued)

Acquisitions of Citilabs and Orbit Geospatial Technologies

On October 7, 2019, the Company acquired Citilabs, Inc, a global mobility simulation and analytics software provider and on October 18, 2019, the Company completed the acquisition of Orbit Geospatial Technologies NV, a global provider of 3D and mobile mapping software. The Company paid a combined upfront purchase price of $25,107 in cash for the two acquisitions, net of customary adjustments such as transaction expenses and net working capital adjustments, plus certain future contingent consideration over a period of 24 months after closing, not to exceed $9,168.

Through and including , 2020 (the 25th day after the listing date of our Class B common stock), all dealers effecting transactions in these securities, whether or not participating in the listing, may be required to deliver a prospectus.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

The following table sets forth all expenses to be paid by the Company in connection with this registration statement and the listing of our Class B common stock. All amounts shown are estimates except for the SEC registration fee and The Nasdaq Global Select Market initial listing fee:

	Amount to be Paid
SEC registration fee	$ *
The Nasdaq Global Select Market initial listing fee	*
Printing expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees	*
Other advisers' fees	*
Miscellaneous	*
Total	$ *

* To be provided by amendment.

Item 14. Indemnification of Directors and Officers

Section 102 of the Delaware law allows a corporation to eliminate the personal liability of a director to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except in cases where the director breached his or her duty of loyalty to the corporation or its stockholders, failed to act in good faith, engaged in intentional misconduct or a knowing violation of the law, willfully or negligently authorized the unlawful payment of a dividend or approved an unlawful stock redemption or repurchase or obtained an improper personal benefit. Shortly following the effectiveness of this registration statement, we expect to adopt an amended and restated certificate of incorporation which will contain a provision that eliminates directors' personal liability as set forth above.

In addition, shortly following the effectiveness of this registration statement, we expect to adopt amended and restated by-laws, which will provide that we shall indemnify our directors and officers to the extent permitted by the Delaware law. Section 145 of the Delaware law provides that a Delaware corporation has the power to indemnify its directors, officers, employees and agents in certain circumstances. Subsection (a) of Section 145 of the Delaware law empowers a corporation to indemnify any director, officer, employee or agent, or former director, officer, employee or agent, who was or is a party, or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation), against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding provided that such director, officer, employee or agent acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, the best interests of the corporation and, with respect to any criminal action or proceeding, provided that such director, officer, employee or agent had no reasonable cause to believe that his or her conduct was unlawful.

Subsection (b) of Section 145 of the Delaware law empowers a corporation to indemnify any director, officer, employee or agent, or former director, officer, employee or agent, who was or is a

party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that such person acted in any of the capacities set forth above, against expenses (including attorneys' fees) actually and reasonably incurred in connection with the defense or settlement of such action or suit provided that such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification may be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery shall determine that despite the adjudication of liability such person is fairly and reasonably entitled to indemnity for such expenses which the court shall deem proper.

Section 145 further provides that to the extent that a director or officer or employee of a corporation has been successful in the defense of any action, suit or proceeding referred to in subsections (a) and (b) or in the defense of any claim, issue or matter therein, he or she shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by him or her in connection therewith; that indemnification provided by Section 145 shall not be deemed exclusive of any other rights to which the party seeking indemnification may be entitled; and the corporation is empowered to purchase and maintain insurance on behalf of a director, officer, employee or agent of the corporation against any liability asserted against him or her or incurred by him or her in any such capacity or arising out of his or her status as such whether or not the corporation would have the power to indemnify him or her against such liabilities under Section 145; and that, unless indemnification is ordered by a court, the determination that indemnification under subsections (a) and (b) of Section 145 is proper because the director, officer, employee or agent has met the applicable standard of conduct under such subsections shall be made by (1) a majority vote of the directors who are not parties to such action, suit or proceeding, even though less than a quorum, or (2) if there are no such directors, or if such directors so direct, by independent legal counsel in a written opinion, or (3) by the stockholders.

We will have in effect insurance policies for general officers' and directors' liability insurance covering all of our officers and directors. In addition, we intend to enter into indemnification agreements with our directors and officers. These indemnification agreements may require us, among other things, to indemnify each such director or officer for certain expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by such director or officer in any action or proceeding arising out of his or her service as one of our directors or officers.

Item 15. Recent Sales of Unregistered Securities

Since January 1, 2017, the registrant has sold the following unregistered securities. All amounts set forth below have been adjusted to give effect to a May 1, 2018 stock dividend that had the economic effect of a two-for-one stock split.

(a) Stock Option Grants and Exercises

- In 2017, the registrant granted 4,541,902 options to purchase Class B common stock to certain of its colleagues and directors under the 2015 Equity Incentive Plan at an exercise price of $5.38 per share;
- In 2018, the registrant granted 5,126,000 options to purchase Class B common stock to certain of its colleagues and directors under the 2015 Equity Incentive Plan at an exercise price of $6.805 per share;
- In 2019, the registrant granted 4,826,000 options to purchase Class B common stock to certain of its colleagues and directors under the 2015 Equity Incentive Plan at an exercise price of $7.24 per share;

- In 2017, the registrant issued to colleagues 2,855,792 shares of Class B common stock at per share purchase prices ranging from $0.0488 to $5.23 pursuant to exercises of options granted under various employee stock option plans;
- In 2018, the registrant issued to colleagues 2,824,574 shares of Class B common stock at per share purchase prices ranging from $0.3088 to $5.38 pursuant to exercises of options granted under various employee stock option plans; and
- In 2019, the registrant issued to colleagues 3,082,178 shares of Class B common stock at per share purchase prices ranging from $1.785 to $6.805 pursuant to exercises of options granted under various employee stock option plans.

(b) Stock Grants

- In 2017, the registrant granted to colleagues 109,240 fully-vested shares of Class B common stock pursuant to the 2015 Equity Incentive Plan at par value, 100,730 shares of which were ultimately issued net of tax withholding.

(c) Restricted Stock Unit ("RSU") Grants and Vesting

- In 2017, the registrant issued 43,240 shares of Class B common stock at par value pursuant to vested RSUs under the 2015 Equity Incentive Plan; and
- In 2019, the registrant issued 11,348 shares of Class B common stock at par value pursuant to vested RSUs under the 2015 Equity Incentive Plan.

(d) Restricted Stock Award Grants and Vesting

- In 2017, the registrant issued 240,672 shares of restricted Class B common stock to colleagues under the 2015 Equity Incentive Plan;
- In 2018, the registrant issued 570,286 shares of restricted Class B common stock to colleagues under the 2015 Equity Incentive Plan;
- In 2019, the registrant issued 493,840 shares of restricted Class B common stock to colleagues under the 2015 Equity Incentive Plan;
- In 2017, the registrant issued to colleagues 40,922 shares of Class B common stock at par value pursuant to vested restricted stock awards under the 2015 Equity Incentive Plan;
- In 2018, the registrant issued to colleagues 314,374 shares of Class B common stock at par value pursuant to vested restricted stock awards under the 2015 Equity Incentive Plan; and
- In 2019, the registrant issued to colleagues 206,528 shares of Class B common stock at par value pursuant to vested restricted stock awards under the 2015 Equity Incentive Plan.

(e) Non-Qualified Deferred Compensation Plan Distributions

- In 2017, the registrant issued 1,526,494 shares of Class B common stock at par value to colleagues in connection with distributions from the Non-Qualified Deferred Compensation Plan;
- In 2018, the registrant issued 2,332,585 shares of Class B common stock at par value to colleagues in connection with distributions from the Non-Qualified Deferred Compensation Plan; and
- In 2019, the registrant issued 2,233,807 shares of Class B common stock at par value to colleagues in connection with distributions from the Non-Qualified Deferred Compensation Plan.

(f) Other Issuances

- In 2017, the registrant issued and sold an aggregate of 6,035,736 shares of Class B common stock to Siemens Corporation pursuant to the Common Stock Purchase Agreement. 4,336,940 of such shares were sold at a per share price of $5.38, and 1,698,796 of such shares were sold at a per share price of $5.73;
- In 2018, the registrant issued and sold an aggregate of 2,139,466 shares of Class B common stock to Siemens Corporation pursuant to the Common Stock Purchase Agreement. 1,249,067 of such shares were sold at a per share price of $6.805, and 890,399 of such shares were sold at a per share price of $8.67;
- In 2018, the registrant issued and sold 57,670 restricted shares of Class B common stock to a colleague for a per share price of $8.67;
- In 2018, the registrant issued options to acquire a total of 900,000 shares of Class B common stock to five entities in connection with the acquisition of all the outstanding equity interests of a company at an exercise price of $6.805 per share; and
- In 2019, the registrant issued and sold an aggregate of 622,873 shares of Class B common stock to Siemens Corporation pursuant to the Common Stock Purchase Agreement at a per share price of $7.24.

The offers, sales and issuances of these securities were exempt from registration under the Securities Act in reliance upon Rule 701 promulgated under the Securities Act as transactions under compensatory benefit plans and contracts relating to compensation in compliance with Rule 701 or in reliance upon Section 4(a)(2) of the Securities Act as transactions by an issuer not involving any public offering.

The recipients of the securities in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and either received or had adequate access, through employment, business or other relationships, to information about us. The sales of these securities were made without general solicitation or advertising and without the involvement of any underwriter.

Item 16. Exhibits and Financial Statement Schedules

(a) Exhibits.

Exhibit Number	Description
3.1*	Amended and Restated Certificate of Incorporation of Bentley Systems, Incorporated, as currently in effect
3.2*	Form of Amended and Restated Certificate of Incorporation of Bentley Systems, Incorporated, to be in effect shortly following the effectiveness of the registration statement
3.3*	Amended and Restated By-Laws of Bentley Systems, Incorporated, as currently in effect
3.4*	Form of Amended and Restated By-Laws of Bentley Systems, Incorporated, to be in effect shortly following the effectiveness of the registration statement
4.1*	Form of Registrant's Class B common stock certificate of Bentley Systems, Incorporated
5.1*	Opinion of Simpson Thacher & Bartlett LLP
10.1*	Form of Indemnification Agreement between Bentley Systems, Incorporated and each of its directors and executive officers

Exhibit Number	Description
10.2*	Second Amended and Restated Stockholders Agreement by and among the Registrant and the stockholders named therein
10.3*	Amended and Restated Credit Agreement, dated as of December 19, 2017, by and among the Registrant, PNC Bank National Association, as administrative agent, and the lenders party thereto
10.4*	Common Stock Purchase Agreement, by and among the Registrant, Siemens AG, and the persons listed as "Key Holders" therein, dated September 23, 2016, as amended on October 28, 2016, and April 23, 2018.
10.5†*	Bentley Systems, Incorporated Bonus Pool Plan (as amended and restated, effective as of September 23, 2015), as amended
10.6†*	Bentley Systems, Incorporated 2015 Equity Incentive Plan, as amended and restated effective as of May 29, 2018
10.7†*	Bentley Systems, Incorporated Nonqualified Deferred Compensation Plan, as amended and restated effective as of January 1, 2015
10.8†*	Director Deferred Compensation Plan
21.1*	List of Subsidiaries of Registrant
23.1*	Consent of KPMG LLP, Independent Registered Public Accounting Firm
23.2*	Consent of Simpson Thacher & Bartlett LLP (included in Exhibit 5.1)
24.1*	Power of Attorney (included on signature page)

* To be filed by amendment.

† Indicates management contract or plan.

(b) Financial Statement Schedules. All financial statement schedules are omitted because they are not applicable or the information is included in the registrant's consolidated financial statements or related notes included in the prospectus that is part of this registration statement.

Item 17. Undertakings

The undersigned Registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act.

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement;

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the

securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

Insofar as indemnification by the Registrant for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in Exton, Pennsylvania on this day of , 2020.

BENTLEY SYSTEMS, INCORPORATED

By: ______________________________

Name: David J. Hollister
Title: Chief Financial Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Gregory S. Bentley, David J. Hollister and David R. Shaman, and each of them, as his true and lawful attorney-in-fact and agent with full power of substitution, for him in any and all capacities, to sign any and all amendments to this registration statement (including post-effective amendments) and any registration statement related thereto filed pursuant to Rule 462(b) increasing the number of securities for which registration is sought, and to file the same, with all exhibits thereto and other documents in connection therewith, with the SEC, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully for all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his substitute, may lawfully do or cause to be done by virtue hereof. Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
Gregory S. Bentley	Chief Executive Officer and Director (Principal Executive Officer)	
David J. Hollister	Chief Financial Officer (Principal Financial Officer)	
Werner Andre	Chief Accounting Officer (Principal Accounting Officer)	
Keith A. Bentley	Director	
Barry J. Bentley	Director	
Raymond B. Bentley	Director	
Kirk B. Griswold	Director	