Bentley
Advancing Infrastructure

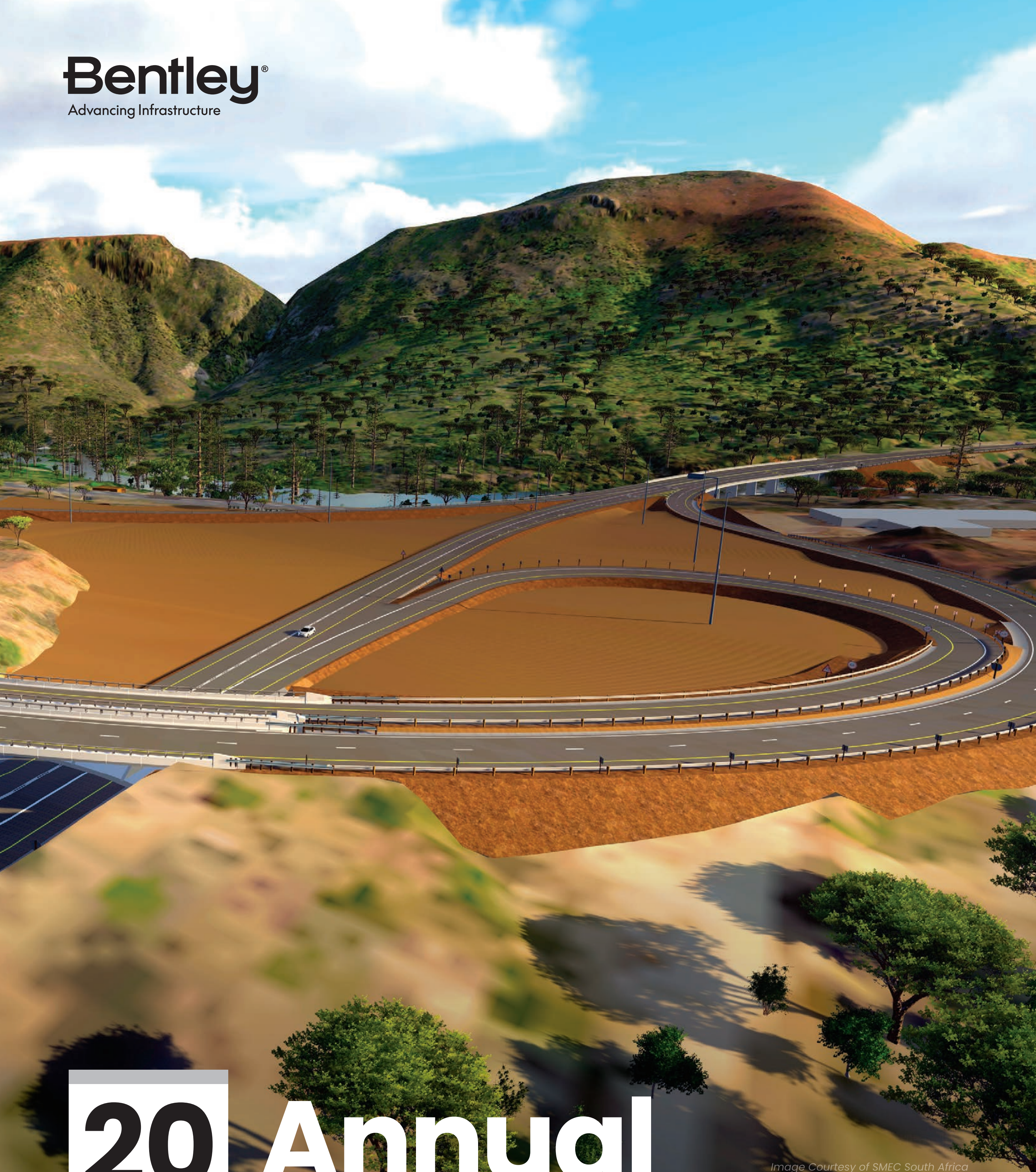

Image Courtesy of SMEC South Africa

2023 Annual Report

Bentley®

Advancing Infrastructure

A Letter from Greg Bentley, CEO

Thanks for the First 40 years, but...

As I write what is (accordingly) my last annual CEO letter, Bentley Systems has just announced our CEO succession plan, and by the time this Annual Report is published, the transition of Nicholas Cumins to our top executive leadership on July 1, 2024, will be imminent. It would be reasonable to expect that after more than 30 years in this role, I would be inclined herein to review a progression of memorable milestones to date. Our cumulative learning curve and consistent investments to benefit the future, compounded now over 40 years, do deserve to be accorded credit for the groundwork behind our company's favorable performance and prospects as a public company. (As a pertinent assessment of the benefits to all of us as investors, BSY remains among the consistent leaders in stock price appreciation among software IPOs of our 2020/2021 cohort).

However, at least as much credit is due to the exemplary execution, over the last two years, of Chief Operating Officer Nicholas and his supporting teams. So, rather than looking backward over my several decades in post, I would like to emphasize instead my enthusiasm to become Executive Chair, with confidence that this succession improves our future potential without compromising performance along the way. The timing of my transition purposefully follows the filling out of our executive suite with a new generation of top leaders, who have already been making a positive difference.

2023 Momentum

Underscoring this, our company concluded 2023 with our highest-ever operational measures of both growth and profitability, and of resulting cashflow:

- **Year-over-year business performance ARR growth** reached **13.5%** for the 97% of the company outside China (where we see signs of success in our go-to-market reset to localize in the face of geopolitics by substituting licenses and indirect royalties for direct recurring revenue), and including China remained at the same 12.5% as 2022, despite the contribution from onboarding programmatic acquisitions dropping to only 0.5%;
- Our primary margin measure of **Adjusted Operating Income Inclusive of Stock-based Compensation (SBC) Margin** (SBC was 6%) grew to **26.4%,** exceeding our annual improvement target of 100 basis points; and
- **Operating cash flow** exceeded **$400 million** for the first time, enabling us (shortly after year end) to fully pay down our revolving credit line. This has eliminated our only adverse interest rate exposure and has enhanced our optionality for potential platform acquisitions and/or, if needed, refinancing our convertible debt.

It is gratifying to me that our primary post-IPO initiatives—having been sparked by the infusion of new management talent, experience, and ideas—contributed so robustly during 2023:

- ARR growth from **new logos** represented **3%** within our overall ARR growth, primarily in small and medium businesses **(SMB),** on which we've focused only since 2020. Each quarter, over **700** of these new logos came to us through e-commerce for then-new Virtuoso subscriptions, which include user success "keys" for expert assistance; and
- **Application mix accretion** of **6%** grew 150 basis points year over year, due largely to the User Success processes bundled within our consumption-based E365 commercial program, new in 2020 and now constituting the majority of our ARR from enterprises.

The Stage is Set

We believe the growth contributors underpinning our 2023 performance are directionally enduring.

Within the foreseeable horizon, while the specific government funding programs currently in place throughout the world are of inherently finite duration (still with multiple years remaining in most cases), underlying drivers for ongoing infrastructure investment are generationally long-lived and increasing: obsolescence, decarbonization, resilience, adaptation, energy transition, energy security, and population migration. Also, to the extent governments' fiscal spending capacity over the long term may be in doubt, private investment is prepared and eager to fill the likely gap. Moreover, current spending obstacles for grid expansion (gridlock in permitting) and new mine exploration (capital market constraints accompanying the spike in interest rates) can reasonably be expected to be surmounted in due course, even if not during 2024.

Thus, a fundamental factor in our market is infrastructure engineering demand continuing to outstrip the lagging supply of professionals, as demographics cause retirements to outnumber qualified new graduates. The current engineering resource capacity gap—representatively reflected in the available surveys reporting one of every 10 positions unfilled in the U.S.—may well be exacerbated. In the face of project backlogs that are at record levels and growing, "going digital" becomes ever more imperative for our accounts and prospects.

The stage is indeed set for compounding accretion in our business, consistent with these quantitative indications:

- *Going Digital Award* finalists at our 2023 *Year in Infrastructure* conference reported savings in engineering resources averaging **18%**;
- Our growth rate with DOTs has increased by **50%** year-over-year;

- New unique digital components are being added to ProjectWise® repositories at a rate of about **100 million per month,** accumulating ever more potential value of reuse (through generative AI) for future project delivery, and (through digital twins) during asset performance;
- The ENR (Global) Top Design Firms (representing about one-fourth of our ARR, and approximately characteristic of all users) as of mid-2023 spent on average **less than $1.50 per hour** of usage of our applications, or only about 1% of their estimated billing rate for the same hour, reinforcing that diminishing returns from going digital are nowhere in sight; and
- E365 accounts are increasingly willing to share with us the risks of accelerating consumption growth rates (including application mix accretion to enhance productivity for each such hour) by negotiating progressively higher floors and ceilings for multiple years to come. In 23Q4 we reached the milestone of a **9-figure renewal** (E365 contracts are prepaid annually and recognized ratably as consumed, so such multiyear deals do not cause any one-time bulge in our ARR, revenues, or cashflow).

2024 Planning

Notwithstanding the overall continuity of momentum we perceive in our market, our 2024 plan was based on bottom-up modeling within each territory and product group. The resulting financial outlook range of 10.5% to 13% in ARR growth (constant-currency business performance) turns out to indeed correspond with 2023's organic "unit" growth, adjusted however by the lowering of other assumptions: for annual price escalation (post peak inflation in the world), for ARR contribution from acquisition onboarding (reflecting a change in priority described below, to earlier-stage targets), and for China's accelerating (intentional) structural attrition in subscriptions.

Consistent with our established discipline in triangulating between growth and profitability, we annually task and incentivize our executive team to maximize new business growth—but subject to a constant-currency margin improvement hurdle, set for now at 100 basis points as that is considerably enabled by our direct sales model. Appropriately, each year's planning tends to focus on different emerging priorities. To optimize for the opportunities in front of us in 2024, we incurred a realignment charge at the end of 2023 (the first such since 2020) to cover the severance costs of replacing just under 5% of our workforce. Our resulting 2024 hiring (from a literally global recruitment pool, enabled by our virtual orientation) is targeting incremental marketing talent, digital experience investments, and AI readiness.

A difference in our ARR growth outlook for 2024 is its broader range than in prior years, stemming from a (finally) accelerating business opportunity for infrastructure digital twins—largely thanks to the burgeoning expectations of even our conservative market for AI, and our demonstrable breakthroughs in its application. We can now feasibly deliver "instant on" digital twin subscriptions for what we describe as *asset analytics,* driven by AI. Our inaugural asset analytics offerings are our OpenTower® iQ service, developed over the last several years and based on AI processing of drone video capture for communications towers, and our recent Blyncsy acquisition, which applies AI to readily available crowd-sourced roadway imagery to support operations and maintenance.

Our commercial model for asset analytics charges per infrastructure asset (such as per cell tower per year, or per road mile inspected daily). This makes it entirely orthogonal and incremental to our existing revenue streams for engineering software, monetized primarily per (human) user. Though still relatively nascent, our asset analytics ARR has been growing rapidly enough to warrant, for 2024, widening our outlook range upside.

For 2024, we see asset analytics as our most compelling investment case—scalably leveraging and extending our iTwin® Platform to underlie digital twin AI processing services, which deliver actionable insights for infrastructure operations, preferably through a diverse ecosystem of partners adding in turn their own proprietary analytics and bundled engineering services. To advance our head start, asset analytics has accordingly become, for 2024, our programmatic acquisition priority as well. As in the case of Blyncsy, we will opportunistically seek outright ownership in preference to our minority "venture capital" investments of recent years.

Here's to the Next 40 Years!

As Executive Chair, I will continue to host our quarterly operating results presentations, and I particularly look forward to regularly reporting progress on this new asset analytics front.

More generally, the prospects for AI at large are so vastly exciting for our company that it will probably be natural to associate such increasing AI opportunities with the coinciding generational rejuvenation of our executive leadership. But I strongly believe that it's not right to think of even generative AI as *disruptive* to our hard-won incumbency atop infrastructure engineering. On the contrary, AI by its nature accentuates the value of engineering data and its intrinsic understanding, to the extreme benefit of our users, accounts, and Bentley Systems.

It's not just that infrastructure engineering organizations have entrusted the bulk of their proprietary project and asset data to ProjectWise and AssetWise® for decades. For each organization, the keys to semantically unlocking the value of that data—for training of their own AI models (with our tools to do so), and for facilitating its advantageous reuse in delivery of new projects and to optimize asset performance—are the uniquely comprehensive schema, and the alignment and synchronization capabilities, of the enveloping Bentley Infrastructure Cloud, powered by iTwin. In every sense, Bentley Systems' distinguishing *continuity,* spanning so far 40 years of seamless infrastructure engineering platforms, applications, cloud services, and data, *compounds* the potential of AI to add ever more value across the generations to come, of software and of infrastructure.

Correspondingly, I believe that we have also made it possible for our company's successor leadership, under Nicholas, to maximize their own full generation's compounding continuity benefits. In realizing the substance of these extraordinary opportunities, much should be expected from our Board, including its soon-to-be Executive Chair, as by rights uniquely motivated, capable, and wholeheartedly committed to this succession.

Here's to 2024, and beyond...!

Sincerely,

Greg Bentley
CEO, Bentley Systems

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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2023

OR

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

For the transition period from to

Commission File Number: 001-39548

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

Delaware	**95-3936623**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
685 Stockton Drive **Exton, Pennsylvania**	**19341**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: **(610) 458-5000**

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

Title of each class	Trading Symbol	Name of each exchange on which registered
Class B Common Stock, $0.01 Par Value	**BSY**	**The Nasdaq Stock Market LLC**

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

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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

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

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

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

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

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

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

The aggregate market value of the voting stock held by non-affiliates of the registrant as of June 30, 2023, the last business day of the registrant's most recently completed second fiscal quarter, was $7.0 billion based on the closing price reported on the Nasdaq Stock Market LLC on that date. As of February 20, 2024, the registrant had 11,537,627 shares of Class A and 285,788,718 shares of Class B common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the proxy statement for registrant's 2024 Annual Meeting of Stockholders (the "2024 Proxy Statement") are incorporated by reference in Part III of this Form 10-K to the extent stated herein. The 2024 Proxy Statement will be filed within 120 days of the registrant's fiscal year ended December 31, 2023.

BENTLEY SYSTEMS, INCORPORATED
FORM 10-K
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EXPLANATORY NOTE

This Annual Report on Form 10-K is for the year ended December 31, 2023. This Annual Report on Form 10-K modifies and supersedes documents filed before it. The U.S. Securities and Exchange Commission ("SEC") allows us to "incorporate by reference" information that we file with it, which means that we can disclose important information to you by referring you directly to those documents. Information incorporated by reference is considered to be part of this Annual Report on Form 10-K. In addition, information that we file with the SEC in the future will automatically update and supersede information contained in this Annual Report on Form 10-K.

Unless indicated otherwise, throughout this Annual Report on Form 10-K, we refer to Bentley Systems, Incorporated and its consolidated subsidiaries, as "Bentley Systems," "Bentley," the "Company," "we," "us," and "our."

This Annual Report on Form 10-K contains trademarks, service marks, brands, or product names owned by us, as well as those owned by others.

Numerical information in this report is presented on a rounded basis using actual amounts. Minor differences in totals and percentage calculations may exist due to rounding.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report includes forward-looking statements. All statements contained in this report other than statements of historical facts, including statements regarding our future results of operations and financial condition, our business strategy, and plans and our objectives for future operations, are forward-looking statements. The words "believe," "may," "will," "could," "would," "seeks," "estimate," "continue," "anticipate," "intend," "expect," and similar expressions, as well as statements regarding our focus for the future, 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 report 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 report as a whole, are subject to risks and uncertainties.

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 report in greater detail in the section titled "Risk Factors" and elsewhere in this report. 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 report to conform these statements to actual results or revised expectations.

PART I

Item 1. Business

Our Business

Bentley Systems is the *infrastructure engineering software* company.

Our purpose is to advance the world's infrastructure for better quality of life. We empower people to design, build, and operate better and more resilient infrastructure through the adoption of our intelligent digital twin solutions.

We were founded in 1984 by the Bentley brothers and on September 25, 2020, we completed our initial public offering ("IPO").

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, across distributed project teams, and from offices to the field. Moreover, our intelligent digital twin solutions empower our users to achieve sustainable development goals ("SDGs") by realizing outcomes that are more sustainable and resilient.

Our users design, build, and operate projects and assets across the following infrastructure sectors:

- *Public Works/Utilities*, which represents approximately 58% of our sector-attributable annualized recurring revenues ("ARR")[1][2], includes roads, rail, bridges, tunnels, airports, and ports; federal, state, and municipal agencies; and networks for electricity, gas, water, wastewater, and communications;

- *Resources*, which represents approximately 26% of our sector-attributable ARR[1][2], includes mining, oil and gas "upstream," offshore, pipelines, environmental management, and renewable energy;

- *Industrial*, which represents approximately 10% of our sector-attributable ARR[1][2], includes process and discrete manufacturing, oil and gas "downstream," and power generation; and

- *Commercial/Facilities*, which represents approximately 6% of our sector-attributable ARR[1][2], includes campuses, office buildings, retail facilities, and hospitals.

Our Products and Solutions

We serve enterprises and professionals across the infrastructure lifecycle by improving project delivery and asset performance. For projects, our software encompasses conception, planning, surveying, design, engineering, and construction, as well as the collaboration required to coordinate and share the work of interdisciplinary and/or distributed project teams. For assets, our software spans 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 operations and maintenance decisions.

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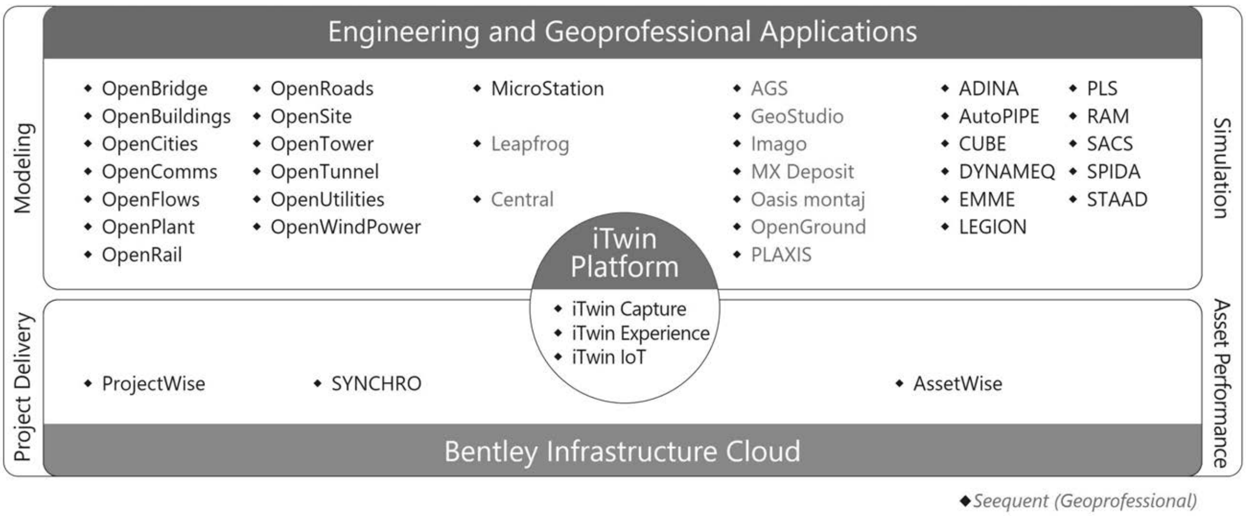
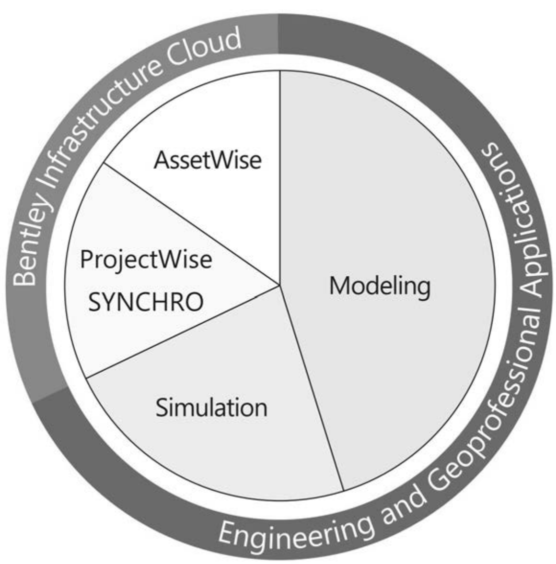
(1) Refer to the section titled "Key Business Metrics" included in Part II, Item 7 of this Annual Report on Form 10-K for additional information, including our definition and our use of ARR.

(2) Sector-attributable ARR refers to the proportion of our ARR which can be attributed either based on the sector-specific classification of the account and/or the sector-specific classification of the product giving rise to the ARR. The portions of our ARR which cannot be sector-attributed consist generally of ARR within accounts that are diversified engineering firms which work in multiple sectors, and as to that portion of their ARR which are for products that are not sector-specific, such as MicroStation, and structural or geotechnical modeling and simulation applications, and ProjectWise, which are used across any and all sectors.

Our engineering and geoprofessional applications are primarily cloud-connected desktop modeling and simulation applications that support the breadth of engineering and geoprofessional disciplines. *Bentley Infrastructure Cloud*, provided via cloud and hybrid environments, extends enterprise collaboration during project delivery, and helps manage engineering information during operations and maintenance. Powering these products and solutions is *iTwin Platform*, our cloud-native technology platform to create, curate, and leverage infrastructure digital twins.



The proportions of our revenue generated respectively from engineering and geoprofessional applications for modeling and simulation, and from *Bentley Infrastructure Cloud* and its principal offerings, are referenced in the diagram below.



Our comprehensive portfolio of integrated software offerings comprises:

Engineering Applications. We offer an open modeling environment comprising domain-specific authoring applications and an open simulation environment comprising applications to analyze the functional performance of designs that work together to improve engineering quality, streamline production of multi-discipline documentation, and reduce rework. These *Bentley Open* applications for modeling and simulation support a wide variety of file formats – both Bentley and third-party – and industry standards and design codes, enabling digital workflows across design, simulation, and analysis, and ensuring engineering data is not locked in, but remains open and accessible.

Our engineering applications work together to improve infrastructure engineering quality and productivity, resulting in better project designs and deliverables. We take care to enable compatibility across successive generations of our applications, which enables engineers, throughout their careers, to maintain continuity with their preferred interfaces, formats, and methodologies, while advancing their work at the leading edge of innovation.

Our open modeling applications include:

- *MicroStation*, for flexible 3D design and documentation, providing the common modeling environment upon which our applications are built;
- *OpenBridge*, for the 3D design and documentation of bridges;
- *OpenBuildings*, for the 3D design and documentation of buildings and their integrated structural, HVAC, electrical, and plumbing systems;
- *OpenCities,* for the design and visualization of cities and campuses;
- *OpenComms*, for the planning, engineering, construction, and maintenance of fiber, coax, and hybrid fiber-coax networks;
- *OpenFlows*, for the planning, design, and operation of water, wastewater, and stormwater systems, incorporating hydrological, hydraulic, and flood modeling;
- *OpenPlant*, for the 2D and 3D design and documentation of process plants;
- *OpenRail*, for the planning, 3D design, and documentation of rail and transit systems;
- *OpenRoads*, for the planning, 3D design, and documentation of roads and highways;
- *OpenSite*, for the planning, 3D design, and documentation of building, residential development, and infrastructure sites;
- *OpenTower*, for the 3D design and analysis of communication towers;
- *OpenTunnel*, for the 3D design and analysis of tunnels;
- *OpenUtilities*, for the design and management of electric, gas, water, wastewater, and district energy networks; and
- *OpenWindPower*, for the structural analysis and design of fixed and floating offshore wind turbines.

Our open simulation applications include:

- *ADINA*, for nonlinear simulation and analysis;

- *AutoPIPE*, for analysis and simulation of pipe stress in industrial process plants;
- *CUBE*, for multi-modal transportation network modeling and land-use modeling;
- *DYNAMEQ*, for traffic simulation and dynamic traffic analysis;
- *EMME*, for multimodal urban, regional, and transport planning;
- *LEGION*, for pedestrian traffic simulation;
- *Power Line Systems ("PLS")*, for analysis and simulation of overhead electric power transmission lines and their structures;
- *RAM*, for analysis and simulation of building structural performance;
- *SACS*, for analysis and simulation of offshore structural performance;
- *SPIDA*, for analysis and simulation of utility poles and overhead assets; and
- *STAAD*, for analysis and simulation of infrastructure.

Geoprofessional Applications. Our geoprofessional applications support modeling and simulation to help engineers and scientists develop a detailed understanding, and take full account of, near and deep subsurface conditions.

These include industry-leading earth modeling, subsurface-data management, and geoprofessional team collaboration software and geotechnical products that supplement visible built-asset representations above ground with more probabilistic modeling of subsurface conditions – deepening the potential of infrastructure digital twins.

Our geoprofessional applications include:

- *AGS*, for processing, inversion, and visualization of geophysical data;
- *Central*, for geological model management, to visualize, track, integrate, and manage geoscience data from a centralized, auditable environment;
- *GeoStudio*, for integrated geotechnical analysis of slope stability, groundwater flow, and heat and mass transfer in soil and rock;
- *Imago*, for the capture and management of drilling core images;
- *Leapfrog*, for 3D implicit modeling designed to rapidly integrate, communicate, and interpret geological data;
- *MX Deposit*, cloud drill hole software for simplifying and controlling how drill and other field data is collected, managed, and shared throughout the lifecycle of an ore deposit from early exploration through to mine production;
- *Oasis montaj*, for the quality control, correction, visualization, analysis, and interpretation of geophysical, geologic and geochemical data;
- *OpenGround*, for geotechnical information management for collecting, reporting, managing, visualizing, analyzing, and accessing geotechnical data; and

- *PLAXIS*, for geotechnical analysis to solve common and complex geotechnical problems, including advanced analysis for excavations, foundations, tunnels, and other infrastructure projects.

Bentley Infrastructure Cloud. Our enterprise information systems span the end-to-end lifecycle and value chain of the world's infrastructure, helping engineers to produce higher quality deliverables, contractors to execute better with their supply chain, and owners to have a complete picture of their asset as early as possible.

Bentley Infrastructure Cloud encompasses:

- *ProjectWise*, for project delivery, supporting information and document management, and engineering-specific collaboration and work-sharing for distributed project teams and enterprises;

- *SYNCHRO*, for construction, spatially and temporally integrating a project's 3D engineering models into its construction schedules to visualize and assess sequencing strategies; and

- *AssetWise*, for asset operations, capturing and managing changes to engineering models and enterprise information for compliance and safety, and to model performance and reliability.

By unifying data between engineering applications and enterprise systems, *Bentley Infrastructure Cloud* helps organizations manage their data in a single environment, enabling integrated workflows, improved collaboration, and increased productivity. Data also can be easily enriched throughout the lifecycle. Powered by the *iTwin Platform* and Bentley's infrastructure schemas and thus seamlessly integrating with *Bentley Open* applications, *Bentley Infrastructure Cloud* enables better creation, delivery, and ongoing operation of better infrastructure, through complete and evergreen digital twins.

Bentley iTwin Platform. Our *iTwin Platform* for infrastructure digital twin solutions, leveraging our infrastructure schemas, enables users to create and curate cloud-native 4D/5D digital representations of physical infrastructure assets, incorporating underlying engineering information federated with operational and enterprise data, and then to model, simulate, analyze, synchronize, track, and predict performance over time. Using digital twins, our users can more fully extend digital workflows across the entire infrastructure lifecycle, increasing the value of infrastructure engineers' work.

Bentley iTwin Platform powers *Bentley Infrastructure Cloud* to add digital twin capabilities to our offerings for project delivery, construction, and asset operations. It also supports an emerging ecosystem of third-party developers who use iTwin.js, an open-source development library, to develop desktop, mobile, or web apps that leverage the *iTwin Platform* or that augment our iTwin products or those from third parties.

Some capabilities of the *iTwin Platform* are offered as discrete iTwin products. These include:

- *iTwin Capture*, for capturing, modeling, analyzing, and sharing reality data, enabling users to easily create engineering-ready, high-resolution 3D meshes of infrastructure assets using drone video and survey imagery;

- *iTwin Experience*, for visualizing and navigating digital twins, empowering owner-operators and their constituents with insights into critical infrastructure; and

- *iTwin IoT*, for acquiring and analyzing sensor data, enabling users to seamlessly incorporate Internet of Things ("IoT") data created by sensors and condition monitoring devices for real-time safety and risk monitoring in infrastructure operations and construction activities.

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, subsurface, 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 software, which enables 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.

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 design codes, 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.

The Digital Twins Opportunity

Over our company's history, as computing capabilities have advanced, the scope of infrastructure engineering software has correspondingly increased. However, project and asset lifecycle software markets have developed independently from one another and connecting digital workflows have not been offered. We believe the advancement from siloed project-specific software including for computer-aided design (CAD) and building information modeling (BIM), and asset-specific software including for geographic information systems (GIS), to unified and "evergreen" infrastructure digital twins will have the effect of merging what have been to date separate market spaces as well as enabling new use cases that were not possible or practical with previous technologies.

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 and will facilitate the broader use of engineering data in the operation of infrastructure assets. Moreover, we believe that due to the comprehensiveness of our offerings 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 Commercial Offerings

Licensing and Subscriptions

We offer a variety of licensing and subscription options so that users can choose what works best for them, their project, and their organization.

For larger organizations with centralized management of their engineering software portfolio, we offer our Enterprise 365 ("E365") subscription. Our E365 subscription is an all-inclusive global consumption-based plan which provides access to our comprehensive portfolio of solutions with uniform pricing across all countries. E365 subscriptions require a Cloud Services Subscription ("CSS") (as described below) and are charged to accounts primarily based upon daily usage or elective subscriptions, dependent on product. They are also inclusive of "Success Plans" (described below). Our ProjectWise and AssetWise enterprise collaboration solutions utilized under E365 are charged based on the total number of users within a calendar quarter, or fixed asset bands, respectively. While the majority of our E365 subscriptions revenue is attributed to daily consumption of our applications, E365 subscriptions can contain floors or collars on usage charges.

A perpetual license for Bentley software is a one-time purchase with an annual maintenance subscription, called SELECT, which includes 24/7 technical support, access to learning resources, and the ability to exchange licenses for other software once a year. In addition, SELECT offers license pooling, which enables software access from multiple computers, and term licenses, which enables users to access software beyond their license entitlements for monthly or quarterly periods to cover short-term surges in their workload.

We also offer a 12-month named-user subscription including license, training, and knowledgeable engineering support procured through our e-store, Virtuosity, which is a convenient and cost-effective way for infrastructure professionals in small- and medium-sized businesses ("SMBs") to access Bentley software.

We deliver our *Bentley Infrastructure Cloud* capabilities under our CSS, charged quarterly based on the number of users of various levels of functionality. Pricing includes cloud provisioning, although some accounts elect on-premises and/or hybrid hosting.

CSS streamlines the procurement, administration, and payment process for us and our accounts for cloud offerings, term licenses, and recurring services. Participants in our E365 program use CSS as the funding mechanism for their subscription. At the end of 2023, accounts representing approximately 60% of our total ARR[(1)] had chosen to institute, for licensing of our software, our commercial models eligible under CSS.

Success Plans and Services

For enterprise accounts, we have transitioned from a traditional paradigm of on-demand technical support, and professional services contracted episodically, to instead delivering proactive and continuous engagement with users and accounts through "Success Plans." Success Plans are designed with business outcomes in mind, ensuring that accounts receive the best results from our software. Working collaboratively with our accounts, our User Success specialists, consisting of over 600 colleagues, most with domain experience and credentials in infrastructure engineering, deliver Success Plans through structured engagements based on explicit and standardized "Success Blueprints" that include virtual or in-person engagements with subject matter experts. Success Plans, based on allotted credits toward multiple Success Blueprints per calendar quarter, are bundled into our E365 subscription.

We also offer specialized digital integration services and consulting through our Cohesive business unit (described in more detail below), primarily to accounts that use IBM Maximo and our AssetWise solutions for managing their infrastructure asset operations and maintenance.

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(1) Refer to the section titled "Key Business Metrics" included in Part II, Item 7 of this Annual Report on Form 10-K for additional information, including our definition and our use of ARR.

Our Primary Growth Initiatives

Incremental to our long-standing programmatic acquisition strategy, since 2020 we have determinedly invested internal resources to accelerate organic growth, with increasing success, through the following primary growth initiatives:

- ***Accretion in Enterprise Accounts*:** We have established that E365 helps our accounts implement, propagate, and upgrade our solutions more quickly, encouraging greater consumption of our software and stronger account relationships. We intend to continue to expand the reach of our E365 subscription within virtually all of our enterprise accounts;

- ***Accretion in SMBs*:** New business from SMB accounts, including from hundreds of new "logos" each quarter, has become a substantial contributor to our overall ARR growth[1], and we are encouraged to continue investment in our Virtuosity business and e-store. Development and deployment of a "low touch" and ultimately "no touch" digital experience will enable this business to further scale and align with the market potential; and

- ***Catalyzing the Infrastructure Digital Twin Ecosystem:*** While engineering services firms (which make up approximately half of our existing business) agree that digital twins are fundamental to the evolution of infrastructure engineering, they tend to lack firsthand experience of introducing data-centric offerings to owner-operators or examples of successful business models. *Cohesive* represents our own investment to create a captive "digital integrator" to prove business models that we can subsequently impart to engineering services firms, accelerating the adoption of intelligent digital twin solutions.

Our Accounts

We provide our software solutions to over 41,000 accounts in 194 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 50%, 50%, and 56% of our 2023, 2022, and 2021 total revenues, respectively), and their clients, the world's public and private infrastructure asset owners and operators (representing 50%, 50%, and 44% of our 2023, 2022, and 2021 total revenues, respectively).

We bring our offerings to market primarily through direct sales channels, including through our account managers and our Virtuosity inside sales colleagues and e-store, which generated approximately 92% of our 2023 total revenues. We also rely on specialist channel partners in geographic regions where we do not currently have a meaningful presence or where, for some of our offerings, direct sales efforts are less economically feasible. Channel partners accounted for approximately 8% of our 2023 total 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 2.0% of our total revenues in 2023 or 2022, or more than 2.5% of our total revenues in 2021.

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(1) Refer to the section titled "Key Business Metrics" included in Part II, Item 7 of this Annual Report on Form 10-K for additional information, including our definition and our use of ARR growth rate.

Our Acquisitions

Since our founding, we have purposefully pursued a strategy of regularly acquiring and integrating specialized infrastructure engineering software businesses, including 22 acquisitions over the past three years. Most acquired products had already been interfacing with our platform prior to acquisition, and our acquisition purpose is typically to improve their technical and commercial integration.

As a public company, we have been able to make platform acquisitions which appreciably increase our scale and/or the scope of our platform capabilities. Our platform acquisitions have been:

- *Seequent Holdings Limited ("Seequent")* (2021), to enable infrastructure digital twin capabilities to incorporate modeling and simulation of full subsurface depths, and advancing infrastructure resilience and sustainability by helping geoprofessionals to understand environmental conditions and to mitigate environmental risks; and

- *PLS* (2022), to bring design, analysis, and management of overhead electric power transmission lines and structures to our grid digital twin solutions. PLS substantially completes the reach of our comprehensive portfolio for the lifecycle integration of grid infrastructure across electrical transmission, substation, and distribution assets, and communications towers.

Our relatively numerous and frequent programmatic acquisitions, which most often "fill white space" within our ecosystem, add their value principally by enhancing our platform comprehensiveness, and accordingly we consider this programmatic aspect of our growth as characteristically within our mainstream business performance (unlike platform acquisitions). Our average historical ARR growth rate[1] from programmatic acquisitions over the past three years has been approximately 1% measured on a constant currency basis.

Our Competition

The market for our software is highly competitive and subject to change. We compete against large, global, publicly-traded companies that have resources greater than our own, and 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., and Hexagon AB;

- our key competitors in *Resources* applications include Hexagon AB, the AVEVA unit of Schneider Electric, and Dassault Systèmes;

- our key competitors in *Industrial* applications include Hexagon AB, the AVEVA unit of Schneider Electric, and Dassault Systèmes;

- our key competitors in *Commercial/Facilities* applications include Autodesk, Inc., Nemetschek SE, and Trimble Inc.;

- our key competitors in project delivery systems include Autodesk, Inc. and Oracle Corporation; and

- our key competitors in asset performance systems include Aspen Technology, Inc., the AVEVA unit of Schneider Electric, Esri, and General Electric Company.

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(1) Refer to the section titled "Key Business Metrics" included in Part II, Item 7 of this Annual Report on Form 10-K for additional information, including our definition and our use of ARR growth rate.

The principal competitive factors affecting our market include:

- product features, performance, and effectiveness;
- reliability and security;
- openness and the ability to integrate with other technologies;
- price, commercial model, and total cost of use; and
- brand awareness and reputation.

We believe we compete favorably against our competitors based on the factors above and that we distinguish ourselves through the comprehensiveness of our software portfolio, our commitment to both integration and interoperability across the entire infrastructure lifecycle, our flexible commercial models, and our direct sales channels.

Our Research and Development

We 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 technological 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 feedback from various channels including users and user-facing teams.

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 Intellectual Property

We believe that the success of our business depends more on the quality of our proprietary software, 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 and technology. Instead, we believe that our competitive position depends primarily on our ability to maintain a leadership position by developing innovative proprietary software, technology, information, processes, and know-how. Nevertheless, we rely on a combination of copyrights, patents, trademarks, and trade secrets in the United States ("U.S.") and other jurisdictions to secure our intellectual property, and we use contractual provisions and non-disclosure agreements to protect it. As of December 31, 2023, we had 168 patents granted and 60 patents pending in the U.S., the first of which expires on June 28, 2024, and 33 patents granted and 59 patents pending internationally, the first of which expires on January 12, 2025. 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 2023, our patent committee reviewed 16 invention disclosures submitted by our software developers, and filed 15 U.S. and 12 foreign patent applications, while 14 U.S. and six 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 171 trademarks, including "Bentley," the Bentley logo, "AssetWise," "Bentley Infrastructure Cloud," "Bentley Open," "iTwin," "MicroStation," "ProjectWise," "Seequent," "SYNCHRO," and "Virtuosity," with the U.S. Patent and Trademark Office and in several jurisdictions outside the U.S.

Our Production and Suppliers

Our principal supplier of cloud services is Microsoft, with whom we have entered into a multi-year contract for a committed level of expenditures for Azure. We are in negotiations with additional cloud services providers to expand our delivery capabilities and optimize costs.

Environmental, Social, and Governance

In 2023, we continued to build upon our strong commitment to sustainability with an emphasis on goal setting aligned with leading standards and continually improving our reporting. In the third year of our formal Environmental, Social, and Governance ("ESG") strategy, we continued our regular engagement with stakeholders to solicit feedback on our ESG report. Included in our report were the results of our first materiality assessment, key objectives related to our priority topics, and new disclosure areas aligned with leading reporting frameworks and standards. We have enhanced our disclosures and reporting, including better defining our handprint (i.e., our users' positive impacts empowered by using Bentley software) and sharing progress on key goals. Regarding our handprint, the United Nations' SDGs focus on sustainable outcomes, providing a framework and inspiration for business policies and purpose. Combining the concepts of ESG and SDGs, we focus on "ES(D)G," empowering sustainable development goals, by helping our users realize outcomes that are more sustainable, predictable, and resilient.

We look forward to sharing updates for our full year 2023 performance in our next ESG report, scheduled to be published in the second quarter of 2024. To learn more, visit our ESG website at https://www.bentley.com/company/esg-overview/. The information posted on this website is not incorporated into this Annual Report on Form 10-K.

Human Capital Management

Our colleagues are a key success factor in driving our continued growth. Our talent strategy focuses on creating an enriching colleague experience through an inclusive and engaging culture in which colleagues can develop their career while making a positive impact by advancing the world's infrastructure.

As of December 31, 2023, we had approximately 5,200 full-time colleagues globally, including approximately 2,000 in the Americas (the U.S., Canada, and Latin America, including the Caribbean); approximately 1,500 in Europe, the Middle East, and Africa ("EMEA"); and approximately 1,700 in Asia-Pacific ("APAC"). None of our full-time U.S. colleagues are unionized. Outside the U.S., a small overall portion of our colleagues in certain countries are represented by a colleague representative organization, such as a union or colleague association. Our colleagues bring 66 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 and advanced academic credentials, including nearly 130 doctoral degrees and over 1,300 master's-level degrees.

Colleague Experience

We take a colleague-centric approach in all that we do. We achieve a strong sense of belonging through focused efforts to build trust and enhance personal and organizational experiences. We encourage meaningful and continuous feedback through annual performance reviews, quarterly alignment sessions, and engagement surveys, helping encourage colleagues to feel engaged and ensuring they have the resources they need to perform the best and most rewarding work of their career.

A key differentiator in creating a positive experience for our colleagues is our Infrastructure Empowered Workforce Plan ("IEWP"). IEWP is a global strategy that empowers colleagues to take advantage of our physical offices for necessary in-person collaboration, while institutionalizing the flexibility to work remotely otherwise, fully enabled by technology. IEWP allows our colleagues to make the best of remote and in-office work to perform at a higher level and enhances team and business productivity.

Talent Acquisition

We believe our Company's purpose, mission, and values, as well as our culture, including an intentional commitment to flexible work through IEWP, are drivers for attracting and retaining colleagues. Our talent acquisition strategy leverages best practices to attract, engage, and hire top talent. We enjoy high levels of colleague referrals to supplement our corporate hiring practices, and nurture relationships with universities around the world to hire talented graduates into rotational assignments, all of which provides a strong talent pipeline.

Professional Development

With enhanced capacity to collaborate virtually, colleagues can grow their careers no matter where they are located. We empower colleagues with learning and development resources to support their continuous growth as individual contributors, team managers, or organization leaders. We offer live classroom learning, curated learning pathways, and open access to a powerful learning platform. We also focus on developing the personal and professional skills of our leaders. Our Leadership Excellence and Development (LEAD) Essentials program strives to equip leaders to guide their teams while leveraging Bentley core competencies and a "One Bentley" mindset.

Inclusion and Belonging

We are a global company with colleagues of different cultures, backgrounds, and perspectives based in more than 40 countries worldwide. We strive to build a culture where all colleagues feel a sense of belonging so that they can fully realize their potential and produce their best work. We have developed programs in the workplace and continue to invest in diversity partnerships so that our colleagues and communities can thrive.

Our Inclusion, Diversity, and Equity Alliance ("IDEA") provides a platform for colleagues from all regions, departments, levels, and demographics to build community. IDEA currently has six focus groups: OpenPride, OpenAbilities, People of Color in the U.S., Women at Bentley, Veterans at Bentley, and IDEA India. Each IDEA focus group is sponsored by a member of our leadership team. We have held interactive sessions with our executives, emerging leaders, and talent acquisition teams in fostering inclusion and belonging and eliminating unconscious bias, and have implemented training for hiring managers to ensure fairness in the interview process.

Additional information on our diversity, equity, and inclusion programs can be found on our website at www.bentley.com/en/about-us/diversity-equity-inclusion.

Corporate Information

Bentley Systems, Incorporated was incorporated in Delaware in 1987 and is headquartered in Exton, Pennsylvania.

Website Access to Reports

Our internet address is www.bentley.com. The information posted on our website is not incorporated into this Annual Report on Form 10-K. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to reports filed or furnished pursuant to Sections 13(a) and 15(d) of the Securities Exchange Act of 1934, as amended, are available free of charge on the SEC's website at www.sec.gov and on the Investor Relations portion of our website at www.bentley.com (or investors.bentley.com) as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC.

Item 1A. Risk Factors

The following is a discussion of the material factors that make an investment in the Company and its securities speculative or risky. The risks described herein are not the only risks we may face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial may also materially adversely affect our business, financial condition, or operating results.

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) resources; (iii) industrial; and (iv) 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 U.S., and our results of operations therefore may be materially affected by the legal, regulatory, social, political, economic, and other risks of foreign operations.

Approximately 58%, 58%, and 59% of our total revenues were from outside the U.S. for the years ended December 31, 2023, 2022, and 2021, respectively. We anticipate that revenues from accounts outside the U.S. 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 U.S. are subject to legal, regulatory, social, political, economic, and other risks inherent in international business operations, including, without limitation, local product preference and product requirements, trade protection measures, sanctions, quotas, embargoes, import and export licensing requirements, duties, tariffs or surcharges and more stringent regulations relating to privacy and data security and access to, or use of, commercial and personal information, such as the General Data Protection Regulation (the "GDPR") applicable in the European Union (the "E.U."), the Personal Information Protection Law (the "PIPL") applicable in China, and Brazil's General Data Protection Law (the "LGPD").

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.

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

Approximately 18%, 18%, and 19% of our total revenues for the years ended December 31, 2023, 2022, and 2021 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.

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

We sell our solutions in 194 countries, primarily through a direct sales force located throughout the world. Approximately 58%, 58%, and 59% of our total revenues were from outside the U.S. for the years ended December 31, 2023, 2022, and 2021, respectively. As we continue to expand our presence in international regions, the portion of our revenues, expenses, cash, accounts receivable, and payment obligations denominated in foreign currencies continues to increase. Further, we anticipate that revenues from accounts outside of the U.S. will continue to comprise the majority of our total revenues for the foreseeable future.

Because of our international activities, we have revenues, expenses, cash, accounts receivable and payment obligations denominated in foreign currencies. For the years ended December 31, 2023, 2022, and 2021, 35%, 36%, and 47%, respectively, of our total revenues 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 condition, 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, Canadian dollar, Australian dollar, Chinese yuan renminbi, and New Zealand dollar. 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 U.S. and China, and renminbi internationalization, 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.

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.

Consolidation among our accounts and other enterprises in the markets in which we operate may result in a 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, the loss of key colleagues, accounts, and channel partners of ours or of the acquired company, and the requirement to test and assimilate the internal control processes of the acquired business in accordance with the requirements of Section 404 of the Sarbanes-Oxley Act of 2002.

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.

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 95% of those balances held outside of the U.S. as of December 31, 2023 and 2022. 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.

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 sales force. From time to time, we reorganize and make adjustments to our sales leadership and/or our sales force 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 sales force 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.

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 8% of our total revenues for the years ended December 31, 2023, 2022, and 2021. These channel partners sell our software solutions 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.

Risks Related to Information Technology (“IT”) Systems and Intellectual Property

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 U.S. 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), our IT systems or those of our accounts and/or critical vendors. 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.

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.

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, adversely affect our business, or expose us to increased liability.

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. We may also share accounts' personal data with certain third parties as described in the privacy policy provided to each account. Further, we collect and otherwise process personal data of our global employees and contractors.

Governments, regulators, privacy advocates, plaintiffs' attorneys, and our users and accounts are increasingly focused on how companies collect, process, use, store, share, and transmit personal data. Regulation relating to the provision of our solutions and applications, is evolving, as federal, state, and foreign governments continue to adopt new, or modify existing, laws and regulations addressing privacy, data protection, data sovereignty, information security and the collection, processing, storage, sharing, transmission, and use of data generally. This evolving regulatory landscape may be subject to differing interpretations, jurisdiction specific inconsistencies, or may conflict with other rules. We expect the regulatory landscape to remain uncertain for the foreseeable future. Further, our expectation is that there will continue to be new laws, regulations, and industry standards applicable to our collection, processing, storage, sharing, transmission, and use of data generally.

Globally, laws such as the GDPR in the European Economic Area, the LGPD in Brazil, and the PIPL in China, impose obligations directly on us as both a data controller and a data processor, as well as on many of our users. In addition, new and emerging state laws in the U.S. governing privacy, data protection, and information security, such as the California Consumer Privacy Act ("CCPA"), the California Privacy Rights Act, the Virginia Consumer Data Protection Act, the Colorado Privacy Act, the Utah Consumer Privacy Act, and Connecticut's Act Concerning

Personal Data Privacy and Online Monitoring have been enacted. These laws and regulations, as well as industry self-regulatory codes, create new compliance obligations and substantially expand the scope of potential liability and provide greater penalties for non-compliance. For example, the GDPR provides for penalties of up to €20 million or 4% of a company’s annual global revenue, whichever is greater, the PIPL provides for penalties of up to 50 million renminbi or 5% of a company's annual revenue and disgorgement of all illegal gains, whichever is greater, and the CCPA provides for penalties of up to $7,500 per violation.

Although, we monitor the regulatory environment and have invested in addressing these developments, operating in an increasingly complex regulatory landscape may impact our innovation and business drivers in developing new and emerging technologies (e.g., artificial intelligence and machine learning). Globally, these and other requirements are causing increased scrutiny amongst users, particularly in the public sector and highly regulated industries, which could restrict the use and adoption of our solutions and applications (in particular cloud services). Further, these developments may require us to take on more onerous obligations in our contracts, restrict our ability to store, transfer and process data or, in some cases, impact our ability or our users’ ability to offer our services in certain locations, to deploy our solutions, or to derive insights from user data globally.

Around the world, there is continued uncertainty in relation to the legal mechanisms supporting cross-border data flows which are subject to evolving guidance, active litigation, and enforcement proceedings in a number of jurisdictions. A number of countries including China, Australia, New Zealand, Brazil, and Japan have established specific requirements for cross-border data transfers. Further, a number of countries and states have adopted or are considering adopting data localization policies which would further restrict cross-border data transfers and may require data to be localized in the country of origin (potentially at a state level) which could substantially impact our operations.

Our failure to comply with applicable laws and regulations, or to protect data, could result in enforcement action against us, including fines and public censure, claims for damages by users, 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 we may be exposed to liability for our own policies and practices concerning the processing of personal data and could hurt our business.

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 them, or lead to significant fines, penalties, or liabilities for any noncompliance.

Furthermore, concerns regarding privacy, data protection, and information security 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 data 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 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. 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.

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.

Risks Related to Regulation and Litigation

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 U.S., particularly from China. The imposition of additional tariffs by the U.S. 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, the U.S. 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.

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 U.S. Foreign Corrupt Practices Act ("FCPA") and similar anti-bribery and anti-corruption laws associated with our activities outside the U.S. could subject us to penalties and other adverse consequences.

The majority of our revenues are from jurisdictions outside of the U.S. 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.

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. We may also decide to acquire companies whose past activities could give rise to potential liability under export control and sanctions laws. Such acquisitions may require substantial time and resources to integrate the acquired company into our compliance processes, to correct potential compliance gaps, and to remediate past potential violations by the acquired company, including through our own internal actions, voluntary self-disclosures, or other measures.

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.

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.

Risks Related to Our Indebtedness

Our credit agreement, as amended, contains restrictive covenants that may limit our operating flexibility, and certain changes in ownership of equity interests in us by the Bentley Family (Barry J. Bentley, Gregory S. Bentley, Keith A. Bentley, Raymond B. Bentley, and Richard P. Bentley, collectively (the "Bentleys"), certain other family members and trusts and other entities controlled by or primarily for the benefit of the Bentleys and their families) constitutes an event of default.

Our amended and restated credit agreement, entered into on December 19, 2017 (the "Credit Facility"), contains certain restrictive covenants that limit our ability to, among other things, 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, repurchase our common stock and outstanding indebtedness, 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 3.00 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 3.00 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 of our foreign subsidiaries owned by a party to the agreement governing the Credit Facility.

Further, if the Bentley Family ceases to collectively own equity interests in us representing at least 20% 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. Refer to the section titled "Liquidity and Capital Resources" included in Part II, Item 7 of this Annual Report on Form 10-K.

Servicing our debt requires a significant amount of cash, and we may not have sufficient cash flow from our business to pay our substantial debt.

Our ability to make scheduled payments of the principal of, to pay interest on, or to refinance our indebtedness depends on our future performance, which is subject to economic, financial, competitive, and other factors beyond our control. Our business may not continue to generate cash flow from operations in the future sufficient to service our debt and make necessary capital expenditures. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt, or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to refinance our indebtedness will depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations. In addition, any future indebtedness we may incur may contain financial and other restrictive covenants that limit our ability to operate our business, raise capital, or make payments under our other indebtedness. If we fail to comply with these covenants or to make payments under our indebtedness when due, then we would be in default under that indebtedness, which could, in turn, result in that and our other indebtedness becoming immediately payable in full.

Risks Related to Our Class B Common Stock

We issued convertible notes that have rights senior to our Class B common stock.

In January 2021, we issued $690 million aggregate principal amount of convertible senior notes due 2026 (the "2026 Notes"), which will mature on January 15, 2026, unless earlier redeemed or repurchased by us or converted by the holder pursuant to their terms. In June 2021, we issued $575 million aggregate principal amount of convertible senior notes due 2027 (the "2027 Notes"), which will mature on July 1, 2027, unless earlier redeemed or repurchased by us or converted by the holder pursuant to their terms. The 2026 Notes and 2027 Notes rank senior in right of payment to our Class B common stock and any of our indebtedness that is expressly subordinated in right of payment to the 2026 Notes and 2027 Notes; equal in right of payment to any of our liabilities that are not so subordinated; effectively junior in right of payment to any of our secured indebtedness, to the extent of the value of the assets securing such indebtedness; and structurally junior to all indebtedness and other liabilities (including trade payables) of our subsidiaries. In the event of our bankruptcy, liquidation, reorganization, or other winding up, our assets that secure debt ranking senior or equal in right of payment to the 2026 Notes and 2027 Notes will be available to pay obligations on the 2026 Notes and 2027 Notes only after the secured debt has been repaid in full from these assets, and our assets will be available to pay common stockholders only after all debt obligations have been repaid. There may not be sufficient assets remaining to pay amounts due on any or all of the 2026 Notes and 2027 Notes then outstanding or any or all shares of our Class B common stock then outstanding.

The accounting method for convertible debt securities that may be settled in cash, such as the 2026 Notes and 2027 Notes, could have a material effect on our reported financial condition and results.

The accounting method for reflecting the 2026 Notes and 2027 Notes on our consolidated balance sheets and reflecting the underlying shares of our Class B common stock in our reported diluted earnings per share may adversely affect our reported earnings and financial condition.

Under the if-converted method, diluted earnings per share will be calculated assuming that all the 2026 Notes and 2027 Notes are converted solely into shares of Class B common stock at the beginning of the reporting period, unless the result would be anti-dilutive. The application of the if-converted method will reduce our reported diluted earnings per share.

Furthermore, if any of the conditions to the convertibility of the 2026 Notes and/or the 2027 Notes is satisfied, then we may be required under applicable accounting standards to reclassify the liability carrying value of the 2026 Notes and/or the 2027 Notes as a current, rather than long-term, liability. This reclassification could be required even if no noteholders convert their notes and could materially reduce our reported working capital.

The conditional conversion feature of the 2026 Notes and 2027 Notes may adversely affect our financial condition and operating results.

In the event the conditional conversion feature of the 2026 Notes and/or the 2027 Notes is triggered, holders of the 2026 Notes and/or the 2027 Notes will be entitled to convert the 2026 Notes and/or the 2027 Notes at any time during specified periods at their option. If one or more holders elect to convert their 2026 Notes and/or their 2027 Notes, unless we elect to satisfy our conversion obligation by delivering solely shares of our Class B common stock (other than paying cash in lieu of delivering any fractional share), we would be required to settle a portion or all of our conversion obligation through the payment of cash, which could adversely affect our liquidity. In addition, even if holders do not elect to convert their 2026 Notes and/or their 2027 Notes, we could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the 2026 Notes and/or the 2027 Notes as a current, rather than long-term, liability, which would result in a material reduction of our net working capital.

Conversion of the 2026 Notes and/or the 2027 Notes will dilute the ownership interest of existing stockholders, including holders who had previously converted their 2026 Notes and/or their 2027 Notes, or may otherwise depress the price of our Class B common stock.

The conversion of some or all of the 2026 Notes and/or the 2027 Notes will dilute the ownership interests of existing stockholders to the extent we deliver shares upon conversion of any of the 2026 Notes and/or the 2027 Notes. Any sales in the public market of the Class B common stock issuable upon such conversion could adversely affect prevailing market prices of our Class B common stock. In addition, the existence of the 2026 Notes and 2027 Notes may encourage short selling by market participants because the conversion of the 2026 Notes and/or the 2027 Notes could be used to satisfy short positions, or anticipated conversion of the 2026 Notes and/or the 2027 Notes into shares of our Class B common stock could depress the price of our Class B common stock. As of December 31, 2023, without giving effect to any potential adjustments to the conversion rate set forth in the indenture or any limits on conversion, and assuming our Class B common stock is trading at or above $64.13 per share for the 2026 Notes and $83.23 per share for the 2027 Notes, 10,725,557 and 6,908,567 shares of our Class B common stock would be issuable upon a full conversion of the 2026 Notes and 2027 Notes, respectively.

The capped call transactions entered into when we issued the 2026 Notes and 2027 Notes may affect the value of our common stock.

In connection with the issuances of the 2026 Notes and 2027 Notes, we entered into capped call transactions with the respective option counterparties. The capped call transactions are expected generally to reduce the potential dilution upon conversion of the 2026 Notes and 2027 Notes, and/or offset any cash payments we are required to make in excess of the principal amount of converted 2026 Notes and 2027 Notes with such reduction and/or offset subject to a cap. In connection with establishing their initial hedges of the capped call transactions, the option counterparties or their respective affiliates entered into various derivative transactions with respect to our Class B common stock concurrently with or shortly after the pricing of the 2026 Notes and 2027 Notes. The option counterparties or their respective affiliates may modify their hedge positions by entering into or unwinding derivatives with respect to our Class B common stock and/or purchasing or selling our Class B common stock or other securities of ours in secondary market transactions prior to the maturity of the 2026 Notes and 2027 Notes (and are likely to do so during any observation period related to a conversion of 2026 Notes and 2027 Notes). This activity could cause or avoid an increase or a decrease in the market price of our Class B common stock.

The dual class structure of our common stock has the effect of concentrating voting control with the Bentley Control Group (the Bentleys and certain of their family members, trusts or other permitted transferees, as well as all other holders of our Class A common stock in respect of such shares of Class A common stock, who collectively are acting as a group).

Our Class A common stock has 29 votes per share, and our Class B common stock, which is the class of common stock that is issuable upon conversion of the 2026 Notes and 2027 Notes, and is the only class that is publicly traded and listed, has one vote per share. The beneficial owners of our Class A common stock together hold approximately 54.0% of the voting power of our outstanding common stock as of December 31, 2023. Moreover, as a result of the 29 to one voting ratio between our Class A and Class B common stock, the Bentley Control Group controls and will continue to control a majority of the combined voting power of our common stock and therefore is 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. This concentrated control will limit or preclude stockholders' 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 Bentley Control Group may also have interests that differ from those of other stockholders and may vote in a way with which other stockholders disagree and which may be adverse to such other stockholders' interests.

In addition, we are a "controlled company" for the purposes of Nasdaq Listing Rules, which provides us with exemptions from certain of the corporate governance standards imposed by the rules of The Nasdaq Global Select Market. These provisions further allow the Bentley Control Group to exercise significant control over our corporate decisions and limit the ability of the public stockholders to influence our decision making.

The choice of forum provision in our amended and restated certificate of incorporation 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, to the fullest extent permitted by law, 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 Delaware General Corporation Law, our amended and restated certificate of incorporation or amended and restated bylaws, or any action seeking to interpret, apply, enforce, or determine the validity of our amended and restated certificate of incorporation or amended and restated bylaws, and any action asserting a claim against us that is governed by the internal affairs doctrine. In addition, the choice of forum provision provides that, to the extent permitted by applicable law, claims brought under the Securities Act or the Exchange Act must be brought exclusively in the federal district court for the District of Delaware. Despite the choice of forum provision, investors cannot waive compliance with federal securities laws and rules and regulations thereunder. 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.

General Risk Factors

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

Our operations and performance depend significantly on foreign and domestic economic and political conditions. Uncertainty regarding economic and political conditions may negatively impact us as accounts defer spending or postpone infrastructure projects in response to tighter credit, higher unemployment, higher interest rates, higher inflation, financial market volatility, government austerity programs, negative financial news, 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 business, financial condition, results of operations, and cash flows.

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, including, without limitation, as a result of or in connection with trade relations between the U.S. and China, as well as terrorist attacks, cyber events, armed conflicts (or the threat or escalation thereof), bank failures, civil unrest, espionage, natural disasters, epidemics, and pandemics in any of the countries in which we do business could harm our business, financial condition, and results of operations.

Changes in existing financial accounting standards or practices, or taxation rules or practices may adversely affect our results of operations.

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

We are required to evaluate our internal control over financial reporting under Section 404 of the Sarbanes-Oxley Act of 2002 and any adverse results from such evaluation could result in a loss of investor confidence in our financial reports and have an adverse effect on our stock price.

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, we are required to furnish a report by our management on our internal control over financial reporting, including an assessment of the effectiveness of our internal control over financial reporting as of the end of our fiscal year. This assessment must include a statement as to whether or not our internal control over financial reporting is effective and disclosure of any material weaknesses in our internal control over financial reporting identified by management. If our management or independent registered public accounting firm identifies one or more material weaknesses in our internal control over financial reporting, we are unable to assert that our internal control over financial reporting is effective, or our independent registered public accounting firm is unable to express an opinion that our internal controls are effective, investors could lose confidence in the accuracy and completeness of our financial reports, which could have an adverse effect on our business and stock price.

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

U.S. generally accepted accounting principles ("GAAP") requires us to test for goodwill impairment at least annually. In addition, we assess our goodwill and amortizable intangible assets for impairment if events occur or circumstances change that would more likely than not reduce its fair value below its carrying value, including declines in stock price, market capitalization, or cash flows, and slower growth rates in our industry. Depending on the results of our assessment, we could be required to record a significant impairment charge in our consolidated financial statements during the period in which any impairment of our goodwill or amortizable intangible assets was determined, negatively impacting our results of operations.

Item 1B. Unresolved Staff Comments

None.

Item 1C. Cybersecurity

We maintain a comprehensive process for: (i) identifying the assets, threats, and vulnerabilities that affect our information systems and networks; (ii) analyzing the likelihood and impact of potential cyberattacks on our assets, operations, and objectives; (iii) evaluating the existing cybersecurity controls and measures that we have in place to prevent, detect, and respond to cyberattacks; and (iv) implementing and monitoring the appropriate cybersecurity solutions and practices that reduce our cyber risk exposure and enhance our cyber resilience.

In doing so, our Global IT Security Team, which is comprised of dedicated privacy and security professionals and run by our Chief Information Security Officer ("CISO"), stays abreast of security industry and threat trends and regularly seeks to improve our cybersecurity risk management program. Our executive leadership team, with input and guidance from our CISO, is responsible for our overall enterprise risk management system and processes, and regularly considers cybersecurity risks in the context of other material risks to the Company.

As part of our overall cybersecurity strategy, as and when we detect cybersecurity threats, our Global IT Security team documents the relevant incident details, assesses the impact and severity of it, identifies the root cause and corrective actions, and communicates the incident to our CISO and any other relevant parties as needed. We also seek to address cybersecurity risks associated with our third-party vendors by making our Global IT Security team a key part of relevant vendor onboarding, whereby we conduct comprehensive risk assessments of such vendors' cybersecurity policies and practices. When necessary, we utilize third party auditors and consultants to assess third-party cybersecurity risks, and we consult with outside counsel as appropriate, including on materiality analysis and disclosure matters. Our senior management makes the final materiality determinations and disclosure and other compliance decisions.

Our full Board of Directors has oversight responsibility for risks and incidents relating to cybersecurity threats, including compliance with disclosure requirements, and, in conjunction with the Audit Committee, the related effects, if any, on financial reporting and internal controls. Our Chief Digital Officer and Chief Legal Officer, in conjunction with members of the Global IT Security team, regularly update the Board of Directors on the Company's cybersecurity risk profile and incidents, if any, and our overall cybersecurity strategy and process improvements.

Our business strategy, results of operations, and financial condition have not been materially affected by risks from cybersecurity threats, but we cannot provide assurance that they will not be materially affected in the future by such risks or any future material incidents. For more information on our cybersecurity related risks, refer to Item 1A. Risk Factors of this Annual Report on Form 10-K.

Item 2. Properties

Our corporate headquarters are located in Exton, Pennsylvania and consist of approximately 107,000 square feet of office space, of which we own approximately 76,000 square feet. We lease the remaining approximate 31,000 square feet of headquarters space with expiration dates occurring in 2024 and 2025. Our headquarters accommodates our principal software engineering, sales, marketing professional services, and administrative activities. In addition to our headquarters, we own one other location in India, which is used for office space, that consists of approximately 31,000 square feet. We lease facilities in an additional 111 locations in the U.S. and internationally through our foreign subsidiaries. See Note 8 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K for more information about our lease commitments.

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.

Item 3. 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, results of operations, or cash flows. We currently believe that we do not have any material litigation pending against us.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

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

Market Information for Common Stock

Our Class B common stock is traded on the Nasdaq Stock Market LLC under the symbol BSY. There is no established public trading market for our Class A common stock. See Note 13 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K for more information about the terms of our common stock.

Stockholders

As of January 31, 2024, there were 15 holders of record of our Class A common stock and 2,199 holders of record of our Class B common stock. Because many of our shares of Class B common stock are held by brokers or other institutions on behalf of stockholders, we are unable to estimate the total number of Class B stockholders represented by the record holders.

Dividend Policy

The declaration and payment of dividends is within the discretion of our Board of Directors. We paid quarterly dividends of $0.05 per share of common stock during the year ended December 31, 2023 and $0.03 per share of common stock during the years ended December 31, 2022 and 2021. 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.

Securities Authorized for Issuance Under Equity Compensation Plans

Refer to Part III, Item 12 of this Annual Report on Form 10-K.

Recent Sales of Unregistered Equity Securities

From October 1, 2023 to December 31, 2023, we issued 564,558 shares of our Class B common stock in connection with distributions from our amended and restated Bentley Systems, Incorporated Nonqualified Deferred Compensation Plan (the "DCP").

None of the foregoing transactions involved any underwriters, underwriting discounts or commissions, or any public offering. Unless otherwise stated, the sales of the above securities were deemed to be exempt from registration under the Securities Act in reliance on Rule 701 promulgated under Section 3(b) of the Securities Act as transactions by an issuer pursuant to benefit plans and contracts relating to compensation as provided under Rule 701. All recipients had adequate access, through their relationships with us, to information about us. The issuance of these securities were made without any general solicitation or advertising.

Item 6. [Reserved]

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

The following discussion should be read in conjunction with our audited consolidated financial statements and notes thereto included in Part II, Item 8 of this Annual Report on Form 10-K. 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 set forth in Part I, Item 1A. Risk Factors of this Annual Report on Form 10-K. Refer to Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations in our 2022 Annual Report on Form 10-K for management's discussion and analysis of financial condition and results of operations for the year ended December 31, 2022 compared to the year ended December 31, 2021.

During the fourth quarter of 2023, we changed our definitions of constant currency and constant currency growth rates. In reporting period-over-period results, we calculate the effects of foreign currency fluctuations and constant currency information by translating current period results on a transactional basis to our reporting currency using prior period average foreign currency exchange rates in which the transactions occurred. Our prior definition of constant currency calculated the effects of foreign currency fluctuations and constant currency information by translating current period results of our subsidiaries from their functional currencies to our reporting currency by using prior period average foreign currency exchange rates in reporting period-over-period results.

Prior period amounts have been revised to conform to the current period presentation using the updated constant currency and constant currency growth rates definitions. We are providing what our constant currency and constant currency growth rates results would have been pursuant to the prior definition for the applicable periods so that investors and potential investors that have analyzed these non-GAAP financial measures historically using our prior definitions can compare our historical results to our current results with respect to these non-GAAP financial measures using the prior definitions. Refer to the section titled "Non-GAAP Financial measures" for reconciliations of constant currency non-GAAP financial measures and their most directly comparable GAAP financial measures under the current and prior definitions.

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. Minor differences in totals and percentage calculations may exist due to rounding.

Overview:

Bentley Systems is the *infrastructure engineering software* company. Our purpose is to advance the world's infrastructure for better quality of life. We empower people to design, build, and operate better and more resilient infrastructure through the adoption of our intelligent digital twin solutions. We manage our business globally within one reportable segment, the development and marketing of computer software and related services, which is consistent with how our chief operating decision maker ("CODM") reviews and manages our business.

Executive Summary:

- Total revenues were $1,228,413 for the year ended December 31, 2023, up 11.8% or 11.9% on a constant currency basis(1) compared to the prior year;

- Subscriptions revenues were $1,080,307 for the year ended December 31, 2023, up 12.5% or 12.5% on a constant currency basis(1) compared to the prior year;

- ARR(2) was $1,174,774 as of December 31, 2023, compared to $1,036,548 as of December 31, 2022, representing a constant currency ARR growth rate(2) of 12.5%;

- Last twelve-month recurring revenues dollar-based net retention rate(2) was 109% as of the year ended December 31, 2023, compared to 110% as of December 31, 2022;

- Operating income was $230,542 for the year ended December 31, 2023, compared to $208,612 for the prior year;

- Adjusted operating income inclusive of stock-based compensation expense ("Adjusted OI w/SBC")[1] was $324,677 for the year ended December 31, 2023, compared to $273,929 for the prior year; and

- Cash flow from operations was $416,696 for the year ended December 31, 2023, compared to $274,324 for the prior year.

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(1) Constant currency and Adjusted OI w/SBC are non-GAAP financial measures. Refer to the "Non-GAAP Financial Measures" section for additional information, including our definitions and our uses of constant currency and Adjusted OI w/SBC.

(2) Refer to the "Key Business Metrics" section for additional information, including our definitions and our uses of ARR, ARR growth rate, and recurring revenues dollar-based net retention rate.

(3) Adjusted OI w/SBC is a non-GAAP financial measure. Refer to the "Non-GAAP Financial Measures" section for additional information, including our definition and our use of Adjusted OI w/SBC.

Results of Operations:

Impact of Foreign Currency

Our results of operations have been, and in the future will be, affected by changes in foreign currency exchange rates. For the years ended December 31, 2023, 2022, and 2021, approximately 35%, 36%, and 47%, respectively, of our total revenues and 45%, 46%, and 42%, respectively, of our total operating expenses were denominated in foreign currencies from outside the U.S. including most significantly: euros, British pounds, Canadian dollars, Australian dollars, Chinese yuan renminbi, and New Zealand dollars. Other than the natural hedge attributable to matching revenues and expenses in the same currencies, we do not currently hedge foreign currency exposure.

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-over-period comparisons and enhance the understanding of our results and evaluation of our performance. Refer to the "Non-GAAP Financial Measures" section for additional information, including our definition and our use of constant currency.

Revenues

We generate revenues from subscriptions, perpetual licenses, and services. Our total revenues are diversified by account type, size, and geography. Our sources of revenue growth, excluding the impact from acquisitions, come from additional subscriptions revenues from existing accounts using the same products and represent the majority of our revenue growth, additional subscriptions revenues from existing accounts using new products, and subscriptions revenues from new accounts. We believe that we have a loyal account base, with over 70% of our total revenues for the years ended December 31, 2023, 2022, and 2021 generated from organizations that have been our accounts for over ten years.

In addition to our results of operations discussed below, the following is supplemental data of our revenues:

(as a percentage of total revenues)	Year Ended December 31, 2023	2022	2021
Revenues from:			
Direct sales channels	92%	92%	92%
Indirect channel partners	8%	8%	8%
Revenues from:			
Subscriptions	88%	87%	84%
Recurring services	1%	2%	2%
Total recurring revenues	89%	89%	86%
Perpetual licenses and other services	11%	11%	14%
Largest account represents no more than	2.0%	2.0%	2.5%

The volume, mix, and duration of contract types starting or renewing in any given period may have a material impact on revenue in the period, and as a result can impact the comparability of reported revenue period-over-period. Our subscriptions, perpetual licenses, and services offerings are recognized pursuant to applicable GAAP guidance. See Note 3 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K for additional information on our revenues. We believe that subscription revenues will continue to comprise a majority of our total revenues.

Consolidated Revenues

Current Definition of Constant Currency:

	Year Ended December 31,			% Change 2022 to 2023		% Change 2021 to 2022	
	2023	2022	2021	%	Constant Currency %(1)	%	Constant Currency %(1)
Subscriptions	$1,080,307	$ 960,220	$ 812,807	12.5%	12.5%	18.1%	22.0%
Perpetual licenses	46,038	43,377	53,080	6.1%	7.3%	(18.3%)	(14.1%)
Subscriptions and licenses	1,126,345	1,003,597	865,887	12.2%	12.3%	15.9%	19.8%
Services	102,068	95,485	99,159	6.9%	7.5%	(3.7%)	(0.1%)
Total revenues	$1,228,413	$1,099,082	$ 965,046	11.8%	11.9%	13.9%	17.7%

(1) Constant currency is a non-GAAP financial measure. Refer to the "Non-GAAP Financial Measures" section for additional information, including our current definition and our use of constant currency, and for a reconciliation of constant currency growth rates.

Prior Definition of Constant Currency:

	Year Ended December 31,			% Change 2022 to 2023		% Change 2021 to 2022	
	2023	2022	2021	%	Constant Currency %(1)	%	Constant Currency %(1)
Subscriptions	$1,080,307	$ 960,220	$ 812,807	12.5%	11.7%	18.1%	24.3%
Perpetual licenses	46,038	43,377	53,080	6.1%	5.9%	(18.3%)	(12.1%)
Subscriptions and licenses	1,126,345	1,003,597	865,887	12.2%	11.4%	15.9%	22.1%
Services	102,068	95,485	99,159	6.9%	7.5%	(3.7%)	0.4%
Total revenues	$1,228,413	$1,099,082	$ 965,046	11.8%	11.1%	13.9%	19.8%

(1) Constant currency is a non-GAAP financial measure. Refer to the "Non-GAAP Financial Measures" section for additional information, including our prior definition and our use of constant currency, and for a reconciliation of constant currency growth rates.

The increase in total revenues for the year ended December 31, 2023 was primarily driven by increases in subscriptions revenues, and to a lesser extent, services and perpetual licenses revenues.

Subscriptions. For the year ended December 31, 2023, the increase in subscriptions revenues was primarily driven by improvements in our business performance of approximately $115,786 ($116,406 on a constant currency basis) and the impact of our platform acquisition of approximately $4,301 ($4,111 on a constant currency basis). Our business performance excludes the impact of our platform acquisitions and includes the impact from programmatic acquisitions, which generally are immaterial, individually and in the aggregate. The platform acquisition impact relates to our acquisition of PLS and is inclusive of PLS' organic performance.

The improvements in business performance were primarily driven by expansion from accounts with revenues in the prior period ("existing accounts"), and growth of 3% attributable to new accounts, most notably small- and medium-sized accounts. Improvements in business performance for the year ended December 31, 2023 were led by our engineering applications, geoprofessional applications, and our *Bentley Infrastructure Cloud* for project delivery.

Perpetual licenses. For the year ended December 31, 2023, the increase in perpetual licenses revenues was primarily driven by improvements in business performance of approximately $2,661 ($3,181 on a constant currency basis).

Services. For the year ended December 31, 2023, the increase in services revenues was primarily driven by improvements in our business performance of approximately $6,583 ($7,138 on a constant currency basis).

For the year ended December 31, 2023, the improvements in business performance were primarily driven by contributions from Cohesive digital integrator services of approximately $8,684 ($8,834 on a constant currency basis).

Revenues by Geographic Region

Revenue from external customers is attributed to individual countries based upon the location of the customer.

<u>*Current Definition of Constant Currency:*</u>

	Year Ended December 31,			% Change 2022 to 2023		% Change 2021 to 2022	
	2023	2022	2021	%	Constant Currency %(1)	%	Constant Currency %(1)
Americas	$ 650,926	$ 584,794	$ 483,087	11.3%	11.4%	21.1%	21.2%
EMEA	353,550	312,804	300,123	13.0%	12.1%	4.2%	12.9%
APAC	223,937	201,484	181,836	11.1%	13.0%	10.8%	16.3%
Total revenues	$1,228,413	$1,099,082	$ 965,046	11.8%	11.9%	13.9%	17.7%

(1) Constant currency is a non-GAAP financial measure. Refer to the "Non-GAAP Financial Measures" section for additional information, including our current definition and our use of constant currency, and for a reconciliation of constant currency growth rates.

<u>*Prior Definition of Constant Currency:*</u>

	Year Ended December 31,			% Change 2022 to 2023		% Change 2021 to 2022	
	2023	2022	2021	%	Constant Currency %(1)	%	Constant Currency %(1)
Americas	$ 650,926	$ 584,794	$ 483,087	11.3%	11.0%	21.1%	22.1%
EMEA	353,550	312,804	300,123	13.0%	11.1%	4.2%	15.4%
APAC	223,937	201,484	181,836	11.1%	11.2%	10.8%	21.1%
Total revenues	$1,228,413	$1,099,082	$ 965,046	11.8%	11.1%	13.9%	19.8%

(1) Constant currency is a non-GAAP financial measure. Refer to the "Non-GAAP Financial Measures" section for additional information, including our prior definition and our use of constant currency, and for a reconciliation of constant currency growth rates.

Americas. For the year ended December 31, 2023, the increase in revenues from the Americas was primarily driven by improvements in our business performance of approximately $62,442 ($63,450 on a constant currency basis) and the impact from our platform acquisition of approximately $3,690 ($3,237 on a constant currency basis).

The improvements in business performance for the year ended December 31, 2023 were primarily due to expansion of our subscriptions revenues from existing accounts in the U.S.

EMEA. For the year ended December 31, 2023, the increase in revenues from EMEA was primarily driven by improvements in our business performance of approximately $40,297 ($37,345 on a constant currency basis).

The improvements in business performance for the year ended December 31, 2023 were primarily due to expansion of our subscriptions revenues from existing accounts in the United Kingdom ("U.K."), and the Middle East and Africa, partially offset by reductions in Russia due to exiting our operations beginning in the second quarter of 2022.

APAC. For the year ended December 31, 2023, the increase in revenues from APAC was primarily driven by improvements in our business performance of approximately $22,291 ($25,930 on a constant currency basis).

The improvements in business performance for the year ended December 31, 2023 were primarily due to expansion of our subscriptions revenues from existing accounts in India, Australia, and Southeast Asia, partially offset by declines in China.

Total revenues in China for the year ended December 31, 2023 increased as compared to the same period in the prior year, primarily due to expansion of our perpetual licenses revenues. The future results in China remain uncertain as a result of continued geopolitical challenges, the obstacles there to cloud-deployed software, and the financial timing impact of the preference there for license sales, rather than subscriptions.

Cost of Revenues and Operating Expense (Income)

Headcount-Related Costs

For the years ended December 31, 2023, 2022, and 2021, approximately 80% of our aggregate cost of revenues, research and development, selling and marketing, and general and administrative expenses were represented by what we refer to herein as "headcount-related" costs. These costs primarily include salaries, benefits, bonuses, stock-based compensation expense, employment taxes, travel, training, and realignment of our colleagues, and third-party personnel expenses and related overhead. 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.

During the fourth quarter of 2023, the Company approved a strategic realignment program to better serve our accounts and to better align resources with the strategy of the business, including reinvestment in go-to-market functions, as well as in AI product development. The realignment program resulted in realignment costs of $12,579, which represent termination benefits for colleagues whose roles were impacted (less than five percent of total headcount). See Note 21 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K for additional information. The realignment program activities have been broadly implemented across our various businesses with the intention that substantially all actions, including payment of the termination benefits, will be fully completed by mid-2024. The impact of the realignment program on headcount-related costs for the year ended December 31, 2023 is included in our discussion below.

Cost of Revenues

Current Definition of Constant Currency:

	Year Ended December 31,			% Change 2022 to 2023		% Change 2021 to 2022	
	2023	2022	2021	%	Constant Currency %(1)	%	Constant Currency %(1)
Cost of subscriptions and licenses	$ 169,406	$ 147,578	$ 124,321	14.8%	15.1%	18.7%	22.2%
Cost of services	96,677	89,435	92,218	8.1%	9.0%	(3.0%)	2.0%
Total cost of revenues	$ 266,083	$ 237,013	$ 216,539	12.3%	12.8%	9.5%	13.6%

(1) Constant currency is a non-GAAP financial measure. Refer to the "Non-GAAP Financial Measures" section for additional information, including our current definition and our use of constant currency, and for a reconciliation of constant currency growth rates.

Prior Definition of Constant Currency:

	Year Ended December 31,			% Change 2022 to 2023		% Change 2021 to 2022	
	2023	2022	2021	%	Constant Currency %[(1)]	%	Constant Currency %[(1)]
Cost of subscriptions and licenses	$ 169,406	$ 147,578	$ 124,321	14.8%	14.7%	18.7%	24.5%
Cost of services	96,677	89,435	92,218	8.1%	9.0%	(3.0%)	2.3%
Total cost of revenues	$ 266,083	$ 237,013	$ 216,539	12.3%	12.5%	9.5%	15.1%

(1) Constant currency is a non-GAAP financial measure. Refer to the "Non-GAAP Financial Measures" section for additional information, including our prior definition and our use of constant currency, and for a reconciliation of constant currency growth rates.

Cost of subscriptions and licenses. Cost of subscriptions and licenses expenses primarily include headcount-related costs, as well as depreciation of property and equipment and amortization of capitalized software costs associated with servicing software subscriptions, amortization of intangible assets associated with acquired software and technology, channel partner compensation for providing sales coverage to users, as well as cloud-related costs incurred for servicing our accounts using cloud provisioned solutions and our license administration platform.

For the year ended December 31, 2023, on a constant currency basis, cost of subscriptions and licenses increased primarily due to an increase in headcount-related costs of approximately $14,407, mainly due to an increase in headcount and annual compensation costs, and an increase in cloud-related costs of approximately $4,949.

Cost of services. Cost of services expenses primarily include headcount-related costs, as well as depreciation of property and equipment and amortization of capitalized software costs, used for providing training, implementation, configuration, and customization services to accounts.

For the year ended December 31, 2023, on a constant currency basis, cost of services increased primarily due to an increase in headcount-related costs of approximately $7,991, mainly due to third-party personnel costs, and to a lesser extent, increases in headcount and annual compensation costs, partially offset by lower acquisition-related retention incentives.

Operating Expense (Income)

Current Definition of Constant Currency:

	Year Ended December 31,			% Change 2022 to 2023		% Change 2021 to 2022	
	2023	2022	2021	%	Constant Currency %(1)	%	Constant Currency %(1)
Research and development	$ 274,619	$ 257,856	$ 220,915	6.5%	7.5%	16.7%	21.8%
Selling and marketing	224,336	195,622	162,240	14.7%	14.9%	20.6%	25.8%
General and administrative	180,738	174,647	150,116	3.5%	3.6%	16.3%	19.1%
Deferred compensation plan	13,580	(15,782)	95,046	NM	NM	NM	NM
Amortization of purchased intangibles	38,515	41,114	25,601	(6.3%)	(6.3%)	60.6%	67.5%
Total operating expenses	$ 731,788	$ 653,457	$ 653,918	12.0%	12.5%	(0.1%)	3.8%

Percentage changes that are considered not meaningful are denoted with NM.

(1) Constant currency is a non-GAAP financial measure. Refer to the "Non-GAAP Financial Measures" section for additional information, including our current definition and our use of constant currency, and for a reconciliation of constant currency growth rates.

Prior Definition of Constant Currency:

	Year Ended December 31,			% Change 2022 to 2023		% Change 2021 to 2022	
	2023	2022	2021	%	Constant Currency %(1)	%	Constant Currency %(1)
Research and development	$ 274,619	$ 257,856	$ 220,915	6.5%	7.5%	16.7%	22.1%
Selling and marketing	224,336	195,622	162,240	14.7%	15.0%	20.6%	26.3%
General and administrative	180,738	174,647	150,116	3.5%	3.5%	16.3%	19.7%
Deferred compensation plan	13,580	(15,782)	95,046	NM	NM	NM	NM
Amortization of purchased intangibles	38,515	41,114	25,601	(6.3%)	(6.1%)	60.6%	67.2%
Total operating expenses	$ 731,788	$ 653,457	$ 653,918	12.0%	12.5%	(0.1%)	4.2%

Percentage changes that are considered not meaningful are denoted with NM.

(1) Constant currency is a non-GAAP financial measure. Refer to the "Non-GAAP Financial Measures" section for additional information, including our prior definition and our use of constant currency, and for a reconciliation of constant currency growth rates.

Research and development. Research and development expenses primarily include headcount-related costs, as well as 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, which is generally shortly before the release of such products. 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 based on a cost-benefit analysis of acquiring available technology in the marketplace versus developing our own solutions. We anticipate that we will continue to 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.

For the year ended December 31, 2023, on a constant currency basis, research and development expenses increased primarily due to an increase in headcount-related costs of approximately $18,730, mainly due to an increase in annual compensation costs and headcount, and to a lesser extent, realignment expenses, partially offset by a decrease in stock-based compensation expense primarily related to the April 2023 retirement of founder and former Chief Technology Officer, Keith Bentley. The retirement of Mr. Bentley contributed to a deceleration of research and development expenses growth during 2023.

Selling and marketing. Selling and marketing expenses primarily include headcount-related costs, as well as the expense of online marketing, product marketing and other brand-building activities, such as advertising, trade shows, and expositions, and various sales and promotional programs. 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.

For the year ended December 31, 2023, on a constant currency basis, selling and marketing expenses increased primarily due to an increase in headcount-related costs of approximately $27,584, mainly due to an increase in headcount and annual compensation costs, and to a lesser extent, realignment expenses.

General and administrative. General and administrative expenses primarily include headcount-related costs for our finance, human resources, and legal functions, as well as professional fees for legal and accounting services. General and administrative expenses also include acquisition costs, which consist of costs related to legal, accounting, valuation, insurance, and other consulting and transaction fees. Additionally, acquisition costs will drive fluctuations in general and administrative expenses depending on the timing of business combinations.

For the year ended December 31, 2023, on a constant currency basis, general and administrative expenses increased primarily due to an increase in headcount-related costs of approximately $18,248, mainly due to an increase in headcount and annual compensation costs, and to a lesser extent, third-party personnel costs. Partially offsetting these increases were lower non-income related taxes of approximately $6,001 and lower acquisition expenses of approximately $5,777.

Deferred compensation plan. Deferred compensation plan reflects the expense (income) recorded related to changes in deferred compensation plan liabilities, which are marked to market at the end of each reporting period.

For the year ended December 31, 2023, deferred compensation plan expense (income) was attributable to the marked to market impact on deferred compensation plan liability balances period over period.

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.

For the year ended December 31, 2023, on a constant currency basis, amortization of purchased intangibles decreased primarily due to previously acquired intangible assets that continue to become fully amortized and lower acquisition activity as compared to the prior year.

Interest Expense, Net

	Year Ended December 31,			% Change	
	2023	2022	2021	2022 to 2023	2021 to 2022
Interest expense	$ (41,331)	$ (35,056)	$ (11,527)	17.9%	NM
Interest income	1,538	421	306	NM	37.6%
Interest expense, net	$ (39,793)	$ (34,635)	$ (11,221)	14.9%	NM

Percentage changes that are considered not meaningful are denoted with NM.

Interest expense, net primarily represents interest associated with the Credit Facility, the 2026 Notes, the 2027 Notes, amortization and write-off of deferred debt issuance costs, and interest income from our investments in money market funds. The majority of our debt is protected from rising interest rates, through either very low fixed coupon interest on our convertible notes or our $200,000 interest rate swap, which expires in 2030.

For the year ended December 31, 2023, interest expense, net increased primarily due to a higher weighted average interest rate on borrowings under the Credit Facility, partially offset by lower weighted average debt outstanding.

Other (Expense) Income, Net

	Year Ended December 31,		
	2023	2022	2021
(Loss) gain from:			
Change in fair value of interest rate swap	$ (5,038)	$ 27,083	$ 9,770
Foreign exchange [(1)]	2,497	(9,901)	827
Sale of aircraft	—	2,029	—
Change in fair value of acquisition contingent consideration	—	1,427	(550)
Receipts (payments) related to interest rate swap	8,803	1,947	(1,270)
Other (expense) income, net [(2)]	(13,484)	1,713	1,184
Total other (expense) income, net	$ (7,222)	$ 24,298	$ 9,961

(1) Foreign exchange gain (loss) is primarily attributable to foreign currency translation derived mainly from U.S. dollar denominated cash and cash equivalents, account receivables, customer deposits, and intercompany balances held by foreign subsidiaries. Intercompany finance transactions primarily denominated in U.S. dollars resulted in unrealized foreign exchange gains (losses) of $3,163, $(7,369), and $(779) for the years ended December 31, 2023, 2022, and 2021, respectively.

(2) Other (expense) income, net includes investment impairment and other charges of $(16,988), partially offset by gains on investments of $2,360 for the year ended December 31, 2023.

(Benefit) Provision for Income Taxes

	Year Ended December 31,		
	2023	**2022**	**2021**
Income before income taxes	$ 183,527	$ 198,275	$ 93,329
(Benefit) provision for income taxes	$ (143,241)	$ 21,283	$ (3,448)
Effective tax rate	(78.0)%	10.7 %	(3.7)%

(Benefit) provision for income taxes includes the aggregate consolidated income tax expense for U.S. domestic and foreign income taxes.

For the year ended December 31, 2023, the effective tax rate was lower as compared to the year ended December 31, 2022 primarily due to the discrete tax benefit recognized as a result of the internal legal entity restructuring described below. The benefit of the internal legal entity restructuring was partially offset by an increase in the effective tax rate impact of the Global Intangible Low-Taxed Income ("GILTI") inclusion due to the mandatory capitalization of research and development expenses for U.S. tax purposes and a decrease in discrete tax benefits related to stock-based compensation, net of the impact from officer compensation limitation provisions, recognized during the current year. For the years ended December 31, 2023 and 2022, we recorded discrete tax benefits of $14,648 and $20,501, respectively, associated with windfall tax benefits from stock-based compensation, net of the impact from officer compensation limitation provisions.

During the fourth quarter of 2023, we recognized a net discrete income tax benefit of $170,784 attributable to internal legal entity restructuring and related intra-entity transactions as part of our continuing efforts to align intellectual property ownership with our business operating model. These transactions resulted in the recognition of deferred tax benefits arising from the net increase in deferred tax assets related to intangibles and goodwill of $171,622. The deferred tax assets represent the undiscounted future anticipated cash tax impacts of basis differences, which are expected to be realized through tax amortization over the next 13 years. See Note 16 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K for additional information.

Key Business Metrics:

In addition to our results of operations discussed above, we believe the following presentation of key business metrics provides additional useful information to investors regarding our results of operations. To the extent material, we disclose below the additional purposes, if any, for which our management uses these key business metrics. Our key business metrics may vary significantly from period to period for reasons unrelated to our operating performance and may differ from similarly titled measures presented by other companies.

	December 31,		
	2023	**2022**	**2021**
ARR	$ 1,174,774	$ 1,036,548	$ 921,218
Last twelve-months recurring revenues	$ 1,096,677	$ 978,024	$ 834,150
Twelve-months ended constant currency (1):			
ARR growth rate	12.5%	15%	26%
Account retention rate	98%	98%	98%
Recurring revenues dollar-based net retention rate	109%	110%	109%

(1) Constant currency is a non-GAAP financial measure. Refer to the "Non-GAAP Financial Measures" section for additional information, including our definition and our use of constant currency.

Recurring Revenues

Recurring revenues are the basis for our other revenue-related key business metrics. We believe this measure is useful in evaluating our ability to consistently retain and grow our revenues within our existing accounts.

Recurring revenues are 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.

ARR

ARR is a key business metric that we believe is useful in evaluating the scale and growth of our business as well as to assist in the evaluation of underlying trends in our business. Furthermore, we believe ARR, considered in connection with our last twelve-month recurring revenues dollar-based net retention rate, is a leading indicator of revenue growth.

ARR is defined as the sum of the annualized value of our portfolio of contracts that produce recurring revenues as of the last day of the reporting period, and the annualized value of the last three months of recognized revenues for our contractually recurring consumption-based software subscriptions with consumption measurement durations of less than one year, calculated using the spot foreign currency exchange rates. We believe that the last three months of recognized revenues, on an annualized basis, for our recurring software subscriptions with consumption measurement period durations of less than one year is a reasonable estimate of the annual revenues, given our consistently high retention rate and stability of usage under such subscriptions.

ARR resulting from the annualization of recurring contracts with consumption measurement durations of less than one year, as a percentage of total ARR, was 47%, 43%, and 38% as of December 31, 2023, 2022, and 2021, respectively, with our E365 subscription offering representing 41%, 35%, and 29% of total ARR as of December 31, 2023, 2022, and 2021, respectively.

In March 2022, in response to the Russia-Ukraine war, we announced a pause of sales in Russia and Belarus, in addition to our strict compliance with applicable sanctions, regimes, and other regulatory restrictions on business activities in those countries. As a result of the conflict, we deemed our overall business recurrence in the affected countries to have been reduced by approximately 50%, and accordingly, reduced our related ARR by $5,190 as of March 31, 2022. During the second quarter of 2022, the marked shifts in the Russian business environment and economic outlook led us to conclude it was no longer viable for us to continue operations in Russia. Accordingly, we made the decision to wind down business and exit the Russian market, which resulted in a further reduction in our ARR by $6,000.

Constant currency ARR growth rate is the growth rate of ARR measured on a constant currency basis. We believe that ARR growth is an important metric indicating the scale and growth of our business.

Our ARR growth rate was favorably impacted by the ARR onboarding from our platform acquisition of PLS by 2.5% for the year ended December 31, 2022.

Last Twelve-Months Recurring Revenues

Last twelve-month recurring revenues is a key business metric that we believe is useful in evaluating our ability to consistently retain and grow our recurring revenues. We believe that we will continue to experience favorable growth in recurring revenues primarily 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.

Last twelve-months recurring revenues is calculated as recurring revenues recognized over the preceding twelve-month period.

The last twelve-months recurring revenues for the periods ended December 31, 2023, 2022, and 2021 compared to the last twelve-months of the comparative twelve-month period increased by $118,653, $143,874, and $137,488, respectively. This increase was primarily due to growth in ARR, which is primarily the result of growing our recurring revenues within our existing accounts as expressed in our recurring revenues dollar-based net retention rate, as well as additional recurring revenues resulting from new accounts and acquisitions, including the favorable impact from our platform acquisitions of PLS and Seequent. For the twelve months ended December 31, 2023, 2022, and 2021, 89%, 89%, and 86%, respectively, of our revenues were recurring revenues.

Account Retention Rate

Account retention rate is a key business metric that we believe is useful in evaluating 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 illustrate our ability to retain and cultivate long-term relationships with our accounts.

Account retention rate for any given twelve-month period is calculated using the average foreign 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.

Recurring Revenues Dollar-Based Net Retention Rate

Recurring revenues dollar-based net retention rate is a key business metric that we believe is useful in evaluating our ability to consistently retain and grow our recurring revenues.

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. Related to our platform acquisitions, recurring revenues into new accounts will be captured as existing accounts starting with the second anniversary of the acquisition when such data conforms to the calculation methodology. This may cause variability in the comparison.

Given that recurring revenues represented 89%, 89%, and 86% of our total revenues for the twelve months ended December 31, 2023, 2022, and 2021, respectively, this metric helps explain our revenue performance as primarily growth from existing accounts.

Non-GAAP Financial Measures:

In addition to our results determined in accordance with GAAP discussed above, we believe the following presentation of financial measures not in accordance with GAAP provides useful information to investors regarding our results of operations. To the extent material, we disclose below the additional purposes, if any, for which our management uses these non-GAAP financial measures and provide reconciliations between these non-GAAP financial measures and their most directly comparable GAAP financial measures. Non-GAAP financial information should be considered in addition to, not as a substitute for, or in isolation from, the financial information prepared in accordance with GAAP, including operating income, or other measures of performance. Our non-GAAP financial measures may vary significantly from period to period for reasons unrelated to our operating performance and may differ from similarly titled measures presented by other companies.

Adjusted OI w/SBC

Adjusted OI w/SBC is a non-GAAP financial measure and is used to measure the operational strength and performance of our business, as well as to assist in the evaluation of underlying trends in our business.

Adjusted OI w/SBC is our primary performance measure, which excludes certain expenses and charges, including the non-cash amortization expense resulting from the acquisition of intangible assets, as we believe these may not be indicative of our core business operating results. We intentionally include stock-based compensation expense in this measure as we believe it better captures the economic costs of our business.

Management uses this non-GAAP financial measure to understand and compare operating results across accounting periods, for internal budgeting and forecasting purposes, to evaluate financial performance, and in our comparison of our financial results to those of other companies. It is also a significant performance measure in certain of our executive incentive compensation programs.

Adjusted OI w/SBC is defined as operating income adjusted for the following: amortization of purchased intangibles, expense (income) relating to deferred compensation plan liabilities, acquisition expenses, and realignment expenses (income), for the respective periods.

Adjusted Operating Income

Adjusted operating income is a non-GAAP financial measure that we believe is useful to investors in making comparisons to other companies, although this measure may not be directly comparable to similar measures used by other companies.

Adjusted operating income is defined as operating income adjusted for the following: amortization of purchased intangibles, expense (income) relating to deferred compensation plan liabilities, acquisition expenses, realignment expenses (income), and stock-based compensation expense, for the respective periods.

Reconciliation of operating income to Adjusted OI w/SBC and to Adjusted operating income:

	Year Ended December 31,		
	2023	**2022**	**2021**
Operating income	$ 230,542	$ 208,612	$ 94,589
Amortization of purchased intangibles (1)	51,219	53,592	34,001
Deferred compensation plan (2)	13,580	(15,782)	95,046
Acquisition expenses (3)	17,866	25,398	34,368
Realignment expenses (4)	11,470	2,109	—
Adjusted OI w/SBC	324,677	273,929	258,004
Stock-based compensation expense (5)	71,470	74,566	48,152
Adjusted operating income	$ 396,147	$ 348,495	$ 306,156

Further explanation of certain of our adjustments in arriving at Adjusted OI w/SBC and Adjusted operating income are as follows:

(1) *Amortization of purchased intangibles*. Amortization of purchased intangibles varies in amount and frequency and is significantly impacted by the timing and size of our acquisitions. Management finds it useful to exclude these non-cash charges from our operating expenses to assist in budgeting, planning, and forecasting future periods. The use of intangible assets contributed to our revenues earned during the periods presented and will also contribute to our revenues in future periods. Amortization of purchased intangible assets will recur in future periods.

(2) *Deferred compensation plan*. We exclude *Deferred compensation plan* expense (income) when we evaluate our continuing operational performance because it is not reflective of our ongoing business and results of operation. We believe it is useful for investors to understand the effects of this item on our total operating expenses. Deferred compensation plan liabilities are marked to market at the end of each reporting period, with changes in the liabilities recorded as an expense (income) to *Deferred compensation plan* in the consolidated statements of operations.

(3) *Acquisition expenses*. We incur expenses for professional services rendered in connection with business combinations, which are included in our GAAP presentation of general and administrative expense (see Note 4 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K). Also included in our acquisition expenses are retention incentives paid to executives of the 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. For the year ended December 31, 2022, $9,804 of our acquisition expenses related to our platform acquisition of PLS. For the year ended December 31, 2021, $16,557 and $1,644 of our acquisition expenses related to our platform acquisitions of Seequent and PLS, respectively.

(4) *Realignment expenses*. We exclude these charges and subsequent adjustments to our estimates when we evaluate our continuing operational performance because they are not reflective of our ongoing business and results of operations. We believe it is useful for investors to understand the effects of these items on our total operating expenses. For the year ended December 31, 2023, *Realignment expenses* were primarily associated with a strategic realignment program to better serve our accounts and to better align resources with the strategy of the business during the fourth quarter of 2023. In connection with these actions, we recognized $12,579 of realignment costs related to termination benefits for colleagues whose roles were impacted (see Note 21 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K). Partially offsetting these costs was income associated with the continued wind down of our Russian entities. For the year ended December 31, 2022, *Realignment expenses* were comprised of asset impairments and termination benefits as a result of our decision to wind down business and exit the Russian market beginning in the second quarter of 2022.

(5) *Stock-based compensation expense*. We exclude non-cash stock-based compensation expenses from certain of our non-GAAP measures because we believe this is useful to investors in making comparisons to other companies.

Constant Currency

Constant currency and constant currency growth rates are non-GAAP financial measures that present our results of operations excluding the estimated effects of foreign currency exchange rate fluctuations. A significant amount of our operations is conducted in foreign currencies. As a result, the comparability of the financial results reported in U.S. dollars is affected by changes in foreign currency exchange rates. We use constant currency and constant currency growth rates to evaluate the underlying performance of the business, and we believe it is helpful for investors to present operating results on a comparable basis period over period to evaluate its underlying performance.

During the fourth quarter of 2023, we changed our definitions of constant currency and constant currency growth rates. In reporting period-over-period results, we calculate the effects of foreign currency fluctuations and constant currency information by translating current period results on a transactional basis to our reporting currency using prior period average foreign currency exchange rates in which the transactions occurred. Our prior definition of constant currency calculated the effects of foreign currency fluctuations and constant currency information by translating current period results of our subsidiaries from their functional currencies to our reporting currency by using prior period average foreign currency exchange rates in reporting period-over-period results.

We made this modification in order to better align with how we manage the business, to better reflect our performance during a reporting period, and to make the effects of foreign currency fluctuations and constant currency information more easily comparable on a period-over-period basis. Prior period amounts have been revised to conform to the current period presentation using the updated constant currency and constant currency growth rates definition. We are providing what our constant currency and constant currency growth rates results would have been pursuant to the prior definition for the applicable periods so that investors and potential investors that have analyzed these non-GAAP financial measures historically using our prior definitions can compare our historical results to our current results with respect to these non-GAAP financial measures using the prior definitions. Reconciliations of constant currency non-GAAP financial measures and their most directly comparable GAAP financial measures under the current and prior definitions are included below.

Reconciliation of consolidated revenues to consolidated revenues in constant currency:

Current definition:

Constant Currency % Change 2022 to 2023:

	Year Ended December 31, 2023			Year Ended December 31, 2022		
	Actual	Impact of Foreign Exchange at 2022 Rates	Constant Currency	Actual	Impact of Foreign Exchange at 2022 Rates	Constant Currency
Subscriptions	$1,080,307	$ 1,239	$1,081,546	$ 960,220	$ 809	$ 961,029
Perpetual licenses	46,038	563	46,601	43,377	43	43,420
Subscriptions and licenses	1,126,345	1,802	1,128,147	1,003,597	852	1,004,449
Services	102,068	684	102,752	95,485	129	95,614
Total revenues	$1,228,413	$ 2,486	$1,230,899	$1,099,082	$ 981	$1,100,063

Constant Currency % Change 2021 to 2022:

	Year Ended December 31, 2022			Year Ended December 31, 2021		
	Actual	Impact of Foreign Exchange at 2021 Rates	Constant Currency	Actual	Impact of Foreign Exchange at 2021 Rates	Constant Currency
Subscriptions	$ 960,220	$ 31,064	$ 991,284	$ 812,807	$ (19)	$ 812,788
Perpetual licenses	43,377	2,220	45,597	53,080	(2)	53,078
Subscriptions and licenses	1,003,597	33,284	1,036,881	865,887	(21)	865,866
Services	95,485	3,545	99,030	99,159	(11)	99,148
Total revenues	$1,099,082	$ 36,829	$1,135,911	$ 965,046	$ (32)	$ 965,014

Prior definition:

	Year Ended December 31, 2023			Year Ended December 31, 2022		
	Actual	Impact of Foreign Exchange	Constant Currency	Actual	Impact of Foreign Exchange	Constant Currency
Subscriptions	$1,080,307	$ (8,095)	$1,072,212	$ 960,220	$ 50,030	$1,010,250
Perpetual licenses	46,038	(107)	45,931	43,377	3,269	46,646
Subscriptions and licenses	1,126,345	(8,202)	1,118,143	1,003,597	53,299	1,056,896
Services	102,068	538	102,606	95,485	4,102	99,587
Total revenues	$1,228,413	$ (7,664)	$1,220,749	$1,099,082	$ 57,401	$1,156,483

Reconciliation of revenues by geographic region to revenues by geographic region in constant currency:

Current definition:

Constant Currency % Change 2022 to 2023:

	Year Ended December 31, 2023			Year Ended December 31, 2022		
	Actual	Impact of Foreign Exchange at 2022 Rates	Constant Currency	Actual	Impact of Foreign Exchange at 2022 Rates	Constant Currency
Americas	$ 650,926	$ 242	$ 651,168	$ 584,794	$ (313)	$ 584,481
EMEA	353,550	(2,841)	350,709	312,804	151	312,955
APAC	223,937	5,085	229,022	201,484	1,143	202,627
Total revenues	$1,228,413	$ 2,486	$1,230,899	$1,099,082	$ 981	$1,100,063

Constant Currency % Change 2021 to 2022:

	Year Ended December 31, 2022			Year Ended December 31, 2021		
	Actual	Impact of Foreign Exchange at 2021 Rates	Constant Currency	Actual	Impact of Foreign Exchange at 2021 Rates	Constant Currency
Americas	$ 584,794	$ 860	$ 585,654	$ 483,087	$ 115	$ 483,202
EMEA	312,804	25,696	338,500	300,123	(348)	299,775
APAC	201,484	10,273	211,757	181,836	201	182,037
Total revenues	$1,099,082	$ 36,829	$1,135,911	$ 965,046	$ (32)	$ 965,014

Prior definition:

	Year Ended December 31, 2023			Year Ended December 31, 2022		
	Actual	Impact of Foreign Exchange	Constant Currency	Actual	Impact of Foreign Exchange	Constant Currency
Americas	$ 650,926	$ (1,594)	$ 649,332	$ 584,794	$ 5,218	$ 590,012
EMEA	353,550	(6,099)	347,451	312,804	33,524	346,328
APAC	223,937	29	223,966	201,484	18,659	220,143
Total revenues	$1,228,413	$ (7,664)	$1,220,749	$1,099,082	$ 57,401	$1,156,483

Reconciliation of cost of revenues to cost of revenues in constant currency:

Current definition:

Constant Currency % Change 2022 to 2023:

	Year Ended December 31, 2023			Year Ended December 31, 2022		
	Actual	Impact of Foreign Exchange at 2022 Rates	Constant Currency	Actual	Impact of Foreign Exchange at 2022 Rates	Constant Currency
Cost of subscriptions and licenses	$ 169,406	$ 382	$ 169,788	$ 147,578	$ (45)	$ 147,533
Cost of services	96,677	772	97,449	89,435	(53)	89,382
Total cost of revenues	$ 266,083	$ 1,154	$ 267,237	$ 237,013	$ (98)	$ 236,915

Constant Currency % Change 2021 to 2022:

	Year Ended December 31, 2022			Year Ended December 31, 2021		
	Actual	Impact of Foreign Exchange at 2021 Rates	Constant Currency	Actual	Impact of Foreign Exchange at 2021 Rates	Constant Currency
Cost of subscriptions and licenses	$ 147,578	$ 4,246	$ 151,824	$ 124,321	$ (47)	$ 124,274
Cost of services	89,435	4,635	94,070	92,218	(9)	92,209
Total cost of revenues	$ 237,013	$ 8,881	$ 245,894	$ 216,539	$ (56)	$ 216,483

Prior definition:

	Year Ended December 31, 2023			Year Ended December 31, 2022		
	Actual	Impact of Foreign Exchange	Constant Currency	Actual	Impact of Foreign Exchange	Constant Currency
Cost of subscriptions and licenses	$ 169,406	$ (149)	$ 169,257	$ 147,578	$ 7,253	$ 154,831
Cost of services	96,677	823	97,500	89,435	4,932	94,367
Total cost of revenues	$ 266,083	$ 674	$ 266,757	$ 237,013	$ 12,185	$ 249,198

Reconciliation of operating expense (income) to operating expense (income) in constant currency:

Current definition:

Constant Currency % Change 2022 to 2023:

	Year Ended December 31, 2023			Year Ended December 31, 2022		
	Actual	Impact of Foreign Exchange at 2022 Rates	Constant Currency	Actual	Impact of Foreign Exchange at 2022 Rates	Constant Currency
Research and development	$ 274,619	$ 2,592	$ 277,211	$ 257,856	$ (36)	$ 257,820
Selling and marketing	224,336	427	224,763	195,622	(48)	195,574
General and administrative	180,738	182	180,920	174,647	(6)	174,641
Deferred compensation plan	13,580	—	13,580	(15,782)	—	(15,782)
Amortization of purchased intangibles	38,515	88	38,603	41,114	68	41,182
Total operating expenses	$ 731,788	$ 3,289	$ 735,077	$ 653,457	$ (22)	$ 653,435

Constant Currency % Change 2021 to 2022:

	Year Ended December 31, 2022			Year Ended December 31, 2021		
	Actual	Impact of Foreign Exchange at 2021 Rates	Constant Currency	Actual	Impact of Foreign Exchange at 2021 Rates	Constant Currency
Research and development	$ 257,856	$ 11,118	$ 268,974	$ 220,915	$ (15)	$ 220,900
Selling and marketing	195,622	8,407	204,029	162,240	(9)	162,231
General and administrative	174,647	4,190	178,837	150,116	(8)	150,108
Deferred compensation plan	(15,782)	—	(15,782)	95,046	—	95,046
Amortization of purchased intangibles	41,114	1,758	42,872	25,601	—	25,601
Total operating expenses	$ 653,457	$ 25,473	$ 678,930	$ 653,918	$ (32)	$ 653,886

Prior definition:

	Year Ended December 31, 2023			Year Ended December 31, 2022		
	Actual	Impact of Foreign Exchange	Constant Currency	Actual	Impact of Foreign Exchange	Constant Currency
Research and development	$ 274,619	$ 2,491	$ 277,110	$ 257,856	$ 11,791	$ 269,647
Selling and marketing	224,336	615	224,951	195,622	9,274	204,896
General and administrative	180,738	(11)	180,727	174,647	4,979	179,626
Deferred compensation plan	13,580	—	13,580	(15,782)	—	(15,782)
Amortization of purchased intangibles	38,515	95	38,610	41,114	1,680	42,794
Total operating expenses	$ 731,788	$ 3,190	$ 734,978	$ 653,457	$ 27,724	$ 681,181

Liquidity and Capital Resources:

Cash and Cash Equivalents

	December 31,			
	2023		2022	
Cash and cash equivalents held domestically	$	3,693	$	3,883
Cash and cash equivalents held by foreign subsidiaries		64,719		67,801
Total cash and cash equivalents	$	68,412	$	71,684

Our primary source of operating cash is from the sale of our subscriptions, perpetual licenses, and services. Our primary use of cash is payment of our operating costs, which consist mainly of headcount-related costs. In addition to operating expenses, we also use cash to service our debt obligations, to pay quarterly dividends, to repurchase our Class B common stock and convertible debt, and for capital expenditures in support of our operations. We also use cash to fund our acquisitions of software assets and businesses, and other investment activities, including our *iTwin Ventures* initiative which makes seed, early, and growth stage investments in technology companies with promising and emerging opportunities for infrastructure digital twin solutions potentially relevant to our business.

During the years ended December 31, 2023 and 2022, we made cash repatriations to the U.S. of approximately $93,000 and $150,000, respectively, from earnings generated by our foreign subsidiaries. In 2023, the repatriations were used to supplement our domestic working capital requirements and to pay down our Credit Facility. In 2022, the repatriations, along with available cash and borrowings under our Credit Facility, were used to fund the acquisition of PLS in January 2022.

We believe that cash generated from operations, together with existing cash and cash equivalent balances, and external borrowings including available liquidity under the Credit Facility, will be sufficient to meet our domestic and international working capital and capital expenditure requirements. 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 U.S. 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 strategy of regularly acquiring and integrating specialized infrastructure engineering software businesses, 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, market acceptance of our products, competitive factors, our discretionary payments of dividends or repurchases of our Class B common stock and convertible debt, fund of our purchase commitments, currency fluctuations, 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 stockholders, while the incurrence of additional debt financing, including convertible debt, would result in additional debt service obligations. Such debt instruments also could introduce new or modified covenants that might restrict our operations and/or our ability to pay dividends, consummate acquisitions, or otherwise pursue our business strategies. We cannot provide assurance that we could obtain additional financing on favorable terms or at all.

Cash Flow Activity

	Year Ended December 31,		
	2023	**2022**	**2021**
Net cash provided by (used in):			
Operating activities	$ 416,696	$ 274,324	$ 288,024
Investing activities	(60,504)	(770,127)	(1,056,603)
Financing activities	(359,074)	243,034	982,582

Operating Activities

For the year ended December 31, 2023, compared to the prior year, net cash provided by operating activities was higher by $142,372 due to an increase in net income of $152,007 and an increase in net cash flows from the change in operating assets and liabilities of $112,542, partially offset by a net decrease in non-cash adjustments of $122,177. Both the increase in net income and the net decrease in non-cash adjustments were impacted by the fourth quarter of 2023 internal legal entity restructuring and related intra-entity transactions as part of our continuing efforts to align intellectual property ownership with our business operating model. The net impact of the internal legal entity restructuring was a net discrete tax benefit of $170,784. See Note 16 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K for additional information. The increase in cash flows from the change in operating assets and liabilities was primarily due to changes in accounts receivable period over period due to timing of collections from customers, higher CSS deposits, and an increase in deferred revenues period over period.

In addition, we expect cash payments of approximately $12,500 for termination benefits to colleagues in connection with our fourth quarter of 2023 strategic realignment program by mid-2024. See Note 21 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K for additional information related to realignment costs.

Investing Activities

Net cash used in investing activities was lower by $709,623 for the year ended December 31, 2023, compared to the prior year, primarily due to lower acquisition related payments, as three acquisitions were completed in 2023 compared to six acquisitions, including our platform acquisition of PLS for $695,968 in 2022.

Financing Activities

Net cash used in financing activities was $359,074 for the year ended December 31, 2023, as compared to net cash provided by financing activities of $243,034 for the year ended December 31, 2022, primarily due to the net paydown of the Credit Facility of $258,569 in 2023 as compared to an increase in net borrowings under the Credit Facility of $340,598 in 2022. Payments for shares acquired were lower during the year ended December 31, 2023 by $12,874, as compared to the prior year. The year ended December 31, 2022 payments for shares acquired includes $28,250 of share repurchases under the BSY Stock Repurchase Program (the “Repurchase Program”), whereas no repurchases were made under the Repurchase Program during 2023. Refer to the section titled “Stock Repurchases” below for further detail. Payments of dividends were higher during the year ended December 31, 2023 by $24,263 as compared to the prior year, primarily due to an increase in our quarterly dividend per share to $0.05 from $0.03.

Long-Term Debt

	December 31,	
	2023	2022
Current portion of long-term debt	$ 10,000	$ 5,000
Long-term debt	1,518,403	1,775,696
Total debt	$ 1,528,403	$ 1,780,696

As of December 31, 2023, we had $757,822 available under the Credit Facility. We were in compliance with all covenants in its Credit Facility, the 2026 Notes, and the 2027 Notes as of December 31, 2023. Any failure to comply with such covenants under the Credit Facility would prevent us from being able to borrow additional funds under the Credit Facility, and, as with any failure to comply with such covenants under the 2026 Notes and the 2027 Notes, could constitute a default that may cause all amounts outstanding to become due and immediately payable in full.

Our Credit Facility, 2026 Notes, and 2027 Notes are described in Note 10 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K.

Stock Repurchases

BSY Stock Repurchase Program

Our Board of Directors has authorized us to repurchase up to $200,000 of our Class B common stock and/or outstanding convertible senior notes through June 30, 2024 under the Repurchase Program. We may use available working capital and cash provided by operations to make repurchases.

For the year ended December 31, 2023, we did not repurchase shares under the Repurchase Program. For the year ended December 31, 2022, we repurchased 896,126 shares for $28,250, and $2,170 aggregate principal amount of our outstanding 2026 Notes for $1,998.

The timing, as well as the number and value of shares and/or notes repurchased under the Repurchase Program, will be determined at our discretion and will depend on a variety of factors, including our assessment of the intrinsic value of our shares, the market price of our Class B common stock and outstanding notes, general market and economic conditions, available liquidity, compliance with our debt and other agreements, and applicable legal requirements.

Withholding Taxes on Certain Equity Awards

We have the right to require that certain equity awardees receive gross or net quantities of shares of our Class B Common Stock, including in connection with share issuances under the amended and restated Bentley Systems, Incorporated Bonus Pool Plan (the “Bonus Plan”) and distributions from the DCP. In the case of a gross issuance or distribution, an awardee is required to reimburse promptly to us the cash required for his or her tax withholding amounts. Conversely, under a net issuance or distribution, shares are withheld in consideration of remitting withholding taxes on behalf of an equity awardee, thereby requiring us to remit cash for the tax withholdings. During the year ended December 31, 2023, we allowed impacted equity awardees the option to receive net quantities of shares of our Class B common stock during the first, second, and third quarters, but exercised our right to require that these awardees receive gross quantities of our Class B common stock during the fourth quarter. During the year ended December 31, 2022, we permitted impacted awardees to elect to receive net quantities of shares of our Class B common stock in the first quarter, but exercised our right to require that these awardees receive gross quantities of our Class B common stock during the second, third, and fourth quarters. We will continue to evaluate whether share awards will be required to be received by awardees on a gross basis, or if net settlement may be elected by awardees.

Dividend Payments

The declaration and payment of dividends is within the discretion of our Board of Directors. We paid quarterly dividends of $0.05 per share of common stock during the year ended December 31, 2023 and $0.03 per share of common stock during the year ended December 31, 2022. 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.

Contractual Obligations and Other Commitments:

The following table summarizes our most significant contractual obligations as of December 31, 2023:

	Total	Short-Term	Long-Term
Debt Obligations (1)	$ 1,544,858	$ 10,000	$ 1,534,858
Purchase Obligations	127,000	50,000	77,000
DCP Obligations	90,536	2,355	88,181

(1) Amounts represent the face value of debt and exclude interest payments.

Our largest contractual obligations relate to our outstanding debt, which include convertible notes due in 2026 and 2027. We typically fund and expect to continue to fund debt maturities and interest payments with cash flows generated from operations, existing cash and cash equivalents, or proceeds from additional financing. If an early conversion notice is received, we have the option to pay cash, deliver shares of our Class B common stock, or a combination thereof. See Note 10 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K for additional information on our debt obligations.

We have non-cancelable future cash purchase commitments for services related to the provisioning of our hosted software solutions and for other software costs. Our purchase obligations are in addition to amounts included in our consolidated balance sheets. We have funded and expect to continue to be able to fund our purchase obligations with cash flows generated from operations or existing cash and cash equivalents. See Note 18 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K for additional information on our purchase obligations.

Our DCP obligations represent DCP participants' holdings in phantom investment funds, which are classified as liabilities as they will be settled in cash upon eventual distribution. We have funded and expect to continue to be able to fund our DCP obligations with cash flows generated from operations or existing cash and cash equivalents. See Note 12 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K for additional information on our DCP obligations.

Our other future contractual obligations were related to leases (see Note 8), and contingent and non-contingent consideration from acquisitions (see Note 4). For information about those obligations, see the above referenced notes to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K.

Critical Accounting Estimates:

The preparation of our consolidated financial statements in conformity with GAAP requires us to make estimates that affect the reported amounts of assets, liabilities, revenue and expenses, and the related disclosure of contingent assets and contingent liabilities. We base our judgments on our historical experience and on various other assumptions that we believe are reasonable under the circumstances, the results of which form the basis for making estimates about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

Revenue Recognition

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 refer to this option as portfolio balancing and 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. This feature is available once per term and must be exercised prior to the respective renewal term. We recognize the associated revenue upon election or when the portfolio balancing right expires. This right is included in the initial and subsequent renewal terms and we reestablish the revenue deferral for the material right upon the beginning of the renewal term. Portfolio balancing exchange rights are included in *Deferred revenues* in the consolidated balance sheets.

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.

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 total revenues 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.

Goodwill and Other Intangible Assets

Intangible assets arise from acquisitions and principally consist of goodwill, trademarks, customer relationships, in-process research and development, and acquired software and technology. Intangible assets, other than goodwill and in-process research and development, are amortized on a straight-line basis over their estimated useful lives, which range from three to ten years.

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 on October 1, or more frequently if events occur or circumstances change that would more likely than not reduce its fair value below its carrying amount. We allocate goodwill to reporting units on a relative fair value basis.

In testing for goodwill impairment, we may first qualitatively assess whether it is more likely than not (a likelihood of more than 50 percent) that a goodwill impairment exists. If it is determined that a quantitative assessment is required and the carrying amount exceeds its fair value, we will recognize goodwill impairment in the amount in which the carrying amount of the reporting unit exceeds its fair value, but not to exceed the carrying amount of goodwill within the reporting unit. There was no impairment of goodwill as a result of our annual impairment assessments conducted for the years ended December 31, 2023, 2022, or 2021.

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 (“NOL”) 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 perform a quarterly assessment of the recoverability of the net deferred tax assets. We consider all available evidence, both positive and negative, in determining whether all or a portion of a deferred tax asset is more likely than not to be realized. In the event we determine that all or a portion of the deferred tax assets is not more likely than not to be realized, an adjustment to the valuation allowance would be recorded that would increase the provision for income taxes. To the extent that the realization of a deferred tax asset is based upon forecasted future earnings, our judgment regarding future profitability may change due to future market conditions and other factors. Assumptions about future taxable income require significant judgment and, while these assumptions rely heavily on estimates, such estimates are consistent with the plans we are using to manage the underlying business. 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. Additionally, future changes in tax laws and rates, including administrative or regulatory guidance, could affect recorded deferred tax assets and liabilities. Any adjustments to these estimates will generally be recorded as an income tax expense or benefit in the period the adjustment is determined.

We are subject to income taxes in the U.S. and in numerous foreign jurisdictions. The calculation of our tax liabilities often involves dealing with uncertainties in the application of complex tax laws and regulations in a multitude of jurisdictions across our global operations. There are many transactions and calculations about which the ultimate tax outcome is uncertain. A benefit from an uncertain tax position may be recognized when it is more likely than not that the position will be sustained based upon the technical merits of the position. This may include expected resolutions upon examination, any related appeals, or through a litigation processes. As a result, our calculations involve estimates by management. Due to the complexity of some of these uncertainties, the ultimate resolution may result in a payment, potentially including interest and penalties, that is materially different from our current estimates of the unrecognized tax benefit liabilities. These differences, along with any related interest and penalties, will generally be reflected as increases or decreases to income tax expense in the period in which new information becomes available. 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) benefit 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.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Market risk represents the risk of loss that may impact our financial condition 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 revenues, 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, Canadian dollars, Australian dollars, Chinese yuan renminbi, and New Zealand dollars. For the year ended December 31, 2023, approximately 58% of our total revenues are derived from outside of the U.S. and approximately 35% of our revenues are denominated in foreign currencies. In 2023, 65%, 10%, 6%, 4%, and 15% of our total revenues were denominated in U.S. dollars, euros, British pounds, Canadian dollars, and other currencies, respectively, and 55%, 12%, 8%, 7%, and 18% of our aggregate cost of revenues and operating expenses were denominated in U.S. dollars, euros, British pounds, Canadian dollars, 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 have lowered our 2023 annual operating income by approximately $1.5 million.

Interest Rate Risk

We had cash and cash equivalents of $68.4 million and $71.7 million as of December 31, 2023 and 2022, respectively, 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. The interest rates on our Credit Facility also fluctuate based on various market conditions that affect the Secured Overnight Financing Rate ("SOFR"), 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. Effective on April 2, 2020, we entered into an interest rate swap with a notional amount of $200.0 million and a ten-year term to reduce the interest rate risk associated with our Credit Facility. Under the terms of the interest rate swap, we pay a fixed interest rate of 72.9 basis points ("bps"), and will receive a floating interest rate equal to daily SOFR plus an Alternative Reference Rates Committee ("ARRC") spread adjustment of 11.448 bps. We do not enter into investments or derivative instruments for trading or speculative purposes. The fair value of our 2026 Notes and 2027 Notes is subject to interest rate risk, market risk, and other factors due to the conversion feature. The capped call options that were entered into concurrently with the issuance of our 2026 Notes and 2027 Notes were completed to reduce the potential dilution from the conversion of the 2026 Notes and 2027 Notes. The fair value of the 2026 Notes and 2027 Notes will generally increase as interest rates fall and decrease as interest rates rise. In addition, the fair value of the 2026 Notes and 2027 Notes will generally increase as our Class B common stock price increases and will generally decrease as the common stock price declines. The interest and market value changes affect the fair value of the 2026 Notes and 2027 Notes, but do not impact our financial condition, results of operations, or cash flows due to the fixed nature of the debt obligation. 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.

Item 8. Financial Statements and Supplementary Data

The information required by this item is included at the end of this report beginning on page F-1.

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

None.

Item 9A. Controls and Procedures

Evaluation of Effectiveness of Disclosure Controls and Procedures

Our management maintains disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act") that are designed to provide reasonable assurance that information required to be disclosed in our reports filed or submitted under the Exchange Act is processed, recorded, summarized, and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer (our principal executive officer and principal financial officer, respectively), as appropriate, to allow for timely decisions regarding required disclosure.

We evaluated, under the supervision and with the participation of management, including our principal executive and principal financial officers, the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this report. Based on this evaluation, our principal executive officer and principal financial officer concluded that, as of December 31, 2023, our disclosure controls and procedures were effective at the reasonable assurance level.

Our management, including our Chief Executive Officer and Chief Financial Officer, does not expect that our disclosure controls and procedures or our internal control over financial reporting will necessarily prevent all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within Bentley Systems, Incorporated have been detected.

Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934, as amended). Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2023. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in *Internal Control – Integrated Framework (2013)*.

Our management has concluded that, as of December 31, 2023, our internal control over financial reporting was effective to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles.

Our independent registered public accounting firm, KPMG LLP, has issued an audit report on our internal control over financial reporting, which is included in Part II, Item 8 of this Annual Report on Form 10-K.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting identified in management's evaluation pursuant to Rules 13a or 15d of the Exchange Act that occurred during the quarter ended December 31, 2023 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

Rule 10b5-1 Trading Plans

Effective November 8, 2023, Keith A. Bentley, Director, adopted a trading plan established pursuant to Rule 10b5-1 of the Exchange Act, which is intended to satisfy the affirmative defense conditions of Rule 10b5-1(c), to sell an aggregate of 1,000,000 shares of our Class B common stock through June 30, 2024.

During the three months ended December 31, 2023, there were no other Company directors or executive officers who adopted or terminated any contract, instruction or written plan for the purchase or sale of Company securities that was intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) or any "non-Rule 10b5-1 trading arrangement."

Dividends Declared Subsequent to December 31, 2023

On February 21, 2024, our Board of Directors declared a $0.06 per share dividend for the first quarter of 2024. The cash dividend will be payable on March 28, 2024 to all stockholders of record of Class A and Class B common stock as of the close of business on March 20, 2024. The Company publicly announced the dividend declaration on February 27, 2024.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item is incorporated by reference to our 2024 Proxy Statement, which will be filed with the SEC not later than 120 days subsequent to December 31, 2023.

Information About Our Executive Officers

The following sets forth certain information as of February 27, 2024, regarding our executive officers.

Name	Age	Position
Gregory S. Bentley	68	Chief Executive Officer and President
Werner Andre	54	Chief Financial Officer and Chief Accounting Officer
Brock Ballard	47	Chief Revenue Officer
Michael M. Campbell	51	Chief Product Officer
Nicholas H. Cumins	47	Chief Operating Officer
David R. Shaman	58	Chief Legal Officer and Secretary

Gregory S. Bentley has served as our President 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.

Werner Andre has served as our Chief Financial Officer since January 1, 2022 and is responsible for all aspects of finance including worldwide accounting, financial planning and analysis, tax, and treasury. Mr. Andre joined us in 2015 as Global Corporate Controller and serves as our Chief Accounting Officer since 2020. Prior to joining us, Mr. Andre served as the assistant corporate controller, international accounting and reporting, for Rockwood Holdings, Inc. from 2010 to 2015, and held several roles with PricewaterhouseCoopers LLP from 1995 to 2010. He is a Certified Public Accountant in the state of Pennsylvania, and holds B.S. and M.B.A. degrees in Accounting and Financial Reporting from the University for Economics and Business Administration in Vienna.

Brock Ballard has served as our Chief Revenue Officer since January 1, 2023 and is responsible for leading all of our accounts globally. Mr. Ballard joined us in 2020 as Vice President and Regional Executive, Americas. Prior to joining us, Mr. Ballard served in sales leadership positions with Dassault Systèmes, Autodesk, Inc., and Océ. He holds a Bachelor of Arts in Communication and Information Sciences from the University of Alabama.

Michael M. Campbell has served as our Chief Product Officer since joining us in September 2022. Mr. Campbell is responsible for defining our product strategy and for managing product development to advance our leadership in infrastructure engineering software. Prior to joining us, Mr. Campbell held various positions with PTC Inc. managing product development, product strategies, and entire software businesses. He holds a Bachelor of Science in Mechanical Engineering from Boston University.

Nicholas H. Cumins has served as our Chief Operating Officer since January 1, 2022. Mr. Cumins is responsible for our sales and marketing, products, user success, and business operations globally. Mr. Cumins previously served as our Chief Product Officer since 2020. Prior to joining us, Mr. Cumins served as general manager of SAP Marketing Cloud, a comprehensive marketing automation platform, from 2018 to 2020. Mr. Cumins also served as chief product officer of Scytl, a platform for online voting, in Barcelona from 2016 to 2018, and senior vice president of product with OpenX, a pioneer in programmatic advertising, in Los Angeles from 2013 to 2016. He holds Maîtrise de Droit (Law) and Maîtrise de Sciences de Gestion (Business) degrees from University Paris II Panthéon-Assas, Paris, France.

David R. Shaman, our Chief Legal Officer, has led our legal team since 2015 and is responsible for legal, regulatory compliance, government relations, and license compliance activities. Mr. Shaman previously served as Deputy General Counsel from 2006 to 2015. Prior to joining us in 1998, Mr. Shaman was an associate at the law firm Covington & Burling LLP. Mr. Shaman's international experience includes eight years leading our 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.

Item 11. Executive Compensation

The information required by this item is incorporated by reference to our 2024 Proxy Statement, which will be filed with the SEC not later than 120 days subsequent to December 31, 2023.

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

The information required by this item is incorporated by reference to our 2024 Proxy Statement, which will be filed with the SEC not later than 120 days subsequent to December 31, 2023.

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

The information required by this item is incorporated by reference to our 2024 Proxy Statement, which will be filed with the SEC not later than 120 days subsequent to December 31, 2023.

Item 14. Principal Accountant Fees and Services

The information required by this item is incorporated by reference to our 2024 Proxy Statement, which will be filed with the SEC not later than 120 days subsequent to December 31, 2023.

PART IV

Item 15. Exhibit and Financial Statement Schedules

(a) The following documents are filed as part of this report:

2. Financial Statement Schedules:

   Financial statement schedules have been omitted since they are either not required, not applicable, or the information is included in the consolidated financial statements or notes thereto.

3. Exhibits:

Exhibit Number	Description
3.1	Amended and Restated Certificate of Incorporation of Bentley Systems, Incorporated (filed as Exhibit 3.1 to our Current Report on Form 8-K filed on September 25, 2020 (File No. 001-39548) and incorporated herein by reference)
3.2	Amended and Restated Bylaws of Bentley Systems, Incorporated (filed as Exhibit 3.2 to our Current Report on Form 8-K filed on September 25, 2020 (File No. 001-39548) and incorporated herein by reference)
4.1	Form of Bentley Systems, Incorporated Class B common stock certificate (filed as Exhibit 4.1 to our Registration Statement on Form S-1/A filed on September 18, 2020 (File No. 333-248246) and incorporated herein by reference)
4.2	Indenture, dated as of January 26, 2021, between Bentley Systems, Incorporated and Wilmington Trust, National Association, as trustee (filed as Exhibit 4.1 to our Current Report on Form 8-K filed on January 26, 2021 (File No. 001-39548) and incorporated herein by reference)
4.3	Form of 0.125% Convertible Senior Note due 2026 (included as Exhibit A in Exhibit 4.1 to our Current Report on Form 8-K filed on January 26, 2021 (File No. 001-39548) and incorporated herein by reference)
4.4	Indenture, dated as of June 28, 2021, between Bentley Systems, Incorporated and Wilmington Trust, National Association, as trustee (filed as Exhibit 4.1 to our Current Report on Form 8-K filed on June 29, 2021 (File No. 001-39548) and incorporated herein by reference)
4.5	Form of 0.375% Convertible Senior Note due 2027 (included as Exhibit A in Exhibit 4.1 to our Current Report on Form 8-K filed on June 29, 2021 (File No. 001-39548) and incorporated herein by reference)
4.6	Description of Bentley Systems, Incorporated Securities (filed as Exhibit 4.4 to our Annual Report on Form 10-K filed on March 2, 2021 (File No. 001-39548) and incorporated herein by reference)

Exhibit Number	Description
10.1	Form of Capped Call Confirmation relating to the 0.125% Convertible Senior Note due 2026 (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on January 26, 2021 (File No. 001-39548) and incorporated herein by reference)
10.2	Form of Capped Call Confirmation relating to the 0.375% Convertible Senior Note due 2027 (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on June 29, 2021 (File No. 001-39548) and incorporated herein by reference)
10.3	Amended and Restated Credit Agreement, dated as of December 19, 2017, by and among Bentley Systems, Incorporated, PNC Bank, National Association, as administrative agent, and the lenders party thereto (filed as Exhibit 10.1 to our Registration Statement on Form S-1 filed on August 21, 2020 (File No. 333-248246) and incorporated herein by reference)
10.4	First Amendment to Amended and Restated Credit Agreement, dated as of September 2, 2020, (filed as Exhibit 10.10 to our Registration Statement on Form S-1/A filed on September 8, 2020 (File No. 333-248246) and incorporated herein by reference)
10.5	Second Amendment to Amended and Restated Credit Agreement, dated as of January 25, 2021 (filed as Exhibit 10.2 to our Current Report on Form 8-K filed on January 26, 2021 (File No. 001-39548) and incorporated herein by reference)
10.6	Third Amendment to Amended and Restated Credit Agreement, dated as of June 22, 2021 (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on June 22, 2021 (File No. 001-39548) and incorporated herein by reference)
10.7	Fourth Amendment to Amended and Restated Credit Agreement, dated as of December 22, 2021 (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on December 29, 2021 (File No. 001-39548) and incorporated herein by reference)
10.8	Fifth Amendment to Amended and Restated Credit Agreement, dated as of December 14, 2022 (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on December 15, 2022 (File No. 001-39548) and incorporated herein by reference)
10.9	Sixth Amendment to Amended and Restated Credit Agreement, dated as of June 21, 2023 (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on June 23, 2023 (File No. 001-39548) and incorporated herein by reference)
10.10†	Bentley Systems, Incorporated 2015 Equity Incentive Plan, as amended and restated effective as of May 29, 2018 (filed as Exhibit 10.6 to our Registration Statement on Form S-1 filed on August 21, 2020 (File No. 333-248246) and incorporated herein by reference)
10.11†	Bentley Systems, Incorporated 2020 Omnibus Incentive Plan (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on September 25, 2020 (File No. 001-39548) and incorporated herein by reference)
10.12†	Amendment No. 1 to the Bentley Systems, Incorporated 2020 Omnibus Incentive Plan (filed as Exhibit 10.10 to our Annual Report on Form 10-K filed on March 1, 2022 (File No. 001-39548) and incorporated herein by reference)
10.13†	Form of Restricted Stock Unit Award Agreement under the Bentley Systems, Incorporated 2020 Omnibus Incentive Plan (as amended) (filed as Exhibit 10.12 to our Annual Report on Form 10-K filed on February 28, 2023 (File No. 001-39548) and incorporated herein by reference)
10.14†	Bentley Systems, Incorporated Global Employee Stock Purchase Plan (filed as Exhibit 10.2 to our Current Report on Form 8-K filed on September 25, 2020 (File No. 001-39548) and incorporated herein by reference)
10.15†	Bentley Systems, Incorporated Nonqualified Deferred Compensation Plan, as amended and restated effective as of September 22, 2020 (filed as Exhibit 10.3 to our Current Report on Form 8-K filed on September 25, 2020 (File No. 001-39548) and incorporated herein by reference)

Exhibit Number	Description
10.16†	Amendment No. 1 to the Bentley Systems, Incorporated Nonqualified Deferred Compensation Plan, as amended and restated effective as of September 22, 2020 (filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q filed on November 9, 2021 (File No. 001-39548) and incorporated herein by reference)
10.17†	Bentley Systems, Incorporated Nonqualified Deferred Compensation Plan for Non-Employee Directors, as amended and restated effective as of January 1, 2015 (filed as Exhibit 10.7 to our Registration Statement on Form S-1/A filed on September 8, 2020 (File No. 333-248246) and incorporated herein by reference)
10.18†	Bentley Systems, Incorporated Bonus Pool Plan, as amended and restated effective as of September 22, 2020 (filed as Exhibit 10.4 to our Current Report on Form 8-K filed on September 25, 2020 (File No. 001-39548) and incorporated herein by reference)
10.19†	Amendment No. 1 to the Bentley Systems, Incorporated Bonus Pool Plan, as amended and restated effective as of September 22, 2020 (filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q filed on November 8, 2022 (File No. 001-39548) and incorporated herein by reference)
10.20	Common Stock Purchase Agreement, by and among Bentley Systems, Incorporated, Siemens AG, and the persons listed as "Key Holders" therein, dated September 23, 2016, as amended on October 28, 2016, and April 23, 2018 (filed as Exhibit 10.2 to our Registration Statement on Form S-1 filed on August 21, 2020 (File No. 333-248246) and incorporated herein by reference)
21*	List of Subsidiaries
23*	Consent of Independent Registered Public Accounting Firm
31.1*	Certification of CEO pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended
31.2*	Certification of CFO pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended
32*	Certification of CEO and CFO Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
97*	Bentley Systems, Incorporated Incentive Compensation Clawback Policy, as Adopted on August 17, 2023 Pursuant to Nasdaq Rule 5608
101.INS	Inline XBRL Instance Document—the instance document does not appear in the Interactive Data File as its XBRL tags are embedded within the Inline XBRL document
101.SCH	Inline XBRL Taxonomy Extension Schema
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase
104	Cover page formatted as Inline XBRL and contained in Exhibit 101

† Management contract or compensatory plan or arrangement.

* Filed or furnished herewith. The certification attached as Exhibit 32 that accompanies this Annual Report on Form 10-K is not deemed filed with the SEC and is not to be incorporated by reference into any filing of Bentley Systems, Incorporated under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of this Annual Report on Form 10-K, irrespective of any general incorporation language contained in such filing.

(b) Exhibits:

We hereby file the exhibits listed in the attached Exhibit Index.

(c) Financial Statement Schedules:

None.

Item 16. Form 10–K Summary

None.

SIGNATURES

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

Bentley Systems, Incorporated

Date: February 27, 2024

By: /s/ GREGORY S. BENTLEY
Gregory S. Bentley
Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities indicated as of February 27, 2024.

Signature	Title
/s/ GREGORY S. BENTLEY Gregory S. Bentley	Chairperson, Chief Executive Officer, and President (Principal Executive Officer)
/s/ WERNER ANDRE Werner Andre	Chief Financial Officer and Chief Accounting Officer (Principal Financial Officer and Principal Accounting Officer)
/s/ BARRY J. BENTLEY Barry J. Bentley	Director
/s/ KEITH A. BENTLEY Keith A. Bentley	Director
/s/ RAYMOND B. BENTLEY Raymond B. Bentley	Director
/s/ KIRK B. GRISWOLD Kirk B. Griswold	Director
/s/ JANET B. HAUGEN Janet B. Haugen	Director
/s/ BRIAN F. HUGHES Brian F. Hughes	Director

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Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Bentley Systems, Incorporated:

Opinion on Internal Control Over Financial Reporting

We have audited Bentley Systems, Incorporated and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2023 and 2022, the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2023, and the related notes (collectively, the consolidated financial statements), and our report dated February 27, 2024 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

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

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

Definition and Limitations of Internal Control Over Financial Reporting

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

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

/s/ KPMG LLP

Philadelphia, Pennsylvania
February 27, 2024

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 sheets of Bentley Systems, Incorporated and subsidiaries (the Company) as of December 31, 2023 and 2022, the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2023, 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, 2023 and 2022, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2023, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 27, 2024 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

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 audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

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

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Evaluation of the standalone selling price for certain term license subscriptions and the portfolio balancing material right

As discussed in Note 3 to the consolidated financial statements, the Company recognized subscriptions revenues of $1,080,307 thousand for the year ended December 31, 2023, a portion of which relates to certain term license subscriptions and the portfolio balancing material right. The Company allocates the transaction price to each distinct performance obligation, including the portfolio balancing material right, based upon their relative standalone selling prices (SSPs). In instances where a performance obligation, including a portfolio balancing material right, does not have directly observable SSPs, the Company maximizes the use of other observable inputs to estimate SSPs. For the portfolio balancing material right, the Company uses historical user elections to estimate future user elections, which are used to estimate the SSPs.

We identified the evaluation of the SSPs for certain term license subscriptions and the portfolio balancing material right as a critical audit matter. Specifically, a high degree of subjective auditor judgment was required to assess the nature and sufficiency of the evidence obtained to support the Company's determination of SSPs for certain term licenses and the portfolio balancing material right.

The following are the primary procedures we performed to address this critical audit matter. We applied auditor judgment to determine the nature and extent of procedures to be performed over the Company's determination of SSPs, including those related to term license subscriptions and the portfolio balancing material right. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's revenue process, including controls related to the development of SSPs. We inspected the Company's SSP analysis for certain term licenses and compared the estimated SSPs to a selection of historical disaggregated sales data. For certain term licenses, we also obtained the Company's pricing policies and practices and compared them to the SSPs determined. We tested the historical user elections for the portfolio balancing material right by sampling user elections and comparing them to signed revenue contracts. We evaluated the sufficiency of audit evidence obtained by assessing the results of procedures performed, including the appropriateness of the nature of such evidence.

Evaluation of intra-entity transactions

As discussed in Note 16 to the consolidated financial statements, during the fourth quarter of 2023 the Company recognized a net discrete income tax benefit of $170,784 thousand attributable to internal legal entity restructuring and related intra-entity transactions. These transactions resulted in the recognition of deferred tax benefits arising from the net increase in deferred tax assets related to intangibles and goodwill of $171,622 thousand.

We identified the evaluation of the Company's accounting for income taxes attributable to internal legal entity restructuring and related intra-entity transactions as a critical audit matter. A high degree of auditor judgment and the use of income tax professionals with specialized skills and knowledge were required to evaluate the interpretation and application of income tax regulations in various jurisdictions and the Company's accounting for income taxes attributable to its internal legal entity restructuring and related intra-entity transactions.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's income tax process, including controls related to the interpretation and application of tax regulations, and the Company's accounting for income taxes attributable to its internal legal entity restructuring and related intra-entity transactions. We involved income tax professionals with specialized skills and knowledge in various tax jurisdictions who assisted in evaluating the underlying documentation, the Company's interpretation and application of jurisdictional tax regulations, and accounting for income taxes attributable to its internal legal entity restructuring and related intra-entity transactions.

/s/ KPMG LLP

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

Philadelphia, Pennsylvania
February 27, 2024

BENTLEY SYSTEMS, INCORPORATED
Consolidated Balance Sheets
(in thousands, except share and per share data)

	December 31, 2023	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	$ 68,412	$ 71,684
Accounts receivable	302,501	296,376
Allowance for doubtful accounts	(8,965)	(9,303)
Prepaid income taxes	12,812	18,406
Prepaid and other current assets	44,797	38,732
Total current assets	419,557	415,895
Property and equipment, net	40,100	32,251
Operating lease right-of-use assets	38,476	40,249
Intangible assets, net	248,787	292,271
Goodwill	2,269,336	2,237,184
Investments	23,480	22,270
Deferred income taxes	212,831	52,636
Other assets	67,283	72,249
Total assets	$ 3,319,850	$ 3,165,005
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 18,094	$ 15,176
Accruals and other current liabilities	457,348	362,048
Deferred revenues	253,785	226,955
Operating lease liabilities	11,645	14,672
Income taxes payable	9,491	4,507
Current portion of long-term debt	10,000	5,000
Total current liabilities	760,363	628,358
Long-term debt	1,518,403	1,775,696
Deferred compensation plan liabilities	88,181	77,014
Long-term operating lease liabilities	30,626	27,670
Deferred revenues	15,862	16,118
Deferred income taxes	9,718	51,235
Income taxes payable	7,337	8,105
Other liabilities	5,378	7,355
Total liabilities	2,435,868	2,591,551
Commitments and contingencies (Note 18)		
Stockholders' equity:		
Preferred stock, $0.01 par value, authorized 100,000,000 shares; none issued or outstanding as of December 31, 2023 and 2022	—	—
Class A common stock, $0.01 par value, authorized 100,000,000 shares; issued and outstanding 11,537,627 and 11,601,757 shares as of December 31, 2023 and 2022, respectively	115	116
Class B common stock, $0.01 par value, authorized 1,800,000,000 shares; issued and outstanding 284,728,210 and 277,412,730 shares as of December 31, 2023 and 2022, respectively	2,848	2,774
Additional paid-in capital	1,127,234	1,030,466
Accumulated other comprehensive loss	(84,987)	(89,740)
Accumulated deficit	(161,932)	(370,866)
Non-controlling interest	704	704
Total stockholders' equity	883,982	573,454
Total liabilities and stockholders' equity	$ 3,319,850	$ 3,165,005

See accompanying notes to consolidated financial statements.

BENTLEY SYSTEMS, INCORPORATED
Consolidated Statements of Operations
(in thousands, except share and per share data)

	Year Ended December 31, 2023	2022	2021
Revenues:			
Subscriptions	$ 1,080,307	$ 960,220	$ 812,807
Perpetual licenses	46,038	43,377	53,080
Subscriptions and licenses	1,126,345	1,003,597	865,887
Services	102,068	95,485	99,159
Total revenues	1,228,413	1,099,082	965,046
Cost of revenues:			
Cost of subscriptions and licenses	169,406	147,578	124,321
Cost of services	96,677	89,435	92,218
Total cost of revenues	266,083	237,013	216,539
Gross profit	962,330	862,069	748,507
Operating expense (income):			
Research and development	274,619	257,856	220,915
Selling and marketing	224,336	195,622	162,240
General and administrative	180,738	174,647	150,116
Deferred compensation plan	13,580	(15,782)	95,046
Amortization of purchased intangibles	38,515	41,114	25,601
Total operating expenses	731,788	653,457	653,918
Income from operations	230,542	208,612	94,589
Interest expense, net	(39,793)	(34,635)	(11,221)
Other (expense) income, net	(7,222)	24,298	9,961
Income before income taxes	183,527	198,275	93,329
Benefit (provision) for income taxes	143,241	(21,283)	3,448
Gain (loss) from investments accounted for using the equity method, net of tax	19	(2,212)	(3,585)
Net income	$ 326,787	$ 174,780	$ 93,192
Per share information:			
Net income per share, basic	$ 1.05	$ 0.57	$ 0.30
Net income per share, diluted	$ 1.00	$ 0.55	$ 0.30
Weighted average shares, basic	312,358,823	309,226,677	305,711,345
Weighted average shares, diluted	332,503,633	331,765,158	314,610,814

See accompanying notes to consolidated financial statements.

BENTLEY SYSTEMS, INCORPORATED
Consolidated Statements of Comprehensive Income
(in thousands)

	Year Ended December 31,		
	2023	**2022**	**2021**
Net income	$ 326,787	$ 174,780	$ 93,192
Other comprehensive income (loss), net of taxes:			
Foreign currency translation adjustments	4,774	1,459	(65,648)
Actuarial (loss) gain on retirement plan, net of tax effect of $(89), $(245), and $(44), respectively	(21)	575	107
Total other comprehensive income (loss), net of taxes	4,753	2,034	(65,541)
Comprehensive income	$ 331,540	$ 176,814	$ 27,651

See accompanying notes to consolidated financial statements.

BENTLEY SYSTEMS, INCORPORATED
Consolidated Statements of Stockholders' Equity
(in thousands, except share data)

	Class A and Class B Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Non-Controlling Interest	Total Stockholders' Equity
	Shares	Par Value					
Balance, December 31, 2020	272,154,504	$ 2,722	$ 741,113	$ (26,233)	$ (376,003)	$ —	$ 341,599
Net income	—	—	—	—	93,192	—	93,192
Other comprehensive loss	—	—	—	(65,541)	—	—	(65,541)
Shares issued related to acquisition	3,141,342	31	182,359	—	—	—	182,390
Purchase of capped call options, net of tax of $12,871	—	—	(38,734)	—	—	—	(38,734)
Dividends declared	—	—	—	—	(33,537)	—	(33,537)
Shares issued in connection with DCP, net	2,378,645	24	—	—	(69,031)	—	(69,007)
DCP elective participant deferrals	—	—	2,619	—	—	—	2,619
DCP modification	—	—	(4,739)	—	—	—	(4,739)
Shares issued in connection with Bonus Plan, net	238,755	2	20,951	—	(8,739)	—	12,214
Shares issued and repurchased in connection with employee stock purchase plan, net	104,716	1	3,845	—	(438)	—	3,408
Stock option exercises, net	4,587,053	46	5,559	—	(37,785)	—	(32,180)
Shares issued for stock grants, net	7,824	—	450	—	—	—	450
Stock-based compensation expense	—	—	24,382	—	—	—	24,382
Shares related to restricted stock, net	(86,120)	(1)	—	—	(7,293)	—	(7,294)
Balance, December 31, 2021	282,526,719	2,825	937,805	(91,774)	(439,634)	—	409,222
Net income	—	—	—	—	174,780	—	174,780
Other comprehensive income	—	—	—	2,034	—	—	2,034
Dividends declared	—	—	—	—	(34,353)	—	(34,353)
Shares issued in connection with DCP, net	3,541,375	35	(27)	—	(24,254)	—	(24,246)
DCP elective participant deferrals	—	—	6,580	—	—	—	6,580
Shares issued in connection with Bonus Plan, net	445,050	5	21,920	—	(5,197)	—	16,728
Shares issued and repurchased in connection with employee stock purchase plan, net	307,406	3	10,332	—	(273)	—	10,062
Stock option exercises, net	2,613,659	26	8,312	—	(9,188)	—	(850)
Acquisition option exercises, net	185,178	2	(2)	—	—	—	—
Shares issued for stock grants, net	13,632	—	450	—	—	—	450
Stock-based compensation expense	—	—	45,100	—	—	—	45,100
Shares related to restricted stock, net	277,594	3	(4)	—	(4,491)	—	(4,492)
Repurchases of Class B common stock under approved program	(896,126)	(9)	—	—	(28,241)	—	(28,250)
Other	—	—	—	—	(15)	—	(15)
Non-controlling interest acquired	—	—	—	—	—	704	704
Balance, December 31, 2022	289,014,487	2,890	1,030,466	(89,740)	(370,866)	704	573,454
Net income	—	—	—	—	326,787	—	326,787
Other comprehensive income	—	—	—	4,753	—	—	4,753
Dividends declared	—	—	—	—	(58,756)	—	(58,756)
Shares issued in connection with DCP, net	3,410,006	34	(34)	—	(38,456)	—	(38,456)
DCP elective participant deferrals	—	—	1,765	—	—	—	1,765
Shares issued in connection with Bonus Plan, net	247,867	3	16,788	—	(5,756)	—	11,035
Shares issued and repurchased in connection with employee stock purchase plan, net	315,840	3	9,985	—	(845)	—	9,143
Stock option exercises, net	2,621,959	26	11,689	—	(6,581)	—	5,134
Shares issued for stock grants, net	12,639	—	600	—	—	—	600
Stock-based compensation expense	—	—	55,982	—	—	—	55,982
Shares related to restricted stock, net	643,039	7	(7)	—	(7,299)	—	(7,299)
Other	—	—	—	—	(160)	—	(160)
Balance, December 31, 2023	296,265,837	$ 2,963	$1,127,234	$ (84,987)	$ (161,932)	$ 704	$ 883,982

See accompanying notes to consolidated financial statements.

BENTLEY SYSTEMS, INCORPORATED
Consolidated Statements of Cash Flows
(in thousands)

	Year Ended December 31,		
	2023	2022	2021
Cash flows from operating activities:			
Net income	$ 326,787	$ 174,780	$ 93,192
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation, amortization, and impairment	71,861	71,537	52,793
Deferred income taxes	(198,878)	(5,126)	(19,745)
Stock-based compensation expense	72,972	75,206	49,045
Deferred compensation plan	13,580	(15,782)	95,046
Amortization and write-off of deferred debt issuance costs	7,291	7,291	5,955
Change in fair value of derivative	5,038	(27,083)	(9,770)
Foreign currency remeasurement (gain) loss	(452)	6,000	64
Other	21,047	2,593	5,338
Changes in assets and liabilities, net of effect from acquisitions:			
Accounts receivable	(5,180)	(60,938)	(35,519)
Prepaid and other assets	4,112	14,053	14,260
Accounts payable, accruals, and other liabilities	68,733	29,181	47,957
Deferred revenues	19,933	2,292	5,340
Income taxes payable, net of prepaid income taxes	9,852	320	(15,932)
Net cash provided by operating activities	416,696	274,324	288,024
Cash flows from investing activities:			
Purchases of property and equipment and investment in capitalized software	(25,002)	(18,546)	(17,539)
Proceeds from sale of aircraft	—	2,380	—
Acquisitions, net of cash acquired	(26,023)	(743,007)	(1,034,983)
Purchases of investments	(11,602)	(10,954)	(4,081)
Proceeds from investments	2,123	—	—
Net cash used in investing activities	(60,504)	(770,127)	(1,056,603)
Cash flows from financing activities:			
Proceeds from credit facilities	588,154	833,292	745,310
Payments of credit facilities	(841,723)	(487,694)	(991,310)
Proceeds from convertible senior notes, net of discounts and commissions	—	—	1,233,377
Payments of debt issuance costs	—	—	(5,643)
Purchase of capped call options	—	—	(51,605)
Settlement of convertible senior notes	—	(1,998)	—
Proceeds from term loan	—	—	199,505
Repayments of term loan	(5,000)	(5,000)	—
Payments of contingent and non-contingent consideration	(4,324)	(8,460)	(2,371)
Payments of dividends	(58,756)	(34,493)	(33,396)
Proceeds from stock purchases under employee stock purchase plan	9,988	10,335	3,846
Proceeds from exercise of stock options	11,715	8,338	5,605
Payments for shares acquired including shares withheld for taxes	(58,937)	(43,561)	(120,539)
Repurchases of Class B common stock under approved program	—	(28,250)	—
Other	(191)	525	(197)
Net cash (used in) provided by financing activities	(359,074)	243,034	982,582
Effect of exchange rate changes on cash and cash equivalents	(390)	(4,884)	(6,672)
(Decrease) increase in cash and cash equivalents	(3,272)	(257,653)	207,331
Cash and cash equivalents, beginning of year	71,684	329,337	122,006
Cash and cash equivalents, end of year	$ 68,412	$ 71,684	$ 329,337

BENTLEY SYSTEMS, INCORPORATED
Consolidated Statements of Cash Flows
(in thousands)

	Year Ended December 31,		
	2023	**2022**	**2021**
Supplemental information:			
Cash paid for income taxes	$ 43,619	$ 29,478	$ 40,203
Income tax refunds	1,188	3,588	9,372
Interest paid	37,389	26,581	4,631
Non-cash investing and financing activities:			
Cost method investment	3,500	5,936	—
Shares issued related to acquisition	—	—	182,390
Contingent acquisition consideration	—	1,390	4,544
Deferred, non-contingent consideration, net	525	749	10,090
Term loan expenses included in *Accruals and other current liabilities*	—	—	45
Share-settled Bonus Plan awards	16,791	21,925	20,953
DCP elective participant deferrals	1,765	6,580	2,619

See accompanying notes to consolidated financial statements.

Note 1: Description of Business and Summary of Significant Accounting Policies

Business and Operations

Bentley Systems is the *infrastructure engineering software* company. The Company's purpose is to advance the world's infrastructure for better quality of life. The Company's products and solutions empower people to design, build, and operate better and more resilient infrastructure through the adoption of Bentley Systems' intelligent digital twin solutions.

The Company serves enterprises and professionals across the infrastructure lifecycle by improving project delivery and asset performance. The Company's engineering and geoprofessional applications are primarily desktop modeling and applications that support the breadth of engineering and geoprofessional disciplines. *Bentley Infrastructure Cloud*, provided via cloud and hybrid environments, extends enterprise collaboration during project delivery, and helps manage engineering information during operations and maintenance. Powering these products and solutions is *iTwin Platform*, the Company's cloud-native technology platform to create, curate, and leverage infrastructure digital twins.

Basis of Presentation and Consolidation

The consolidated financial statements and accompanying notes have been prepared in U.S. dollars and in accordance with GAAP. The accompanying consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. The Company is party to joint ventures, which are accounted for using the equity method. All intercompany accounts and transactions have been eliminated in consolidation.

Gains and losses resulting from foreign currency transactions denominated in currencies other than the functional currency are included in *Other income (expense), net* in the consolidated statements of operations. 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.

Reclassifications

Certain reclassifications of prior period amounts have been made to conform to the current period presentation.

Accounting Policies

The Company's consolidated financial statements are prepared in accordance with GAAP, which require us to select accounting policies and make estimates that affect the reported amount of assets, liabilities, revenues, and expenses, and the related disclosure of contingent assets and contingent liabilities. Actual results could differ materially from these estimates.

Information on other accounting policies and methods that we use in the preparation of our consolidated financial statements are included, where applicable, in their respective footnotes that follow. Below is a discussion of accounting policies and methods used in our consolidated financial statements that are not presented within other footnotes.

Segment — Reportable segments are defined as components of an enterprise about which separate financial information is evaluated regularly by the 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 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 U.S. and its wholly-owned branches and subsidiaries internationally.

Cost of Revenues — Cost of subscriptions and licenses expenses primarily include headcount-related costs, as well as depreciation of property and equipment and amortization of capitalized software costs associated with servicing software subscriptions, amortization of intangible assets associated with acquired software and technology, channel partner compensation for providing sales coverage to users, as well as cloud-related costs incurred for servicing the Company's customers using cloud provisioned solutions and the Company's license administration platform. Cost of services expenses primarily include headcount-related costs, as well as depreciation of property and equipment and amortization of capitalized software costs, used for providing training, implementation, configuration, and customization services to customers.

Software Development Costs — The Company's 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, are included in *Research and development* in the consolidated statements of operations. Research and development expenses, which are generally expensed as incurred, primarily consist of headcount-related costs. In general, technological feasibility is reached shortly before the release of such products.

Under its Accelerated Commercial Development Program ("ACDP") (the Company's structured approach to an in-house business incubator function), the Company capitalizes certain development costs related to certain projects 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). For the years ended December 31, 2023, 2022, and 2021, total costs capitalized under the ACDP were $4,558, $7,060, and $6,608, respectively. Additionally, for the years ended December 31, 2023, 2022, and 2021, total ACDP related amortization recorded in *Cost of subscriptions and licenses* in the consolidated statements of operations was $7,711, $6,626, and $7,020, respectively. The Company evaluates the recoverability of capitalized ACDP costs whenever events or changes in circumstances indicate that the carrying value of these assets may not be recoverable. During the year ended December 31, 2023, the Company recognized impairment charges of $1,835 related to certain ACDP projects, which were recorded as amortization expense in *Cost of subscriptions and licenses* in the consolidated statements of operations. No impairment of capitalized ACDP costs occurred for the years ended December 31, 2022 or 2021.

Advertising Expense — The Company expenses advertising costs as incurred. Advertising expense of $5,365, $6,888, and $2,396 is included in *Selling and marketing* in the consolidated statements of operations for the years ended December 31, 2023, 2022, and 2021, respectively.

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. As of December 31, 2023 and 2022, 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.

Accounts Receivable and Allowance for Doubtful Accounts — Accounts receivable primarily represent receivables from customers for products and services invoiced by the Company for which payment is outstanding and also unbilled revenues (see Note 3). Receivables are recorded at the invoiced amount and do not bear interest.

The Company establishes an allowance for doubtful accounts for expected losses during the accounts receivable collection process. The allowance for doubtful accounts is presented separately in the consolidated balance sheets and reduces the accounts receivable balance to the net realizable value of the outstanding accounts receivable. The development of the allowance for doubtful accounts is based on an expected loss model which considers historical write-off and recovery experience, 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 and takes into account reasonable and supportable forecasts of future conditions when evaluating the adequacy of the allowance for doubtful accounts. If circumstances relating to specific customers change or unexpected 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,	
	2023	2022
Balance, beginning of year	$ 9,303	$ 6,541
Additions to reserve	6,651	5,549
Write-offs, net of recoveries	(7,106)	(2,317)
Foreign currency translation adjustments	117	(470)
Balance, end of year	$ 8,965	$ 9,303

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 region. No single customer accounted for more than 2.0% of the Company's total revenues for the years ended December 31, 2023 and 2022, or more than 2.5% of the Company's total revenues for the year ended 2021.

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.

Note 2: Recent Accounting Pronouncements

In December 2023, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosures* ("ASU 2023-09"), which expands disclosures in an entity's income tax rate reconciliation table and regarding cash taxes paid both in the U.S. and foreign jurisdictions. ASU 2023-09 is effective for the Company for the annual reporting period beginning after December 15, 2024. Early adoption is permitted. The Company is currently evaluating the impact of the adoption of ASU 2023-09 on its consolidated financial statements and related disclosures.

In November 2023, the FASB issued ASU No. 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures* ("ASU 2023-07"), which expands disclosures about a public entity's reportable segments and requires more enhanced information about a reportable segment's expenses, interim segment profit or loss, and how the Company's CODM uses reported segment profit or loss information in assessing segment performance and allocating resources. ASU 2023-07 is effective for the Company for the annual reporting period beginning after December 15, 2023, and interim periods beginning after December 15, 2024. Early adoption is permitted, including adoption in an interim period. The Company is currently evaluating the impact of the adoption of ASU 2023-07 on its consolidated financial statements and related disclosures.

Recently Adopted Accounting Guidance

In March 2020, the FASB issued ASU No. 2020-04, *Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting* ("ASU 2020-04"), which provides optional expedients and exceptions for applying GAAP to contracts, hedging relationships, and other transactions affected by reference rate reform if certain criteria are met. ASU 2020-04 applies only to contracts, hedging relationships, and other transactions that reference the London Interbank Offered Rate ("LIBOR") or another reference rate expected to be discontinued because of reference rate reform between March 12, 2020 and December 31, 2022. In December 2022, the FASB issued ASU No. 2022-06, *Reference Rate Reform (Topic 848): Deferral of the Sunset Date of Topic 848*, which provides optional guidance to ease the potential burden in accounting for (or recognizing the effects of) reference rate reform on financial reporting by extending the sunset date of Topic 848 to December 31, 2024. The expedients and exceptions provided by these ASUs do not apply to contract modifications made and hedging relationships entered into or evaluated after December 31, 2024, except for hedging relationships existing as of December 31, 2024, that an entity has elected certain optional expedients for and that are retained through the end of the hedging relationship. The Company adopted these ASUs during the second quarter of 2023 (see Note 10) and the adoption did not have a material impact on the Company's consolidated financial statements.

Note 3: Revenue from Contracts with Customers

Disaggregation of Revenues

The Company's revenues consist of the following:

	Year Ended December 31,		
	2023	2022	2021
Subscriptions:			
Enterprise subscriptions [(1)]	$ 433,321	$ 345,678	$ 290,097
SELECT subscriptions	258,288	264,308	269,283
Term license subscriptions	388,698	350,234	253,427
Subscriptions	1,080,307	960,220	812,807
Perpetual licenses	46,038	43,377	53,080
Subscriptions and licenses	1,126,345	1,003,597	865,887
Services:			
Recurring	16,370	17,804	21,343
Other	85,698	77,681	77,816
Services	102,068	95,485	99,159
Total revenues	$ 1,228,413	$ 1,099,082	$ 965,046

(1) Enterprise subscriptions includes revenue attributable to E365 subscriptions of $411,025, $306,901, and $223,293 for the years ended December 31, 2023, 2022, and 2021, respectively.

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 years ended December 31, 2023, 2022, and 2021, the Company recognized $592,737, $513,736, and $412,375 of license related revenues, respectively, of which $546,699, $470,359, and $359,295, respectively, were attributable to the term license component of the Company's subscription based commercial offerings recorded in *Subscriptions* in the consolidated statements of operations.

The Company derived 8% of its total revenues through channel partners for the years ended December 31, 2023, 2022, and 2021.

Revenue from external customers is attributed to individual countries based upon the location of the customer. Revenues by geographic region are as follows:

	Year Ended December 31,		
	2023	2022	2021
Americas [1]	$ 650,926	$ 584,794	$ 483,087
EMEA	353,550	312,804	300,123
APAC	223,937	201,484	181,836
Total revenues	$ 1,228,413	$ 1,099,082	$ 965,046

(1) Americas includes the U.S., Canada, and Latin America, including the Caribbean. Revenue attributable to the U.S. totaled $511,828, $459,511, and $393,865 for the years ended December 31, 2023, 2022, and 2021, respectively.

Nature of Products and Services

The Company recognizes 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. The Company generates revenues from subscriptions, perpetual licenses, and services.

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 costs under 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.

Subscriptions

Enterprise Subscriptions

The Company provides enterprise subscription offerings, which provide its enterprise accounts with complete and unlimited global access to the Company’s comprehensive portfolio of solutions. E365 subscriptions require a CSS as described below and are charged to accounts primarily based upon daily usage. The daily usage fee includes a term license component, SELECT maintenance and support, hosting, and Success Blueprints, which are designed to achieve business outcomes through more efficient and effective use of the Company’s software. E365 revenues are recognized based upon usage incurred by the account. Usage is primarily defined as distinct user access on a daily basis. E365 subscriptions can contain quarterly usage floors or collars. The term of E365 subscriptions aligns with calendar quarters and revenue is recognized based on actual usage. Alternatively, enterprise license subscriptions (“ELS”) provide access for a prepaid fee, which is based on the account’s usage of software in the preceding year, to effectively create a fee-certain consumption-based arrangement. ELS contain a term license component, SELECT maintenance and support, and performance consulting days. The SELECT maintenance and support benefits under ELS do not include a portfolio balancing performance obligation. Revenue is allocated to the various performance obligations based on their respective SSP. Revenue allocated to the term license component is recognized upon delivery at the start of the subscription term while revenues for the SELECT maintenance and support and the performance consulting days are recognized as delivered over the subscription term. Billings in advance are recorded as *Deferred revenues* in the consolidated balance sheets.

SELECT Subscriptions

The Company provides prepaid annual recurring subscriptions that accounts (which are based on distinct contractual and billing relationships with the Company, where affiliated entities of a single parent company may each have an independent account with the Company) 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 cloud collaboration services, mobility advantages, and access to other available benefits. SELECT subscriptions 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.

Term License Subscriptions

The Company provides annual, quarterly, and monthly term licenses for its software products. Term license subscriptions contain a term license component and SELECT maintenance and support. Revenue is allocated to the various performance obligations based on their SSP. Annual term licenses ("ATL") are generally prepaid annually for named user access to specific products and include the Company's Virtuoso subscriptions sold via the Company's Virtuosity eStore for practitioner licenses. Virtuoso subscriptions are bundles with customizable training and expert consultation administered through "keys" or credits. Quarterly term license ("QTL") subscriptions allow accounts to pay quarterly in arrears for license usage that is beyond their prepaid subscriptions. 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 CSS, which is described below. For ATL, revenue allocated to the term license component is recognized upon delivery at the start of the subscription term while revenue for the SELECT maintenance and support is recognized as delivered over the subscription term. For Virtuoso keys, revenue is recognized as services are delivered. Billings in advance are recorded as *Deferred revenues* in the consolidated balance sheets. For usage-based QTL and MTL subscriptions, revenues are recognized based upon usage incurred by the account. Usage is defined as peak usage over the respective terms. The terms of QTL and MTL subscriptions align with calendar quarters and calendar months, respectively, and revenue is recognized based on actual usage.

Visas are quarterly or annual term licenses enabling users to access specific project or enterprise information and entitles users to 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 as described below.

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.

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. Certain of the Company's fixed-fee arrangements, including its Success Services offerings, are structured as subscription-like, packaged offerings that are annually recurring in nature. Success Services are standard service offerings that provide a level of dedicated professional services above the standard technical support offered to all accounts as part of their SELECT or enterprise agreement. Revenues are recognized as services are performed.

The Company primarily utilizes its direct internal sales force and also has arrangements through independent channel partners to promote and sell its products and subscriptions to end-users. Channel partners are authorized to promote the sale of an authorized set of the Company's products and subscriptions within an authorized geography under a Channel Partner Agreement.

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 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 refers to this option as portfolio balancing and has 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. This feature is available once per term and must be exercised prior to the respective renewal term. The Company recognizes the associated revenue upon election or when the portfolio balancing right expires. This right is included in the initial and subsequent renewal terms and the Company reestablishes the revenue deferral for the material right upon the beginning of the renewal term.

Unbilled Revenues

Unbilled revenues represent revenues that have not yet been billed to customers due to timing differences in usage and billing cycles, and are included in *Accounts receivable* in the consolidated balance sheets. As of December 31, 2023 and 2022, unbilled revenues were $129,494 and $113,217, respectively.

Contract Balances

As of December 31, 2023 and 2022, 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* in the consolidated balance sheets. Contract assets were not material as of December 31, 2023 or 2022.

Deferred revenues consist of billings made or payments received in advance of revenue recognition from subscriptions and services. The timing of revenue recognition may differ from the timing of billings to users. As of December 31, 2023 and 2022, total deferred revenues on the consolidated balance sheets were $269,647 and $243,073, respectively.

For the year ended December 31, 2023, $213,021 of revenues that were included in the December 31, 2022 deferred revenues balance were recognized. There were additional deferrals of $237,193, which were primarily related to new billings and acquisitions. For the year ended December 31, 2022, $204,279 of revenues that were included in the December 31, 2021 deferred revenues balance were recognized. There were additional deferrals of $221,126, which were primarily related to new billings and acquisitions.

As of December 31, 2023 and 2022, the Company has deferred $18,269 and $17,338, respectively, related to portfolio balancing exchange rights which is included in *Deferred revenues* in the consolidated balance sheets.

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 December 31, 2023, amounts allocated to these remaining performance obligations are $269,647, of which the Company expects to recognize approximately 94% over the next 12 months with the remaining amount thereafter.

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 the future. Accordingly, the Company does not maintain accruals for potential customer indemnification or warranty-related obligations.

Note 4: Acquisitions

The aggregate details of the Company's acquisition activity are as follows:

	Acquisitions Completed During Year Ended December 31,		
	2023	**2022**	**2021**
Number of acquisitions	3	6	13
Cash paid at closing [(1)]	$ 26,287	$ 763,228	$ 1,072,820
Cash acquired	(264)	(20,221)	(37,837)
Net cash paid	$ 26,023	$ 743,007	$ 1,034,983

(1) Of the cash paid at closing for the year ended December 31, 2023, $1,000 was deposited into an escrow account to secure any potential indemnification and other obligations of the seller.

On January 31, 2022, the Company completed the acquisition of PLS, a leader in software for the design of overhead electric power transmission lines and their structures, for $695,968 in cash, net of cash acquired. On June 17, 2021, the Company completed the acquisition of Seequent, a leader in software for geological and geophysical modeling, geotechnical stability, and cloud services for geodata management and collaboration, for $883,336 in cash, net of cash acquired, plus 3,141,342 shares of the Company's Class B common stock. The operating results of the acquired businesses, except for Seequent, were not material, individually or in the aggregate, to the Company's consolidated statements of operations.

The fair value of the contingent consideration from acquisitions is included in the consolidated balance sheets as follows:

	December 31, 2023	December 31, 2022
Accruals and other current liabilities	$ —	$ 1,196
Contingent consideration from acquisitions	$ —	$ 1,196

The fair value of non-contingent consideration from acquisitions is included in the consolidated balance sheets as follows:

	December 31, 2023	December 31, 2022
Accruals and other current liabilities	$ 3,576	$ 2,434
Other liabilities	—	2,977
Non-contingent consideration from acquisitions	$ 3,576	$ 5,411

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 respective acquisition date.

The Company is in the process of finalizing the purchase accounting for two acquisitions completed during the year ended December 31, 2023. Identifiable assets acquired and liabilities assumed were provisionally recorded at their estimated fair values on the respective acquisition date. The initial accounting for these business combinations 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 costs are expensed as incurred and are recorded in *General and administrative* in the consolidated statements of operations. For the years ended December 31, 2023, 2022, and 2021, the Company's acquisition expenses were $5,879, $11,758, and $20,471, respectively, which include costs related to legal, accounting, valuation, insurance, and other consulting and transaction fees. For the year ended December 31, 2022, $9,804 of the Company's acquisition expenses related to the acquisition of PLS. For the year ended December 31, 2021, $16,557 and $1,644 of the Company's acquisition expenses related to the acquisition of Seequent and PLS, respectively.

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 During Year Ended December 31,		
	2023	**2022**	**2021**
Consideration:			
Cash paid at closing	$ 26,287	$ 763,228	$ 1,072,820
Shares issued at closing [(1)(2)]	—	—	182,390
Contingent consideration	—	1,390	4,544
Deferred, non-contingent consideration, net	525	749	10,090
Other	15	(269)	—
Total consideration	$ 26,827	$ 765,098	$ 1,269,844
Assets acquired and liabilities assumed:			
Cash	$ 264	$ 20,221	$ 37,837
Accounts receivable and other current assets	1,742	8,890	24,174
Operating lease right-of-use assets	397	1,237	12,095
Property and equipment	—	1,316	4,383
Deferred income taxes	2,151	—	—
Other assets	6	7	874
Software and technology (weighted average useful life of 3, 5, and 5 years, respectively)	3,077	10,608	43,560
Customer relationships (weighted average useful life of 6, 10, and 9 years, respectively)	3,900	82,278	158,555
Trademarks (weighted average useful life of 5, 8 and 10 years, respectively)	1,000	6,972	38,256
In-process research and development	—	—	3,700
Total identifiable assets acquired excluding goodwill	12,537	131,529	323,434
Accruals and other current liabilities	(624)	(4,079)	(27,649)
Deferred revenues	(4,623)	(14,176)	(26,245)
Operating lease liabilities	(397)	(1,237)	(11,988)
Deferred income taxes	—	(5,745)	(53,342)
Other liabilities	—	—	(716)
Total liabilities assumed	(5,644)	(25,237)	(119,940)
Net identifiable assets acquired excluding goodwill	6,893	106,292	203,494
Goodwill	19,934	658,806	1,066,350
Net assets acquired	$ 26,827	$ 765,098	$ 1,269,844

(1) Of the total 3,141,342 shares issued at closing, 83,627 shares are subject to forfeiture if post-closing employment service conditions are not met and accordingly were recorded as stock-based compensation expense over the related forfeiture period of two years.

(2) A fair value adjustment of $16,943 was applied to the stock consideration due to restrictions on the transfer of securities.

The Company allocates the purchase price for each acquisition to the net tangible and intangible assets acquired and liabilities assumed based on their estimated fair value at the respective acquisition date, with the exception of deferred revenues which are recognized and measured on the acquisition date in accordance with the Company's revenue recognition policies in Note 3. The fair values of the working capital, other assets (liabilities), and property and equipment approximated their respective carrying values as of the acquisition date. 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 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 is measured as the excess of the purchase price over the value of net identifiable assets acquired. While best estimates and assumptions are used to accurately value assets acquired and liabilities assumed at the acquisition date, as well as contingent and non-contingent consideration, where applicable, the Company's estimates are inherently uncertain and subject to refinement. Any adjustments to estimated fair value are recorded to goodwill, provided that the Company is within the measurement period (up to one year from the acquisition date) and that the Company continues to collect information to determine estimated fair value. Subsequent to the measurement period or the Company's final determination of estimated fair value, whichever comes first, adjustments are recorded in the consolidated statements of operations.

Goodwill recorded in connection with the acquisitions was attributable to synergies expected to arise from cost saving opportunities, as well as future expected cash flows. The Company expects $9,771 of the goodwill recorded relating to the 2023 acquisitions will be deductible for income tax purposes.

Unaudited Pro Forma Financial Information

Had the acquisition of Seequent been made at the beginning of 2020, unaudited pro forma total revenues for the year ended December 31, 2021 would have been $1,017,975. Net income, net income per share, basic, and net income per share, diluted for the year ended December 31, 2021 would not have been materially different than the amounts reported primarily due to the pro forma adjustments to reflect the amortization of purchased intangibles and the cost to finance the transaction, net of the related tax effects.

The unaudited pro forma financial information is for informational purposes only and is not indicative of the results of operations that would have been achieved if the acquisition had taken place at the beginning of 2020. The unaudited pro forma financial information combines the historical results of the Company, the adjusted historical results of Seequent considering the date the Company completed the acquisition of Seequent, and the effects of the pro forma adjustments described above.

Note 5: Property and Equipment, Net

Property and equipment, net consist of the following:

	December 31,	
	2023	**2022**
Land	$ 2,811	$ 2,811
Building and improvements	31,025	35,717
Computer equipment and software	46,202	54,636
Furniture, fixtures, and equipment	9,799	14,600
Aircraft	2,038	2,038
Other	89	156
Property and equipment, at cost	91,964	109,958
Less: Accumulated depreciation	(51,864)	(77,707)
Total property and equipment, net	$ 40,100	$ 32,251

Depreciation expense for the years ended December 31, 2023, 2022, and 2021 was $12,368, $10,706, and $11,217, respectively.

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. 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.

The Company evaluates the recoverability of property and equipment whenever events or changes in circumstances indicate that the carrying value of these assets may not be recoverable. If circumstances require an 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 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 property and equipment occurred for the years ended December 31, 2023, 2022, and 2021.

Related Party Equipment Sale

In January 2022, the Audit Committee of the Company’s Board of Directors authorized the Company to sell 50% of its interest in the Company’s aircraft at fair market value to an entity controlled by the Company’s Chief Executive Officer. The transaction was completed on February 1, 2022 for $2,380 and resulted in a gain of $2,029, which was recorded in *Other (expense) income, net* in the consolidated statements of operations for the year ended December 31, 2022 (see Note 20). Subsequent to the transaction, ongoing operating and fixed costs of the aircraft are shared on a proportional use basis subject to a cost-sharing agreement. Such costs were not material during the years ended December 31, 2023 and 2022. The Company determined this transaction was with a related party.

Note 6: Goodwill and Other Intangible Assets

The changes in the carrying amount of goodwill are as follows:

Balance, December 31, 2021	$ 1,588,477
Acquisitions	658,806
Foreign currency translation adjustments	(8,426)
Other adjustments	(1,673)
Balance, December 31, 2022	2,237,184
Acquisitions	19,934
Foreign currency translation adjustments	11,732
Other adjustments	486
Balance, December 31, 2023	$ 2,269,336

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 on October 1, 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 allocates goodwill to reporting units on a relative fair value basis.

In testing for goodwill impairment, 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. If it is determined that a quantitative assessment is required and the carrying amount exceeds its fair value, the Company will recognize goodwill impairment in the amount in which the carrying amount of the reporting unit exceeds its fair value, but not to exceed the carrying amount of goodwill within the reporting unit. There was no impairment of goodwill as a result of the Company’s annual impairment assessments conducted for the years ended December 31, 2023, 2022, or 2021.

Details of intangible assets other than goodwill are as follows:

		December 31, 2023			December 31, 2022		
	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	3-5 years	$ 89,693	$ (59,045)	$ 30,648	$ 92,390	$ (51,938)	$ 40,452
Customer relationships	3-10 years	323,442	(142,378)	181,064	323,164	(114,387)	208,777
Trademarks	3-10 years	70,710	(33,709)	37,001	69,803	(26,904)	42,899
Non-compete agreements	5 years	350	(276)	74	350	(207)	143
Total intangible assets		$ 484,195	$ (235,408)	$ 248,787	$ 485,707	$ (193,436)	$ 292,271

The aggregate amortization expense for purchased intangible assets with finite lives was reflected in the Company’s consolidated statements of operations as follows:

	Year Ended December 31,		
	2023	2022	2021
Cost of subscriptions and licenses	$ 12,704	$ 12,478	$ 8,125
Amortization of purchased intangibles	38,515	41,114	25,601
Total amortization expense	$ 51,219	$ 53,592	$ 33,726

Intangible assets arise from acquisitions and principally consist of goodwill, trademarks, customer relationships, in-process research and development, and acquired software and technology. Intangible assets, other than goodwill and in-process research and development, are amortized on a straight-line basis over their estimated useful lives.

Amortization expense for the years following December 31, 2023 are estimated as follows:

2024	$ 46,582
2025	43,494
2026	35,125
2027	27,972
2028	27,276
Thereafter	68,338
	$ 248,787

Note 7: Investments

Investments consist of the following:

	December 31,	
	2023	2022
Cost method investments	$ 21,044	$ 22,174
Equity method investments	2,436	96
Total investments	$ 23,480	$ 22,270

Cost Method Investments

The Company applies the cost method of accounting for its investment in which it does not have the ability to exercise significant influence over operating and financial policies. Under the cost method, the Company records the investment based on original cost less impairments, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same investee. The Company's share of income or loss of such companies is not included in the Company's consolidated statements of operations.

Through its *iTwin Ventures* initiative, the Company invests in technology development companies, generally in the form of equity interests or convertible notes. In March 2023, the Company acquired an equity interest in Worldsensing, a leading global connectivity hardware platform company for infrastructure monitoring, via contribution of its sensemetrics' Thread connectivity device business (the "Thread business") and cash. The non-cash contribution of the Thread business resulted in an insignificant gain, which was recorded in *Other (expense) income, net* in the consolidated statements of operations for the year ended December 31, 2023 (see Note 20). In July 2022, the Company acquired an equity interest in Teralytics Holdings AG ("Teralytics"), a global platform company for human mobility analysis, via contribution of its Streetlytics mobility data business ("Streetlytics") and cash. The non-cash contribution of Streetlytics resulted in an insignificant gain, which was recorded in *Other (expense) income, net* in the consolidated statements of operations for the year ended December 31, 2022 (see Note 20).

The Company tests its investments for impairment whenever circumstances indicate that the carrying value of the investment may not be recoverable. During the year ended December 31, 2023, the Company recognized impairment charges of $14,588 to write-down certain cost method investments to their fair value primarily as a result of the investees' decline in operating performance and the overall decline in the venture investment valuation environment. The impairment charges included $11,130 to write-off the Company's investment in Teralytics. The impairment charges were recorded in *Other (expense) income, net* in the consolidated statements of operations for the year ended December 31, 2023 (see Note 20). No impairment of investments occurred for the years ended December 31, 2022 or 2021.

During the year ended December 31, 2023, the Company recognized gains on investments of $2,360, which was recorded in *Other (expense) income, net* in the consolidated statements of operations (see Note 20).

During the year ended December 31, 2023, the Company invested a total of $12,841, including $8,928 of cash and non-cash for its investment in Worldsensing. During the year ended December 31, 2022, the Company invested a total of $15,107, including $11,130 of cash and non-cash for its investment in Teralytics. As of December 31, 2023, the Company's investment balance in Worldsensing was $8,928. As of December 31, 2023 and 2022, the Company's investment balance in Teralytics was zero and $11,130, respectively.

Equity Method Investments

The Company applies the equity method of accounting for its investment in which it does have the ability to exercise significant influence over operating and financial policies. Under the equity method, the Company recognizes its initial investment at cost and updates the carrying value of its investment by its proportional share of income or losses from the investment. In addition, the Company decreases the carrying value by any dividends received from the investee. The Company does not otherwise adjust the carrying value to reflect changes to the fair market value of the investment. The Company's equity method investments in joint ventures are considered related parties.

For the years ended December 31, 2023 and 2022, the Company invested $2,261 and $2,343, respectively. For the years ended December 31, 2023 and 2022, transactions between the Company and its joint ventures were not material to the Company's consolidated financial statements.

Note 8: Leases

The Company's operating leases consist of office facilities, office equipment, and automobiles. As of December 31, 2023, the Company's leases have remaining terms of less than one year to ten years, some of which include one or more options to renew, with renewal terms from one year to five years and some of which include options to terminate the leases from less than one year to five years.

The Company determines if an arrangement is a lease at inception. Operating leases are included in *Operating lease right-of-use assets, Operating lease liabilities*, and *Long-term operating lease liabilities* in the consolidated balance sheets. Operating lease right-of-use assets represent the Company's right to use an underlying asset for the lease term and operating lease liabilities represent the Company's obligation to make lease payments arising from the lease. Operating lease right-of-use assets and operating lease liabilities are recognized at the commencement date based on the present value of lease payments over the lease term. The Company uses its incremental borrowing rate, if the Company's leases do not provide an implicit rate, based on the information available at the commencement date in determining the present value of lease payments. The incremental borrowing rate is determined based on the Company's estimated credit rating, the term of the lease, economic environment where the asset resides, and full collateralization. The operating lease right-of-use assets also include any lease payments made and are reduced by any lease incentives. Options to extend or terminate the lease are considered in determining the lease term when it is reasonably certain that the option will be exercised. Lease expense for lease payments is recognized on a straight-line basis over the lease term.

For contracts with lease and non-lease components, the Company has elected not to allocate the contract consideration, and account for the lease and non-lease components as a single lease component. Payments under the Company's lease arrangements are primarily fixed, however, certain lease agreements contain variable payments, which are expensed as incurred and not included in the operating lease assets and liabilities. Variable lease cost may include common area maintenance, property taxes, utilities, and fluctuations in rent due to a change in an index or rate. The Company has elected not to recognize a right-of-use asset or lease liability for short-term leases (leases with a term of twelve months or less). Short-term leases are recognized in the consolidated statements of operations on a straight-line basis over the lease term.

The components of operating lease cost reflected in the consolidated statements of operations were as follows:

	Year Ended December 31,		
	2023	2022	2021
Operating lease cost [1]	$ 20,008	$ 20,772	$ 19,425
Variable lease cost	4,594	4,658	4,151
Short-term lease cost	—	16	21
Total operating lease cost	$ 24,602	$ 25,446	$ 23,597

(1) Operating lease cost includes rent cost related to operating leases for office facilities of $19,199, $20,027, and $18,636 for the years ended December 31, 2023, 2022, and 2021, respectively.

Supplemental operating cash flow and other information related to leases was as follows:

	Year Ended December 31,		
	2023	2022	2021
Cash paid for operating leases included in operating cash flows	$ 17,899	$ 19,587	$ 19,636
Right-of-use assets obtained in exchange for new operating lease liabilities [1]	$ 17,015	$ 10,722	$ 12,842

(1) Right-of-use assets obtained in exchange for new operating lease liabilities does not include the impact from acquisitions of $397, $1,237, and $12,095 for the years ended December 31, 2023, 2022, and 2021, respectively.

The weighted average remaining lease term for operating leases was 4.6 years and 3.9 years as of December 31, 2023 and 2022, respectively. The weighted average discount rate was 4.8% and 3.4% as of December 31, 2023 and 2022, respectively.

Maturities of operating lease liabilities are as follows:

	December 31, 2023
2024	$ 13,416
2025	10,499
2026	8,122
2027	5,635
2028	3,856
Thereafter	6,744
Total future lease payments	48,272
Less: Imputed interest	(6,001)
Total operating lease liabilities	$ 42,271

As of December 31, 2023, the Company had additional minimum operating lease payments of $804 for executed leases that have not yet commenced, primarily for office locations.

The Company evaluates the recoverability of right-of-use assets whenever events or changes in circumstances indicate that the carrying value of these assets may not be recoverable. If circumstances require an 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 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. During the year ended December 31, 2023, the Company recognized impairment charges of $2,239 to write-down certain right-of-use assets to their fair value primarily as a result of the decision to vacate certain leased facilities. The impairment charges were recorded in *General and administrative* in the consolidated statements of operations. No impairment of right-of-use assets occurred for the years ended December 31, 2022 or 2021.

Note 9: Accruals and Other Current Liabilities

Accruals and other current liabilities consist of the following:

	December 31,	
	2023	**2022**
CSS deposits	$ 284,276	$ 201,082
Accrued compensation	43,316	40,296
Accrued benefits	39,983	35,493
Due to customers	16,924	13,720
Accrued realignment costs	12,459	—
Accrued indirect taxes	10,722	9,766
Accrued professional fees	5,970	4,984
Employee stock purchase plan contributions	5,790	5,230
Accrued acquisition stay bonus	4,336	9,135
Non-contingent consideration from acquisitions	3,576	2,434
Accrued cloud provisioning costs	3,572	4,224
Deferred compensation plan liabilities	2,355	2,067
Contingent consideration from acquisitions	—	1,196
Other accrued and current liabilities	24,069	32,421
Total accruals and other current liabilities	$ 457,348	$ 362,048

Note 10: Long-Term Debt

Long-term debt consists of the following:

	December 31, 2023	December 31, 2022
Credit facility:		
Revolving loan facility due November 2025	$ 92,028	$ 345,597
Term loan due November 2025	190,000	195,000
2026 Notes	687,830	687,830
2027 Notes	575,000	575,000
Unamortized debt issuance costs	(16,455)	(22,731)
Total debt	1,528,403	1,780,696
Less: Current portion of long-term debt	(10,000)	(5,000)
Long-term debt	$ 1,518,403	$ 1,775,696

Credit Facility

The Company has a Credit Facility which provides for an $850,000 senior secured revolving loan facility that matures on November 15, 2025. The Credit Facility also provides up to $50,000 of letters of credit and other borrowings subject to availability, including an $85,000 U.S. dollar swingline sub-facility and a $200,000 incremental "accordion" sub-facility. Debt issuance costs are amortized to interest expense through the maturity date.

When the Company amended the Credit Facility on January 25, 2021, to increase the senior secured revolving loan facility and extend the maturity date, the Company performed an extinguishment versus modification assessment on a lender-by-lender basis resulting in the write-off of unamortized debt issuance costs of $353 and the capitalization of fees paid to lenders and third parties of $3,577.

On December 22, 2021, the Company amended the Credit Facility to provide for a $200,000 senior secured term loan with a maturity of November 15, 2025 (the "Term Loan"). The Term Loan requires principal repayment at the end of each calendar quarter. Beginning with March 31, 2022 and ending with December 31, 2023, the Company was required to repay $1,250 per quarter. Beginning with March 31, 2024 and ending with the last such date prior to the maturity date, the Company is required to repay $2,500 per quarter. The Company incurred $540 of debt issuance costs related to the Term Loan. The Company used borrowings under the Term Loan to pay down borrowings under the swingline sub-facility and revolving loan facility under the Credit Facility.

The Company had $150 of letters of credit and surety bonds outstanding as of December 31, 2023 and 2022 under the Credit Facility. As of December 31, 2023 and 2022, the Company had $757,822 and $504,253, respectively, available under the Credit Facility.

Effective June 23, 2023, the Company amended the Credit Facility to replace the referenced interest rate based on LIBOR with SOFR.

Revolving loan borrowings under the Credit Facility bear interest at variable rates that reset every one, three, or six months depending on the period selected by the Company. Under the Term SOFR elections, revolving loan borrowings bear an interest rate of the applicable term SOFR rate plus 10 bps, plus a spread ranging from 125 bps to 225 bps as determined by the Company's net leverage ratio. Under the non-Term SOFR elections, revolving loan borrowings bear a base interest rate of the highest of (i) the prime rate, (ii) the overnight bank funding effective rate plus 50 bps, or (iii) the applicable term SOFR rate plus 10 bps, plus a spread ranging from 25 bps to 125 bps as determined by the Company's net leverage ratio.

Swingline borrowings under the Credit Facility bear interest that resets daily. Interest on U.S. dollar swingline borrowings bear an interest rate of the daily simple SOFR rate plus 3.5 bps, plus a spread ranging from 125 bps to 225 bps as determined by the Company's net leverage ratio. The Company cannot make optional currency swingline borrowings without the consent of the applicable swingline lender.

Term loan borrowings under the Credit Facility bear interest at variable rates that reset every one, three, or six months depending on the period selected by the Company. Under the Term SOFR elections, term loan borrowings bear an interest rate of the applicable term SOFR rate plus 10 bps, plus a spread ranging from 100 bps to 200 bps as determined by the Company's net leverage ratio. Under the non-Term SOFR elections, term loan borrowings bear a base interest rate of the highest of (i) the prime rate, (ii) the overnight bank funding effective rate plus 50 bps, or (iii) the applicable term SOFR rate plus 10 bps, plus a spread ranging from 0 bps to 100 bps as determined by the Company's net leverage ratio.

In addition, a commitment fee for the unused Credit Facility ranges from 20 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 material 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 agreement governing the Credit Facility contains customary positive and negative covenants, including restrictions on our ability to pay dividends and make other restricted payments, as well as events of default, including, without limitation, payment defaults, breaches of representations and warranties, covenants defaults, cross-defaults to certain other indebtedness in excess of $50,000, certain events of bankruptcy and insolvency, judgment defaults in excess of $10,000, failure of any security document supporting the Credit Facility to be in full force and effect, and a change of control. The Credit Facility also contains customary financial covenants, including maximum net leverage ratio. As of December 31, 2023 and 2022, the Company was in compliance with all covenants in its Credit Facility.

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

Convertible Senior Notes

2026 Notes

On January 26, 2021, the Company completed a private offering of $690,000 of 0.125% convertible senior notes due 2026. The 2026 Notes were issued pursuant to an indenture, dated as of January 26, 2021, between the Company and Wilmington Trust, National Association, as trustee (the "2026 Trustee") (the "2026 Indenture"). Interest will accrue from January 26, 2021 and will be payable semi-annually in arrears in cash on January 15 and July 15 of each year, with the first payment due on July 15, 2021. The 2026 Notes will mature on January 15, 2026, unless earlier converted, redeemed or repurchased. The Company incurred $18,055 of expenses in connection with the 2026 Notes offering consisting of transaction costs. The Company used $25,530 of the net proceeds from the sale of the 2026 Notes to pay the premiums of the capped call options described further below, and approximately $250,500 to repay outstanding indebtedness under the Credit Facility and to pay related fees and expenses. The Company used the remainder of the net proceeds from the sale of the 2026 Notes for general corporate purposes and towards funding certain acquisitions, including Seequent (see Note 4).

During the fourth quarter of 2022, the Company paid $1,998 in cash to repurchase $2,170 aggregate principal amount of its outstanding 2026 Notes through open market transactions resulting in an insignificant gain, which was recorded in *Other (expense) income, net* in the consolidated statements of operations for the year ended December 31, 2022. The 2026 Notes were repurchased under the Company's Repurchase Program authorization (see Note 13).

Prior to October 15, 2025, the 2026 Notes will be convertible at the option of the holder only under the following circumstances: (1) during any calendar quarter (and only during such quarter) commencing after the calendar quarter ending on June 30, 2021, if the last reported sale price per share of the Company's Class B common stock exceeds 130% of the conversion price for each of at least 20 trading days, whether or not consecutive, during the 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter; (2) during the five consecutive business days immediately after any ten consecutive trading day period (such ten consecutive trading day period, the "measurement period") in which the trading price per $1 principal amount of 2026 Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price per share of the Company's Class B common stock on such trading day and the conversion rate on such trading day; (3) upon the occurrence of certain corporate events or distributions on the Company's Class B common stock, as described in the 2026 Indenture; and (4) if the Company calls the 2026 Notes for redemption. On or after October 15, 2025 until 5:00 p.m., New York City time, on the second scheduled trading day immediately before the maturity date, the 2026 Notes will be convertible at the option of the holder at any time.

The Company will settle conversions by paying or delivering, as applicable, cash, shares of the Company's Class B common stock, or a combination of cash and shares of the Company's Class B common stock, at the Company's election, based on the applicable conversion rate. The initial conversion rate is 15.5925 shares of the Company's Class B common stock per $1 principal amount of 2026 Notes, which represents an initial conversion price of approximately $64.13 per share, and is subject to adjustment as described in the 2026 Indenture. If a "make-whole fundamental change" (as defined in the 2026 Indenture) occurs, then the Company will, in certain circumstances, increase the conversion rate for a specified period of time.

The Company will have the option to redeem the 2026 Notes in whole or in part at any time on or after January 20, 2024 and on or before the 40th scheduled trading day immediately before the maturity date if the last reported sale price per share of the Company's Class B common stock exceeds 130% of the conversion price on (1) each of at least 20 trading days, whether or not consecutive, during any 30 consecutive trading days ending on, and including, the trading day immediately before the date the Company sends the related redemption notice; and (2) the trading day immediately before the date the Company sends such notice. The redemption price will be equal to the principal amount of the 2026 Notes to be redeemed, plus accrued and unpaid interest, if any, to, but excluding, the redemption date.

Upon a fundamental change (as defined in the 2026 Indenture), holders may, subject to certain exceptions, require the Company to purchase their 2026 Notes in whole or in part for cash at a price equal to the principal amount of the 2026 Notes to be purchased, plus accrued and unpaid interest, if any, to, but excluding, the fundamental change repurchase date (as defined in the 2026 Indenture). In addition, upon a Make-Whole Fundamental Change (as defined in the 2026 Indenture), the Company will, under certain circumstances, increase the applicable conversion rate for a holder that elects to convert its 2026 Notes in connection with such Make-Whole Fundamental Change. No adjustment to the conversion rate will be made if the stock price in such Make-Whole Fundamental Change is either less than $44.23 per share or greater than $210.00 per share. The Company will not increase the conversion rate to an amount that exceeds 22.6090 shares per $1 principal amount of 2026 Notes, subject to adjustment. The 2026 Indenture also contains a customary merger covenant.

Under the 2026 Indenture, the 2026 Notes may be accelerated upon the occurrence of certain customary events of default. If certain bankruptcy and insolvency-related events of default with respect to the Company occur, the principal of, and accrued and unpaid interest on, all of the then outstanding 2026 Notes shall automatically become due and payable. If any other event of default occurs and is continuing, the 2026 Trustee by notice to the Company, or the holders of the 2026 Notes of at least 25% in principal amount of the outstanding 2026 Notes by notice to the Company and the 2026 Trustee, may declare the principal of, and accrued and unpaid interest on, all of the then outstanding 2026 Notes to be due and payable. Notwithstanding the foregoing, the 2026 Indenture provides that, to the extent the Company elects, the sole remedy for an event of default relating to certain failures by the Company to comply with reporting covenant in the 2026 Indenture consists exclusively of the right to receive additional interest on the 2026 Notes.

The 2026 Notes were accounted for as debt, with no bifurcation of the embedded conversion feature. Transaction costs were recorded as a direct deduction from the related debt liability in the consolidated balance sheets and are amortized to interest expense over the term of the 2026 Notes. The effective interest rate for the 2026 Notes is 0.658%.

As of December 31, 2023, none of the conditions of the 2026 Notes to early convert has been met.

The 2026 Notes are the Company's senior, unsecured obligations that rank senior in right of payment to the Company's future indebtedness that is expressly subordinated to the 2026 Notes, rank equally in right of payment with the Company's existing and future senior unsecured indebtedness that is not so subordinated (including the Company's 2027 Notes, refer to the section titled "2027 Notes" below), effectively subordinated to the Company's existing and future secured indebtedness (including obligations under the Company's senior secured credit facilities), to the extent of the value of the collateral securing such indebtedness, and structurally subordinated to all existing and future indebtedness and other liabilities (including trade payables and preferred equity (to the extent the Company is not a holder thereof)) of the Company's subsidiaries. The 2026 Notes contain both affirmative and negative covenants. As of December 31, 2023 and 2022, the Company was in compliance with all covenants in the 2026 Notes.

Capped Call Options — In connection with the pricing of the 2026 Notes, the Company entered into capped call options with certain of the initial purchasers or their respective affiliates and certain other financial institutions. The Company incurred $150 of expenses in connection with the capped call options. The capped call options are expected to reduce potential dilution to the Company's Class B common stock upon any conversion of 2026 Notes and/or offset any cash payments the Company is required to make in excess of the principal amount of converted notes, as the case may be, with such reduction and/or offset subject to a cap. The cap price of the capped call options is initially $72.9795 per share, which represents a premium of 65% above the last reported sale price per share of the Company's Class B common stock on the Nasdaq Global Select Market on January 21, 2021 and is subject to customary adjustments under the terms of the capped call options.

The capped call options were entered into in conjunction with the issuance of the 2026 Notes, however, they are legally separate agreements that can be separately exercised, with the receipt of shares under the capped call options having no effect on the 2026 Notes, and are legally detachable. As the capped call options are both legally detachable and separately exercisable from the 2026 Notes, the Company accounts for the capped call options separately from the 2026 Notes. The capped call options are indexed to the Company's own common stock and classified in stockholders' equity. As such, the premiums paid for the capped call options were included as a net reduction to *Additional paid-in capital* in the consolidated balance sheets as of December 31, 2021.

2027 Notes

On June 28, 2021, the Company completed a private offering of $575,000 of 0.375% convertible senior notes due 2027. The 2027 Notes were issued pursuant to an indenture, dated as of June 28, 2021, between the Company and Wilmington Trust, National Association, as trustee (the "2027 Trustee") (the "2027 Indenture"). Interest will accrue from June 28, 2021 and will be payable semi-annually in arrears in cash on January 1 and July 1 of each year, with the first payment due on January 1, 2022. The 2027 Notes will mature on July 1, 2027, unless earlier converted, redeemed or repurchased. The Company incurred $15,065 of expenses in connection with the 2027 Notes offering consisting of transaction costs. The Company used $25,875 of the net proceeds from the sale of the 2027 Notes to pay the premiums of the capped call options described further below, and $536,062 to repay outstanding indebtedness under the Credit Facility and to pay related fees and expenses.

Prior to April 1, 2027, the 2027 Notes will be convertible at the option of the holder only under the following circumstances: (1) during any calendar quarter (and only during such quarter) commencing after the calendar quarter ending on September 30, 2021, if the last reported sale price per share of the Company's Class B common stock exceeds 130% of the conversion price for each of at least 20 trading days, whether or not consecutive, during the 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter; (2) during the five consecutive business days immediately after any ten consecutive trading day period (such ten consecutive trading day period, the "measurement period") in which the trading price per $1 principal amount of 2027 Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price per share of the Company's Class B common stock on such trading day and the conversion rate on such trading day; (3) upon the occurrence of certain corporate events or distributions on the Company's Class B common stock, as described in the 2027 Indenture; and (4) if the Company calls the 2027 Notes for redemption. On or after April 1, 2027 until 5:00 p.m., New York City time, on the second scheduled trading day immediately before the maturity date, the 2027 Notes will be convertible at the option of the holder at any time.

The Company will settle conversions by paying or delivering, as applicable, cash, shares of the Company's Class B common stock, or a combination of cash and shares of the Company's Class B common stock, at the Company's election, based on the applicable conversion rate. The initial conversion rate is 12.0153 shares of the Company's Class B common stock per $1 principal amount of 2027 Notes, which represents an initial conversion price of approximately $83.23 per share, and is subject to adjustment as described in the 2027 Indenture. If a "make-whole fundamental change" (as defined in the 2027 Indenture) occurs, then the Company will, in certain circumstances, increase the conversion rate for a specified period of time.

The Company will have the option to redeem the 2027 Notes in whole or in part at any time on or after July 5, 2024 and on or before the 40th scheduled trading day immediately before the maturity date if the last reported sale price per share of the Company's Class B common stock exceeds 130% of the conversion price on (1) each of at least 20 trading days, whether or not consecutive, during any 30 consecutive trading days ending on, and including, the trading day immediately before the date the Company sends the related redemption notice; and (2) the trading day immediately before the date the Company sends such notice. The redemption price will be equal to the principal amount of the 2027 Notes to be redeemed, plus accrued and unpaid interest, if any, to, but excluding, the redemption date.

Upon a fundamental change (as defined in the 2027 Indenture), holders may, subject to certain exceptions, require the Company to purchase their 2027 Notes in whole or in part for cash at a price equal to the principal amount of the 2027 Notes to be purchased, plus accrued and unpaid interest, if any, to, but excluding, the fundamental change repurchase date (as defined in the 2027 Indenture). In addition, upon a Make-Whole Fundamental Change (as defined in the 2027 Indenture), the Company will, under certain circumstances, increase the applicable conversion rate for a holder that elects to convert its 2027 Notes in connection with such Make-Whole Fundamental Change. No adjustment to the conversion rate will be made if the stock price in such Make-Whole Fundamental Change is either less than $61.65 per share or greater than $325.00 per share. The Company will not increase the conversion rate to an amount that exceeds 16.2206 shares per $1 principal amount of 2027 Notes, subject to adjustment. The 2027 Indenture also contains a customary merger covenant.

Under the 2027 Indenture, the 2027 Notes may be accelerated upon the occurrence of certain customary events of default. If certain bankruptcy and insolvency-related events of default with respect to the Company occur, the principal of, and accrued and unpaid interest on, all of the then outstanding 2027 Notes shall automatically become due and payable. If any other event of default occurs and is continuing, the 2027 Trustee by notice to the Company, or the holders of the 2027 Notes of at least 25% in principal amount of the outstanding 2027 Notes by notice to the Company and the 2027 Trustee, may declare the principal of, and accrued and unpaid interest on, all of the then outstanding 2027 Notes to be due and payable. Notwithstanding the foregoing, the 2027 Indenture provides that, to the extent the Company elects, the sole remedy for an event of default relating to certain failures by the Company to comply with reporting covenant in the 2027 Indenture consists exclusively of the right to receive additional interest on the 2027 Notes.

The 2027 Notes were accounted for as debt, with no bifurcation of the embedded conversion feature. Transaction costs were recorded as a direct deduction from the related debt liability in the consolidated balance sheets and are amortized to interest expense over the term of the 2027 Notes. The effective interest rate for the 2027 Notes is 0.864%.

As of December 31, 2023, none of the conditions of the 2027 Notes to early convert has been met.

The 2027 Notes are the Company's senior, unsecured obligations that rank senior in right of payment to the Company's future indebtedness that is expressly subordinated to the 2027 Notes, rank equally in right of payment with the Company's existing and future senior unsecured indebtedness that is not so subordinated (including the Company's 2026 Notes), effectively subordinated to the Company's existing and future secured indebtedness (including obligations under the Company's senior secured credit facilities), to the extent of the value of the collateral securing such indebtedness, and structurally subordinated to all existing and future indebtedness and other liabilities (including trade payables and preferred equity (to the extent the Company is not a holder thereof)) of the Company's subsidiaries. The 2027 Notes contain both affirmative and negative covenants. As of December 31, 2023 and 2022, the Company was in compliance with all covenants in the 2027 Notes.

Capped Call Options — In connection with the pricing of the 2027 Notes, the Company entered into capped call options with certain of the initial purchasers or their respective affiliates and certain other financial institutions. The Company incurred $50 of expenses in connection with the capped call options. The capped call options are expected to reduce potential dilution to the Company's Class B common stock upon any conversion of 2027 Notes and/or offset any cash payments the Company is required to make in excess of the principal amount of converted notes, as the case may be, with such reduction and/or offset subject to a cap. The cap price of the capped call options is initially $95.5575 per share, which represents a premium of 55% above the last reported sale price per share of the Company's Class B common stock on the Nasdaq Global Select Market on June 23, 2021 and is subject to customary adjustments under the terms of the capped call options.

The capped call options were entered into in conjunction with the issuance of the 2027 Notes, however, they are legally separate agreements that can be separately exercised, with the receipt of shares under the capped call options having no effect on the 2027 Notes, and are legally detachable. As the capped call options are both legally detachable and separately exercisable from the 2027 Notes, the Company accounts for the capped call options separately from the 2027 Notes. The capped call options are indexed to the Company's own common stock and classified in stockholders' equity. As such, the premiums paid for the capped call options were included as a net reduction to *Additional paid-in capital* in the consolidated balance sheets as of December 31, 2021.

Derivative Arrangements

The Company records derivative instruments as an asset or liability measured at fair value and depending on the nature of the hedge, the corresponding changes in the fair value of these instruments are recorded in the consolidated statements of operations or comprehensive income. If the derivative is determined to be a hedge, changes in the fair value of the derivative are offset against the change in the fair value of the hedged assets or liabilities through the consolidated statements of operations or recognized in *Other comprehensive income (loss), net of taxes* until the hedged item is recognized in the consolidated statements of operations. The ineffective portion of a derivative's change in fair value is recognized in earnings. Also, changes in the entire fair value of a derivative that is not designated as a hedge are recognized in earnings.

Effective on April 2, 2020, the Company entered into an interest rate swap with a notional amount of $200,000 and a ten-year term to reduce the interest rate risk associated with the Credit Facility. Effective on June 26, 2023, the Company amended the interest rate swap agreement to replace the LIBOR rate to SOFR under the ISDA Fallback Protocols included within the agreement. Subsequent to the amendment, the Company will continue to pay a fixed interest rate of 72.9 bps, and will receive a floating interest rate equal to daily SOFR plus an ARRC spread adjustment of 11.448 bps. The interest rate swap is not designated as a hedging instrument for accounting purposes. The Company accounts for the interest rate swap as either an asset or a liability on the consolidated balance sheets and carries the derivative at fair value (see Note 17). Gain (loss) from the change in fair value and payments related to the interest rate swap are recognized in *Other income (expense), net* in the consolidated statements of operations (see Note 20). The bank counterparty to the derivative potentially exposes the Company to credit-related losses in the event of nonperformance. To mitigate that risk, the Company only contracts with counterparties who meet the Company's minimum requirements under its counterparty risk assessment process. The Company monitors counterparty risk on at least a quarterly basis and adjusts its exposure as necessary. The Company does not enter into derivative instrument transactions for trading or speculative purposes.

Interest Expense, Net

Interest expense, net consists of the following:

	Year Ended December 31,		
	2023	2022	2021
Contractual interest expense	$ (34,973)	$ (26,275)	$ (5,464)
Amortization and write-off of deferred debt issuance costs	(7,291)	(7,291)	(5,955)
Other interest income (expense)	933	(1,490)	(108)
Interest income	1,538	421	306
Interest expense, net	$ (39,793)	$ (34,635)	$ (11,221)

The weighted average interest rate on borrowings under the Credit Facility were 7.13%, 3.84%, and 2.03% for the years ended December 31, 2023, 2022, and 2021, respectively.

Scheduled maturities of long-term debt are as follows:

	December 31, 2023
2024	$ 10,000
2025	272,028
2026	687,830
2027	575,000
Total scheduled maturities of long-term debt	$ 1,544,858

Note 11: Executive Bonus Plan

Certain of the Company's key employees, including its named executive officers, participate in the Company's Bonus Plan. Pursuant to the Bonus Plan, participants are eligible to receive incentive bonuses that are determined based on the Company's adjusted Management Report Operating Income ("MROI"), as defined in the plan agreement and before deduction for such plan payments. For purposes of the Bonus Plan, the bonus pool thereunder may be funded with up to an aggregate of 20% of the Company's adjusted MROI, subject to approval by the Sustainability Committee of the Company's Board of Directors, with payments made to plan participants based on each such participant's allocated interest in the bonus pool. 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.

On November 2, 2022, the Sustainability Committee of the Company's Board of Directors approved an amendment to the Bonus Plan such that with respect to fiscal year 2022, one-third of the Company's Chief Investment Officer's allocated percentage interest will be multiplied by a coefficient derived from the performance of the Company's *BSY Investments* group (the Company's executive team focused on portfolio development, mergers and acquisitions, venture capital investing, digital integrator business activities, and various incubating and accelerating business activities). This coefficient is generally determined by calculating the annual increase (or decrease) in value of the *BSY Investments* portfolio, taking into account applicable fees and an annual hurdle rate, in all cases, as approved by the Company's non-employee directors. The Company's Chief Investment Officer retired effective March 31, 2023 and received one Bonus Plan payout during 2023 in respect to the 2022 fiscal year under the amended allocated percentage interest.

A participant may defer any portion, or all, of such participant's incentive bonus payable pursuant to the Bonus Plan into the DCP (see Note 12). The Bonus Plan provides, in part, that a participant may elect to receive any portion, or all, of such participant's non-deferred incentive bonus in the form of shares of fully vested Class B common stock issued under the Bentley Systems, Incorporated 2020 Omnibus Incentive Plan (the "2020 Incentive Award Plan"), subject to the limitation described below. The Company records the election of non-deferred incentive bonus in the form of shares of fully vested Class B common stock as stock-based compensation expense in the consolidated statements of operations (see Note 15). Such election must be made prior to the start of the applicable calendar quarter for which the incentive bonus is to be paid, and the number of shares of Class B common stock payable in respect of such elected amount is calculated using a volume-weighted average price of the Company's Class B common stock for the period commencing on the tenth trading day prior to the end of the applicable calendar quarter and ending on the tenth trading day following the end of the applicable calendar quarter. Notwithstanding participants' elections to receive shares of fully vested Class B common stock in respect of their non-deferred incentive bonus payments, if, in any calendar quarter, the aggregate U.S. dollar value of shares of fully vested Class B common stock payable in respect of the non-deferred incentive bonuses exceeds $7,500, the portion of each participant's non-deferred incentive bonus payable in shares of fully vested Class B common stock will be reduced pro rata such that the $7,500 limit is not exceeded, and, for each affected participant, the amount of such reduction will be payable in cash.

For the years ended December 31, 2023, 2022, and 2021, the incentive compensation, including cash payments, election to receive shares of fully vested Class B common stock, and deferred compensation to plan participants, recognized under this plan (net of all applicable holdbacks) was $21,463, $33,242, and $33,454, respectively.

Note 12: Retirement Plans

Deferred Compensation Plan

Under the Company's DCP, certain officers and key employees may defer all or any part of their incentive compensation, and the Company may make discretionary awards on behalf of such participants. Elective participant deferrals and discretionary Company awards are received in the form of phantom shares of the Company's Class B common stock, which are valued for accounting purposes in the same manner as actual shares of Class B common stock, and are recorded as stock-based compensation expense in the consolidated statements of operations (see Note 15). The DCP has 50,000,000 shares of Class B common stock reserved for issuance. As of December 31, 2023, shares of Class B common stock available for future issuance under the DCP were 4,421,623.

In August 2021, the Company's Board of Directors approved an amendment to the DCP, which offered to certain active executives in the DCP a one-time, short-term election to reallocate a limited portion of their DCP holdings from phantom shares of the Company's Class B common stock into other phantom investment funds. The offer to reallocate was subject to a proration mechanism which adjusted the aggregate elections to a maximum of 1,500,000 phantom shares of the Company's Class B common stock. This resulted in a reduction of 1,500,000 shares in both the basic and diluted count of Company shares.

While DCP participants' investments in phantom shares remain equity classified, as they will be settled in shares of Class B common stock upon eventual distribution, the amendment and elections resulted in a change to liability classification for the reallocated phantom investments, as they will be settled in cash upon eventual distribution. As a result, during the year ended December 31, 2021, the Company reclassified cumulative compensation cost of $4,739 from *Additional paid-in capital* to *Accruals and other current liabilities* or *Deferred compensation plan liabilities* in the consolidated balance sheets and recognized a compensation charge of $90,721 to *Deferred compensation plan* expenses in the consolidated statements of operations to record the reallocated deferred compensation plan liabilities at their fair value of $95,460.

DCP participants' holdings in phantom investment funds are classified as liabilities in either *Accruals and other current liabilities* or *Deferred compensation plan liabilities* in the consolidated balance sheets as they will be settled in cash upon eventual distribution. The deferred compensation plan liabilities are marked to market at the end of each reporting period, with changes in the liabilities recorded as an expense (income) to *Deferred compensation plan* in the consolidated statements of operations.

Deferred compensation plan expense (income) was $13,580, $(15,782), and $95,046 for the years ended December 31, 2023, 2022, and 2021, respectively.

For the years ended December 31, 2023, 2022, and 2021, DCP elective participant deferrals were $1,765, $6,580, and $2,619, respectively. No discretionary contributions were made to the DCP during the years ended December 31, 2023, 2022, and 2021. As of December 31, 2023 and 2022, phantom shares of the Company's Class B common stock issuable by the DCP were 17,364,980 and 21,587,831, respectively.

The total liabilities related to the DCP is included in the consolidated balance sheets as follows:

	December 31,	
	2023	**2022**
Accruals and other current liabilities	$ 2,355	$ 2,067
Deferred compensation plan liabilities	88,181	77,014
Total DCP liabilities	$ 90,536	$ 79,081

Other Plans

The Company maintains a qualified 401(k) profit-sharing plan (the “401(k) Plan”) for the benefit of substantially all U.S.-based full-time colleagues. The Company may make discretionary profit-sharing contributions to the 401(k) Plan. Effective January 1, 2022, the Company matches 50%, up to a maximum of 6% of qualified cash compensation for each eligible participating colleague. For the year ended December 31, 2021, the Company matched 50%, up to a maximum of 5% of qualified cash compensation for each eligible participating colleague. The Company’s matching contributions to the 401(k) Plan were $5,260, $4,933, and $4,114, for the years ended December 31, 2023, 2022, and 2021, respectively.

The Company also maintains various retirement benefit plans (primarily defined contribution plans) for colleagues of its international subsidiaries. The Company’s contributions to these plans were $13,208, $11,803, and $10,729, for the years ended December 31, 2023, 2022, and 2021, respectively.

Note 13: Preferred and Common Stock

Preferred Stock Authorized and Selected Terms

The Company’s amended and restated Certificate of Incorporation authorizes the Company to issue up to 100,000,000 shares of preferred stock. Preferred stock has rights, preferences, and privileges which may be designated from time to time by the Company’s Board of Directors.

Common Stock Authorized and Selected Terms

The Company’s amended and restated Certificate of Incorporation authorizes the Company to issue up to 100,000,000 shares of Class A common stock and up to 1,800,000,000 shares of Class B common stock.

The rights of the holders of Class A common stock and Class B common stock are identical, except with respect to voting and conversion rights. Each share of Class B common stock is entitled to one vote per share, while each share of Class A common stock is entitled to 29 votes per share and is convertible at any time into one share of Class B common stock. Class A common stock will automatically convert into Class B common stock upon certain transfers, and its votes per share will be reduced to 11 in the event none of the Bentleys (Barry J. Bentley, Gregory S. Bentley, Keith A. Bentley, Raymond B. Bentley, and Richard P. Bentley, collectively) serves as a Company director or executive officer. Class A common stock also will automatically convert into shares of Class B common stock upon the affirmative vote of at least 90% of the then outstanding shares of Class A common stock or such time that the Bentley family (the Bentleys, certain other family members and trusts and other entities controlled by or primarily for the benefit of the Bentleys and their families, collectively) directly or indirectly, own less than 20% of the issued and outstanding Class B common stock on a fully-diluted basis (assuming the conversion of all issued and outstanding Class A common stock).

For the year ended December 31, 2023, 64,130 shares of Class A common stock were converted to Class B common stock.

BSY Stock Repurchase Program

On May 11, 2022, the Company announced that its Board of Directors approved the Repurchase Program authorizing the Company to repurchase up to $200,000 of the Company's Class B common stock through June 30, 2024. On December 14, 2022, the Company's Board of Directors amended the Repurchase Program to allow the Company also to repurchase its outstanding convertible senior notes. This additional authorization did not increase the overall dollar limit of the Repurchase Program. The shares and notes proposed to be acquired in the Repurchase Program may be repurchased from time to time in open market transactions, through privately negotiated transactions, or by other means in accordance with federal securities laws. The Company intends to fund repurchases from available working capital and cash provided by operating activities. The timing, as well as the number and value of shares and/or notes repurchased under the Repurchase Program, will be determined by the Company at its discretion and will depend on a variety of factors, including management's assessment of the intrinsic value of the Company's shares, the market price of the Company's Class B common stock and outstanding notes, general market and economic conditions, available liquidity, compliance with the Company's debt and other agreements, and applicable legal requirements. The exact number of shares and/or notes to be repurchased by the Company is not guaranteed, and the Repurchase Program may be suspended, modified, or discontinued at any time without prior notice. The Company did not repurchase shares under the Repurchase Program for the year ended December 31, 2023. For the year ended December 31, 2022, the Company repurchased 896,126 shares for $28,250, and $2,170 aggregate principal amount of our outstanding 2026 Notes for $1,998 (see Note 10) under the Repurchase Program. As of December 31, 2023, $169,752 was available under the Company's Board of Directors authorization for future repurchases of Class B common stock and/or outstanding convertible senior notes under the Repurchase Program.

Common Stock Issuances, Sales, and Repurchases

On June 17, 2021, the Company issued 3,141,342 shares of the Company's Class B common stock pursuant to the acquisition of Seequent (see Note 4).

The Company has a Class B Common Stock Purchase Agreement with a strategic investor (the "Common Stock Purchase Agreement"), pursuant to which the investor acquired the maximum purchase amount of $250,000 of the Company's Class B common stock. 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 the right to participate in any sale process the Company may undertake. The Common Stock Purchase Agreement expires in 2030.

For the year ended December 31, 2023, the Company issued 2,621,959 shares of Class B common stock to colleagues who exercised their stock options, net of 238,627 shares withheld at exercise to pay for the cost of the stock options, as well as for $6,581 of applicable income tax withholdings. The Company received $11,715 in proceeds from the exercise of stock options.

For the year ended December 31, 2022, the Company issued 2,613,659 shares of Class B common stock to colleagues who exercised their stock options, net of 397,501 shares withheld at exercise to pay for the cost of the stock options, as well as for $9,188 of applicable income tax withholdings. The Company received $8,338 in proceeds from the exercise of stock options.

For the year ended December 31, 2021, the Company issued 4,587,053 shares of Class B common stock to colleagues who exercised their stock options, net of 1,066,498 shares withheld at exercise to pay for the cost of the stock options, as well as for $37,785 of applicable income tax withholdings. The Company received $5,605 in proceeds from the exercise of stock options.

For the year ended December 31, 2022, the Company issued 185,178 shares of Class B common stock related to the exercise of acquisition options (see Note 15), net of 714,822 shares withheld at exercise to pay for the cost of the options. The Company did not receive any proceeds from the exercise of these options.

For the years ended December 31, 2023, 2022, and 2021, the Company issued 247,867, 445,050, and 238,755 shares of Class B common stock, respectively, in connection with Bonus Plan incentive compensation, net of shares withheld. Of the total 383,181 shares awarded for the year ended December 31, 2023, 135,314 shares were sold back to the Company in the same period to pay for applicable income tax withholdings of $5,756. Of the total 569,166 shares awarded for the year ended December 31, 2022, 124,116 shares were sold back to the Company in the same period to pay for applicable income tax withholdings of $5,197. Of the total 407,473 shares awarded for the year ended December 31, 2021, 168,718 shares were sold back to the Company in the same period to pay for applicable income tax withholdings of $8,739.

For the years ended December 31, 2023, 2022, and 2021, the Company issued 3,410,006, 3,541,375, and 2,378,645 shares of Class B common stock, respectively, to DCP participants in connection with distributions from the plan. The distribution in shares for the year ended December 31, 2023 totaled 4,345,945 shares of which 935,939 shares were sold back to the Company in the same period to pay for applicable income tax withholdings of $38,456. The distribution in shares for the year ended December 31, 2022 totaled 4,041,707 shares of which 500,332 shares were sold back to the Company in the same period to pay for applicable income tax withholdings of $24,246. The distribution in shares for the year ended December 31, 2021 totaled 3,820,099 shares of which 1,441,454 shares were sold back to the Company in the same period to pay for applicable income tax withholdings of $69,007.

Dividends

The Company declared cash dividends during the periods presented as follows:

	Dividend Per Share	Amount
2023:		
Fourth quarter	$ 0.05	$ 14,764
Third quarter	0.05	14,768
Second quarter	0.05	14,702
First quarter	0.05	14,522
Total	$ 0.20	$ 58,756
2022:		
Fourth quarter	$ 0.03	$ 8,730
Third quarter	0.03	8,592
Second quarter	0.03	8,678
First quarter	0.03	8,353
Total	$ 0.12	$ 34,353
2021:		
Fourth quarter	$ 0.03	$ 8,461
Third quarter	0.03	8,485
Second quarter	0.03	8,372
First quarter	0.03	8,219
Total	$ 0.12	$ 33,537

Dividends Declared Subsequent to December 31, 2023

In February 2024, our Board of Directors approved cash dividends of $0.06 per share payable on March 28, 2024 to all stockholders of record of Class A and Class B common stock as of the close of business on March 20, 2024.

Global Employee Stock Purchase Plan

The Bentley Systems, Incorporated Global Employee Stock Purchase Plan (the "ESPP") provides eligible colleagues of the Company with an opportunity to contribute up to 15% of their eligible compensation toward the purchase of the Company's Class B common stock at a discounted price, up to a maximum of $25 per year and subject to any other plan limitations. The ESPP has 25,000,000 shares of Class B common stock reserved for issuance.

Unless otherwise determined by the Board of Directors, the ESPP has been implemented by means of consecutive offering periods, which will run from January 1st (or the first trading day thereafter) through June 30th (or the first trading day prior to such date), and from July 1st (or the first trading day thereafter) through December 31st (or the first trading day prior to such date). The purchase price per share at which shares of Class B common stock are sold in an offering period under the ESPP will be equal to the lesser of 85% of the fair market value of a share of Class B common stock (i) on the first trading day of the offering period, or (ii) on the purchase date (i.e., the last trading day of the offering period).

During the year ended December 31, 2023, colleagues who elected to participate in the ESPP purchased a total of 315,840 shares of Class B common stock, net of shares withheld, resulting in cash proceeds to the Company of $9,988. Of the total 333,324 shares purchased, 17,484 shares were sold back to the Company to pay for applicable income tax withholdings of $845. During the year ended December 31, 2022, colleagues who elected to participate in the ESPP purchased a total of 307,406 shares of Class B common stock, net of shares withheld, resulting in cash proceeds to the Company of $10,335. Of the total 314,471 shares purchased, 7,065 shares were sold back to the Company to pay for applicable income tax withholdings of $273. During the year ended December 31, 2021, colleagues who elected to participate in the ESPP purchased a total of 104,716 shares of Class B common stock, net of shares withheld, resulting in cash proceeds to the Company of $3,846. Of the total 111,486 shares purchased, 6,770 shares were sold back to the Company to pay for applicable income tax withholdings of $438. As of December 31, 2023 and 2022, $5,790 and $5,230 of ESPP withholdings via colleague payroll deduction were recorded in *Accruals and other current liabilities* in the consolidated balance sheets, respectively. As of December 31, 2023, shares of Class B common stock available for future issuance under the ESPP were 24,272,038.

Note 14: 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, 2020	$ (25,219)	$ (1,014)	$ (26,233)
Other comprehensive (loss) income, before taxes	(65,648)	151	(65,497)
Tax expense	—	(44)	(44)
Other comprehensive (loss) income, net of taxes	(65,648)	107	(65,541)
Balance, December 31, 2021	(90,867)	(907)	(91,774)
Other comprehensive income, before taxes	1,459	820	2,279
Tax expense	—	(245)	(245)
Other comprehensive income, net of taxes	1,459	575	2,034
Balance, December 31, 2022	(89,408)	(332)	(89,740)
Other comprehensive income, before taxes	4,774	68	4,842
Tax expense	—	(89)	(89)
Other comprehensive income (loss), net of taxes	4,774	(21)	4,753
Balance, December 31, 2023	$ (84,634)	$ (353)	$ (84,987)

Note 15: Stock-Based Compensation

Total stock-based compensation expense consists of the following:

	Year Ended December 31,		
	2023	2022	2021
Restricted stock and restricted stock units (“RSUs”) expense	$ 54,606	$ 40,754	$ 19,917
Bonus Plan expense (see Note 11)	14,801	28,571	23,121
ESPP expense (see Note 13)	2,407	2,890	2,118
Stock grants expense	600	450	445
Stock option expense	343	2,150	3,271
DCP elective participant deferrals expense [1] (see Note 12)	215	391	173
Total stock-based compensation expense [2]	$ 72,972	$ 75,206	$ 49,045

(1) DCP elective participant deferrals expense excludes deferred incentive bonus payable pursuant to the Bonus Plan.

(2) As of December 31, 2023 and 2022, $4,043 and $7,300 remained in *Accruals and other current liabilities* in the consolidated balance sheets, respectively.

Total stock-based compensation expense is included in the consolidated statements of operations as follows:

	Year Ended December 31,		
	2023	2022	2021
Cost of subscriptions and licenses	$ 4,444	$ 2,781	$ 1,442
Cost of services	3,196	2,055	1,257
Research and development	19,380	27,209	19,740
Selling and marketing	11,565	8,898	5,980
General and administrative	34,387	34,263	20,626
Total stock-based compensation expense	$ 72,972	$ 75,206	$ 49,045

Stock-based compensation expense is measured at the grant date fair value of the award and is recognized ratably over the requisite service period, which is generally the vesting period. Specifically for performance-based RSUs, stock-based compensation expense is measured at the grant date fair value of the award and is recognized ratably over the requisite service period based on the number of awards expected to vest at each reporting date. The Company accounts for forfeitures of equity awards as those forfeitures occur.

The fair value of the common stock during periods prior to the IPO 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 condition, and historical financial performance.

Restricted Stock and RSUs

Under the equity incentive plans, the Company may grant both time-based and performance-based shares of restricted Class B common stock and RSUs to eligible colleagues. Time-based awards generally vest ratably on each of the first four anniversaries of the grant date. Performance-based awards vesting is determined by the achievement of certain business growth targets, which include growth in ARR, as well as actual bookings for perpetual licenses and non-recurring services. Performance targets are generally set for performance periods of one year to three years. The fair value of restricted stock and RSUs is determined by the product of the number of shares granted and the Company’s common stock price on the grant date.

Shares of restricted stock have voting rights and, subject to the terms of the award agreements, the time-based restricted stock awards generally accrue declared dividends which are paid upon vesting. RSUs, which may be cash or share-settled depending on the award, do not have voting rights, but, subject to the terms of the award agreements, generally accrue declared dividends which are paid upon vesting. Beginning with the April 2021 grant, time-based RSUs have dividend equivalent rights and do not accrue cash dividends. Certain historical RSUs granted in 2016 under the Company's amended and restated 2015 Equity Incentive Plan (the "2015 Equity Incentive Plan") have dividend equivalent rights and do not accrue cash dividends. Recipients of the Company's outstanding performance-based restricted stock awards and RSUs are paid dividends prior to vesting.

The following is a summary of unvested restricted stock and RSU activity and related information under the Company's applicable equity incentive plans:

	Total Restricted Stock and RSUs	Time-Based Restricted Stock and RSUs	Performance-Based RSUs	Time-Based Weighted Average Grant Date Fair Value Per Share	Performance-Based Weighted Average Grant Date Fair Value Per Share
Unvested, December 31, 2022	3,068,851	2,706,078 [3]	362,773 [4]	$ 36.67	$ 38.21
Granted	1,467,585 [1]	1,268,939	198,646 [5]	42.79	39.14
Vested	(997,938)	(840,778)	(157,160)	35.36	38.20
Forfeited and canceled	(234,649)	(196,031)	(38,618)	34.02	33.59
Unvested, December 31, 2023	3,303,849 [2]	2,938,208	365,641	$ 39.87	$ 39.21

(1) For the year ended December 31, 2023, the Company only granted RSUs.

(2) Includes 55,905 RSUs which are expected to be settled in cash.

(3) Includes 199,076 time-based RSUs granted during the three months ended March 31, 2022 to certain officers and key employees, which cliff vest on January 31, 2025.

(4) Primarily relates to the 2022 annual performance period, except for 185,186 performance-based RSUs granted during the year ended December 31, 2022 with extraordinary terms, which are described below.

(5) Primarily relates to the 2023 annual performance period, except for 13,367 additional shares earned based on the achievement of 2022 performance goals for performance-based RSUs granted during the year ended December 31, 2022.

During the year ended December 31, 2022, the Company granted 185,186 performance-based RSUs to certain officers and key employees, which vest subject to the achievement of certain performance goals over a three-year performance period (the "Performance Period"). For each year of the Performance Period, one-third of the performance-based RSUs will be subject to a cliff, whereby no vesting of that portion will occur unless the Company's applicable margin metrics (which, for 2022, was Adjusted EBITDA margin and for 2023 and 2024, will be Adjusted OI w/SBC margin, excluding the impact of foreign currency exchange fluctuations) also equals or exceeds the relevant target level for such year. Provided that the applicable margin targets are met, the total number of performance-based RSUs that will vest is determined by the achievement of growth targets, which include growth in ARR, as well as actual bookings for perpetual licenses and non-recurring services. Final actual vesting will be determined on January 31, 2025. The 2023 Adjusted OI w/SBC margin target, excluding the impact of foreign currency exchange fluctuations, and the 2022 Adjusted EBITDA margin target for the performance-based RSUs were met.

In 2016, the Company granted RSUs subject to performance-based vesting as determined by the achievement of certain business growth targets. Certain colleagues elected to defer delivery of such shares upon vesting. During the years ended December 31, 2023, 2022, and 2021, 1,562, 10,888, and 10,864 shares, respectively, were delivered to colleagues, and 36, 30, and 45 additional shares, respectively, were earned as a result of dividends. As of December 31, 2023, 2022, and 2021, 7,837, 9,363, and 20,221 shares, respectively, of these vested and deferred RSUs remained outstanding.

The weighted average grant date fair values of RSUs granted were $42.29, $38.18, and $52.48 for the years ended December 31, 2023, 2022, and 2021, respectively.

For the years ended December 31, 2023, 2022, and 2021, restricted stock and RSUs were issued net of 161,841, 112,698, and 125,825 shares, respectively, which were sold back to the Company to settle applicable income tax withholdings of $7,299, $4,491, and $7,293, respectively.

As of December 31, 2023, there was $82,891 of unrecognized compensation expense related to unvested time-based restricted stock and RSUs, which is expected to be recognized over a weighted average period of approximately 1.7 years. As of December 31, 2023, there was $2,609 of unrecognized compensation expense related to unvested performance-based RSUs, which is expected to be recognized over a weighted average period of approximately 1.0 years.

Stock Grants

Under the equity incentive plans, the Company may grant unrestricted, fully vested shares of Class B common stock. The fair value of stock grants is determined by the product of the number of fully vested Class B common stock granted and the Company's common stock price on the grant date. The total expense related to stock grants is recognized on the grant date as the issued awards are fully vested.

For the years ended December 31, 2023, 2022, and 2021, the Company granted 12,639, 13,632, and 7,824 fully vested shares of Class B common stock, respectively.

Stock Options

The fair value of each stock option award was estimated on the date of grant using the Black-Scholes option pricing model. Stock options generally vest ratably on each of the first four anniversaries of the grant date. The Company did not grant stock options during the years ended December 31, 2023, 2022, and 2021.

The following is a summary of stock option activity and related information under the Company's applicable equity incentive plans:

	Stock Options	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Life (in years)	Aggregate Intrinsic Value
Outstanding, December 31, 2022	3,794,515	$ 5.57		
Exercised	(2,860,586)	5.52		
Forfeited and expired	(17,500)	5.68		
Outstanding, December 31, 2023	916,429	$ 5.74	0.2	$ 42,559
Exercisable, December 31, 2023	916,429	$ 5.74	0.2	$ 42,559

For the years ended December 31, 2023, 2022, and 2021, the Company received cash proceeds of $11,715, $8,338, and $5,605, respectively, related to the exercise of stock options. The total intrinsic value of stock options exercised for the years ended December 31, 2023, 2022, and 2021 was $112,025, $101,643, and $270,614, respectively.

As of December 31, 2023, there was no remaining unrecognized compensation expense related to unvested stock options.

Acquisition Options

In addition to stock options granted under the Company's equity incentive plans, 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. As of December 31, 2020, the Company fully recognized the stock-based compensation expense associated with these options. During the year ended December 31, 2022, 900,000 options were exercised. No acquisition options remain outstanding as of December 31, 2022.

ESPP

The ESPP is considered a compensatory plan as it provides eligible colleagues an option to purchase shares of the Company's Class B common stock for 85% of the lower of the price of the first day of the offering period or the last day of the offering period (i.e., the purchase date).

The fair value of each purchase right under the ESPP was calculated as the sum of its components, which includes the discount, a six-month call option, and a six-month put option. The call and put options were valued using the Black-Scholes option pricing model. Stock-based compensation expense is recognized ratably over the respective offering period.

Equity Incentive Plans

The Company's 2020 Incentive Award Plan provides for the granting of stock, stock options, restricted stock, RSUs, and other stock-based or performance-based awards to certain directors, officers, colleagues, consultants, and advisors of the Company, and terminates in September 2030. The 2020 Incentive Award Plan provides that 25,000,000 shares of Class B common stock may be issued for equity awards. Equity awards that are expired, canceled, forfeited, or terminated for any reason will be available for future grant under the 2020 Incentive Award Plan. As of December 31, 2023, equity awards available for future grants under the 2020 Incentive Award Plan were 20,946,599.

The Company also has equity awards outstanding under the 2015 Equity Incentive Plan, which terminates in November 2024. Following the completion of the IPO, no further awards may be granted under the 2015 Equity Incentive Plan.

Note 16: Income Taxes

The components of *Income before income taxes* consist of the following:

	Year Ended December 31,		
	2023	2022	2021
Domestic	$ 16,652	$ 98,188	$ (14,544)
International	166,875	100,087	107,873
Income before income taxes	$ 183,527	$ 198,275	$ 93,329

The *Benefit (provision) for income taxes* consists of the following:

	Year Ended December 31,		
	2023	2022	2021
Current:			
Federal	$ (12,899)	$ (2,307)	$ 770
State	(2,567)	(1,387)	163
Foreign	(40,171)	(22,715)	(17,230)
	(55,637)	(26,409)	(16,297)
Deferred:			
Federal	134,516	3,547	15,182
State	29,514	60	3,660
Foreign	34,848	1,519	903
	198,878	5,126	19,745
Benefit (provision) for income taxes	$ 143,241	$ (21,283)	$ 3,448

A reconciliation of the U.S. statutory federal income tax rate to the Company's effective income tax rate is as follows:

	Year Ended December 31,		
	2023	2022	2021
Federal statutory rate	21.0%	21.0%	21.0%
State and local income taxes, net of federal benefit	(0.3)	1.0	(2.7)
Stock-based compensation	(22.9)	(21.4)	(52.5)
Non-deductible officer compensation	14.9	11.0	36.6
Tax credits	(5.8)	(2.9)	(6.1)
Withholding taxes	4.9	2.8	5.8
Foreign tax rate differential	(3.0)	(2.0)	(6.9)
Net tax on foreign earnings (GILTI/FDII)	4.2	0.9	—
Transaction costs	(0.1)	0.5	3.9
Tax impact of internal legal entity restructuring	(93.1)	—	—
Other	2.2	(0.2)	(2.8)
Effective income tax rate	(78.0%)	10.7%	(3.7%)

For the year ended December 31, 2023, the effective tax rate was lower as compared to the year ended December 31, 2022 primarily due to the discrete tax benefit recognized as a result of the internal legal entity restructuring described below. The benefit of the internal legal entity restructuring was partially offset by an increase in the effective tax rate impact of the GILTI inclusion due to the mandatory capitalization of research and development expenses for U.S. tax purposes and a decrease in discrete tax benefits related to stock-based compensation, net of the impact from officer compensation limitation provisions, recognized during the current year. For the years ended December 31, 2023 and 2022, the Company recorded discrete tax benefits of $14,648 and $20,501, respectively, associated with windfall tax benefits from stock-based compensation, net of the impact from officer compensation limitation provisions.

During the fourth quarter of 2023, the Company recognized a net discrete income tax benefit of $170,784 attributable to internal legal entity restructuring and related intra-entity transactions as part of its continuing efforts to align intellectual property ownership with the Company's business operating model. These transactions resulted in the recognition of deferred tax benefits arising from the net increase in deferred tax assets related to intangibles and goodwill of $171,622. The deferred tax assets represent the undiscounted future anticipated cash tax impacts of basis differences, which are expected to be realized through tax amortization over the next 13 years.

For the year ended December 31, 2022, the effective tax rate was higher as compared to the year ended December 31, 2021, primarily due to the 2021 effective tax rate impact, net of officer compensation limitation provisions, related to the 2021 compensation charge of $90,721 to *Deferred compensation plan* expenses to record reallocated deferred compensation plan liabilities at fair value (see Note 12). For the years ended December 31, 2022 and 2021, the Company recorded discrete tax benefits of $20,501 and $14,890, respectively, associated with windfall tax benefits from stock-based compensation, net of the impact from officer compensation limitation provisions.

The U.S. Tax Cuts and Jobs Act (the "JOBS Act") requires certain GILTI earned by a controlled foreign corporation ("CFC") to be included in the gross income of the CFC's U.S. shareholder. The Company has elected the "period cost method" and treats taxes due on future U.S. inclusions in taxable income related to GILTI as a current-period expense when incurred. The JOBS Act allows a U.S. corporation a deduction equal to a certain percentage of its foreign-derived intangible income ("FDII").

The following is a summary of the significant components of the Company's deferred tax assets and liabilities:

	December 31,	
	2023	**2022**
Deferred tax assets:		
Accrued compensation	$ 38,220	$ 35,298
NOL and credit carryforwards	19,677	14,960
Intangible assets including goodwill	137,576	—
Convertible debt and 163(j) limitation	14,364	13,349
Lease liabilities	7,610	8,920
Other accruals not currently deductible	502	1,122
Allowance for doubtful accounts	1,852	1,856
Deferred revenues	4,402	2,914
Other	2,852	2,383
Total deferred tax assets	227,055	80,802
Less: Valuation allowance	(2,664)	(3,321)
Net deferred tax assets	224,391	77,481
Deferred tax liabilities:		
Intangible assets including goodwill	—	(51,994)
Operating lease right-of-use assets	(6,762)	(8,381)
Prepaid expenses	(2,746)	(2,877)
Unrealized gains and losses	(8,131)	(9,422)
Property and equipment	(3,639)	(3,406)
Total deferred tax liabilities	(21,278)	(76,080)
Net deferred tax assets (liabilities)	$ 203,113	$ 1,401

The Company recognizes deferred income tax assets and liabilities for the expected future tax consequences of NOL 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 had deferred tax assets for tax credits and NOLs, net of unrecognized tax positions, primarily related to:

Jurisdiction:	**December 31, 2023**	**Begin to Expire**
U.S. Federal NOL	$ 3,497	2034
U.S. Federal research and development credits	201	2039
U.S. Federal foreign tax credits	340	2028
U.S. State NOL	1,530	2036
U.S. State research and development credits	667	2030
U.K. NOL	6,759	Indefinite
U.K. research and development credits	760	Indefinite
Canadian research and development credit	1,037	2030

As of December 31, 2023 and 2022, the Company has a valuation allowance recorded against net deferred tax assets related to NOLs and tax attributes in certain jurisdictions of $2,664 and $3,321, respectively. During the year ended December 31, 2023, the Company decreased the valuation allowance by $657, which was primarily related to the partial utilization of U.S. capital loss carryforwards. A valuation allowance is required when it is more likely than not that all or a portion of deferred tax assets will not be realized. The Company assesses the available positive and negative evidence to estimate whether the existing deferred tax assets will be realized.

We have provided for any applicable income taxes associated with current year distributions, as well as any earnings that are expected to be distributed in the future, in the calculation of the income tax provision. No additional provision has been made for U.S. and non-U.S. income taxes on the undistributed earnings of subsidiaries that are expected to be indefinitely reinvested. As of December 31, 2023, certain subsidiaries had approximately $335,988 of cumulative undistributed earnings that have been deemed permanently reinvested. A liability could arise if our intention to indefinitely reinvest such earnings were to change and amounts are distributed by such subsidiaries or if such subsidiaries are ultimately disposed. The potential tax implications of unremitted earnings are driven by the facts at the time of the distribution. It is not practicable to estimate the additional income taxes related to indefinitely reinvested earnings or the basis differences related to investments in subsidiaries.

The following is a reconciliation of the changes in gross unrecognized tax benefits:

	Year Ended December 31,		
	2023	**2022**	**2021**
Gross unrecognized tax benefits, beginning of year	$ 910	$ 1,331	$ 1,223
Increases for tax positions of prior years	12	—	160
Decreases for tax positions of prior years	(9)	(121)	(42)
Increases for tax positions related to the current year	—	—	—
Decreases relating to settlements with taxing authorities	—	(35)	—
Reductions as a result of lapse of the statute of limitations	(447)	(265)	(10)
Gross unrecognized tax benefits, end of year	$ 466	$ 910	$ 1,331

As of December 31, 2023, 2022, and 2021, the Company had total unrecognized tax benefits including interest and penalties of $557, $1,194, and $1,704, respectively, of which $554, $1,181, and $1,273, respectively, would impact the Company's effective tax rate if recognized. Interest expense and penalties related to unrecognized tax benefits included in the *Benefit (provision) for income taxes* was $194, $89, $(101) for the years ended December 31, 2023, 2022, and 2021, respectively. The cumulative accrued interest and penalties related to unrecognized tax benefits were $91, $284, and $373 as of December 31, 2023, 2022, and 2021, respectively.

The Company is subject to income tax in the U.S. (federal and state) and numerous foreign jurisdictions. Significant judgment is required in evaluating the Company's tax positions and determining the provision for income taxes. During the ordinary course of business, there are many transactions and calculations for which the ultimate tax determination is uncertain. The Company establishes reserves for tax-related uncertainties based on estimates of whether, and the extent to which, additional taxes will be due. These reserves are established when the Company believes that certain positions might be challenged despite its belief that the Company's tax return positions are fully supportable. The tax benefit recognized is based on the largest amount that is greater than 50 percent likely of being realized upon ultimate settlement. The Company adjusts these reserves in light of changing facts and circumstances, such as the outcome of tax audits. The *Provision for income taxes* in the consolidated statements of operations includes the impact of reserve provisions and changes to reserves that are considered appropriate. The Company records accrued interest and/or penalties, where applicable, related to unrecognized tax benefits as part of the *Benefit (provision) for income taxes* in the consolidated statements of operations. 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 in *Other liabilities* in the consolidated balance sheets.

The Company is currently under audit in the U.K. for years 2018 through 2021. The Company is also under audit in the Netherlands for years 2018 through 2021. In addition, the Company is under audit in various other foreign taxing jurisdictions that are not material to the consolidated financial statements. The Company's U.S. consolidated federal income tax returns for years 2020 through 2023 may be subject to examination by the Internal Revenue Service. The Company also may be subject to examination by other significant jurisdictions, including the Irish Revenue Commissioners for Irish tax purposes for years 2019 through 2023 and by the Inland Revenue Department for New Zealand Tax purposes for years 2018 through 2023.

In December 2021, the Organization for Economic Co-operation and Development ("OECD") adopted model rules to implement a global minimum corporate tax of 15% for companies with global revenues and profits above certain thresholds (referred to as "Pillar 2"). The OECD has continued to issue administrative guidance and interpretations regarding the Pillar 2 rules. A number of E.U. and G20 member nations, including locations where the Company currently has operations, are at various stages in the process of enacting tax legislation to incorporate aspects of the Pillar 2 rules. For countries that have adopted the model rules, certain aspects of the Pillar 2 rules will be effective in 2024, while other aspects are expected to become effective in 2025. Due to the uncertainty regarding which countries will enact Pillar 2 legislation and in what form the legislation will be adopted, as well as uncertainty regarding the timing of individual country legislative action and the underlying complexity of the rules, we are still assessing the impact, if any, of the Pillar 2 legislation on the Company.

Note 17: Fair Value of Financial Instruments

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.

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 Company's financial instruments include cash equivalents, account receivables, certain other assets, accounts payable, accruals, certain other current and long-term liabilities, and long-term debt.

Current Assets and Current Liabilities — In general, the carrying amounts reported on the Company's consolidated balance sheets for current assets and current liabilities approximate their fair values due to the short-term nature of those instruments.

The following methods and assumptions were used by the Company in estimating its fair value measurements for Level 2 and Level 3 financial instruments as of December 31, 2023 and 2022:

Acquisition Contingent Consideration — The fair value of these liabilities is generally determined using a cost or income approach and is measured 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.

Interest Rate Swap — The fair value of the Company's interest rate swap asset or liability is determined using an income approach and is measured based on the implied forward rates for the remaining term of the interest rate swap. The Company considers these valuation inputs to be Level 2 inputs in the fair value hierarchy.

Long-Term Debt — The fair value of the Company's borrowings under its Credit Facility 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. As of December 31, 2023, the estimated fair value of the 2026 Notes and 2027 Notes was $684,205 and $516,051, respectively. As of December 31, 2022, the estimated fair value of the 2026 Notes and 2027 Notes was $622,431 and $470,856, respectively. The estimated fair value of the 2026 Notes and 2027 Notes is based on quoted market prices of the Company's instrument in markets that are not active and are classified as Level 2 within 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.

Deferred Compensation Plan Liabilities — The fair value of deferred compensation plan liabilities, including the liability classified phantom investments in the DCP, are marked to market at the end of each reporting period.

Financial assets and financial liabilities carried at fair value measured on a recurring basis consist of the following:

December 31, 2023	**Level 1**	**Level 2**	**Level 3**	**Total**
Assets:				
Money market funds (1)	$ 1	$ —	$ —	$ 1
Interest rate swap (2)	—	32,162	—	32,162
Total assets	$ 1	$ 32,162	$ —	$ 32,163
Liabilities:				
Deferred compensation plan liabilities (3)	$ 90,536	$ —	$ —	$ 90,536
Cash-settled equity awards (4)	781	—	—	781
Total liabilities	$ 91,317	$ —	$ —	$ 91,317

December 31, 2022	**Level 1**	**Level 2**	**Level 3**	**Total**
Assets:				
Money market funds (1)	$ 19	$ —	$ —	$ 19
Interest rate swap (2)	—	37,200	—	37,200
Total assets	$ 19	$ 37,200	$ —	$ 37,219
Liabilities:				
Acquisition contingent consideration (4)	$ —	$ —	$ 1,196	$ 1,196
Deferred compensation plan liabilities (3)	79,081	—	—	79,081
Cash-settled equity awards (4)	536	—	—	536
Total liabilities	$ 79,617	$ —	$ 1,196	$ 80,813

(1) Included in *Cash and cash equivalents* in the consolidated balance sheets.

(2) Included in *Other assets* in the consolidated balance sheets.

(3) Included in *Deferred compensation plan liabilities*, except for current liabilities of $2,355 and $2,067 as of December 31, 2023 and 2022, respectively, which are included in *Accruals and other current liabilities* in the consolidated balance sheets.

(4) Included in *Accruals and other current liabilities* in the consolidated balance sheets.

The following 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:

	Year Ended December 31,	
	2023	**2022**
Balance, beginning of year	$ 1,196	$ 6,613
Payments	(1,206)	(5,261)
Addition	—	1,390
Change in fair value	—	(1,427)
Foreign currency translation adjustments	10	(119)
Balance, end of year	$ —	$ 1,196

The Company did not have any transfers between levels within the fair value hierarchy.

Note 18: Commitments and Contingencies

Purchase Commitments

In the normal course of business, the Company enters into various purchase commitments for goods and services. During the year ended December 31, 2023, the Company entered into approximately $158,000 of non-cancelable future cash purchase commitments for services related to cloud provisioning of the Company's software solutions and for other software costs. As of December 31, 2023, total non-cancelable future cash purchase commitments were $127,000, of which the Company expects $50,000 to be paid over the next 12 months and $77,000 to be paid through September 2028. The Company expects to fully consume its contractual commitments in the ordinary course of operations.

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, results of operations, or cash flows.

Note 19: Geographic Data

Revenues by geographic region are presented in Note 3. Long-lived assets (other than goodwill), net of depreciation and amortization by geographic region (see Notes 5, 6, and 8) are as follows:

	December 31, 2023	December 31, 2022
Americas (1)(2)	$ 272,492	$ 164,729
EMEA	40,411	32,372
APAC (2)	14,460	167,670
Total long-lived assets	$ 327,363	$ 364,771

(1) Americas includes the U.S., Canada, and Latin America, including the Caribbean.

(2) The change in balances period over period was due to an internal legal entity restructuring executed by the Company during the fourth quarter of 2023 (see Note 16).

Note 20: Other (Expense) Income, Net

Other (expense) income, net consists of the following:

	Year Ended December 31,		
	2023	2022	2021
(Loss) gain from:			
Change in fair value of interest rate swap (see Note 17)	$ (5,038)	$ 27,083	$ 9,770
Foreign exchange [(1)]	2,497	(9,901)	827
Sale of aircraft (see Note 5)	—	2,029	—
Change in fair value of acquisition contingent consideration (see Note 17)	—	1,427	(550)
Receipts (payments) related to interest rate swap	8,803	1,947	(1,270)
Other (expense) income, net [(2)]	(13,484)	1,713	1,184
Total other (expense) income, net	$ (7,222)	$ 24,298	$ 9,961

(1) Foreign exchange gain (loss) is primarily attributable to foreign currency translation derived mainly from U.S. dollar denominated cash and cash equivalents, account receivables, customer deposits, and intercompany balances held by foreign subsidiaries. Intercompany finance transactions primarily denominated in U.S. dollars resulted in unrealized foreign exchange gains (losses) of $3,163, $(7,369), and $(779) for the years ended December 31, 2023, 2022, and 2021, respectively.

(2) Other (expense) income, net includes investment impairment and other charges of $(16,988), partially offset by gains on investments of $2,360 for the year ended December 31, 2023 (see Note 7).

Note 21: Realignment Costs

During the fourth quarter of 2023, the Company approved a strategic realignment program to better serve the Company's accounts and to better align resources with the strategy of the business, including reinvestment in go-to-market functions, as well as in AI product development (the "2023 Program"). The Company incurred realignment costs of $12,579 for the year ended December 31, 2023 related to the aforementioned program, which represents termination benefits for colleagues whose roles were impacted. The 2023 Program activities have been broadly implemented across the Company's various businesses with the intention that substantially all actions, including payment of the termination benefits, will be fully completed by mid-2024.

Realignment costs by expense classification were as follows:

	Year Ended December 31, 2023
Cost of revenues:	
Cost of subscriptions and licenses	$ 839
Cost of services	1,246
Total cost of revenues	2,085
Operating expenses:	
Research and development	4,995
Selling and marketing	4,012
General and administrative	1,487
Total operating expenses	10,494
Total realignment costs	$ 12,579

Accruals and other current liabilities in the consolidated balance sheets included amounts related to the realignment activities as follows:

Balance, December 31, 2022	$	—
Realignment costs		12,579
Payments		(268)
Adjustments [(1)]		148
Balance, December 31, 2023	$	12,459

(1) Adjustments includes foreign currency translation.

Note 22: Net Income Per Share

Net income per share of Class A and Class B common stock amounts are computed using the two-class method required for participating securities, using the treasury stock method for awards under the Company's equity compensation plans and ESPP, and using the if-converted method for the convertible senior notes. In addition, the weighted average number of shares of the Company's Class A and Class B common stock is inclusive of undistributed shares held in the DCP as phantom shares of the Company's Class B common stock.

The Company issues certain performance-based RSUs 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. As of December 31, 2023, 2022, and 2021, there were 365,641, 362,773, and 96,683 participating securities outstanding, respectively.

Undistributed net income allocated to participating securities are subtracted from net income in determining basic net income attributable to common stockholders. Basic net income per share is computed by dividing basic net income attributable to common stockholders by the weighted average number of shares, inclusive of undistributed shares held in the DCP as phantom shares of the Company's Class B common stock.

For the Company's diluted net income per share numerator, interest expense, net of tax, attributable to the assumed conversion of the convertible senior notes is added back to basic net income attributable to common stockholders. For the Company's diluted net income per share denominator, the basic weighted average number of shares is adjusted for the effect of dilutive securities, including awards under the Company's equity compensation plans and ESPP, and for the dilutive effect of the assumed conversion of the convertible senior notes. Diluted net income per share attributable to common stockholders is computed by dividing diluted net income attributable to common stockholders by the weighted average number of fully diluted common shares.

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, net income per share would not differ under the two-class method.

The details of basic and diluted net income per share are as follows:

	Year Ended December 31,		
	2023	2022	2021
Numerator:			
Net income	$ 326,787	$ 174,780	$ 93,192
Less: Net income attributable to participating securities	(74)	(42)	(9)
Net income attributable to Class A and Class B common stockholders, basic	326,713	174,738	93,183
Add: Interest expense, net of tax, attributable to assumed conversion of convertible senior notes	6,874	6,810	—
Net income attributable to Class A and Class B common stockholders, diluted	$ 333,587	$ 181,548	$ 93,183
Denominator:			
Weighted average shares, basic	312,358,823	309,226,677	305,711,345
Dilutive effect of stock options, restricted stock, and RSUs	2,435,456	4,705,172	8,791,084
Dilutive effect of ESPP	75,568	166,606	108,385
Dilutive effect of assumed conversion of convertible senior notes	17,633,786	17,666,703	—
Weighted average shares, diluted	332,503,633	331,765,158	314,610,814
Net income per share, basic	$ 1.05	$ 0.57	$ 0.30
Net income per share, diluted	$ 1.00	$ 0.55	$ 0.30

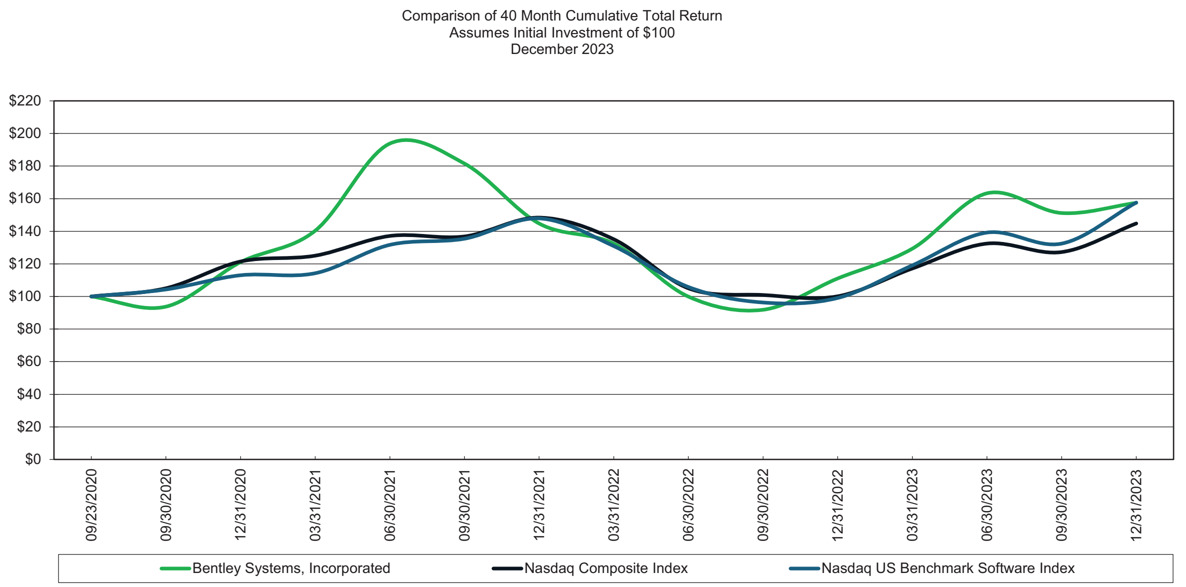
The following potential common shares were excluded from the calculation of diluted net income per share attributable to common stockholders because their effect would have been anti-dilutive for the periods presented:

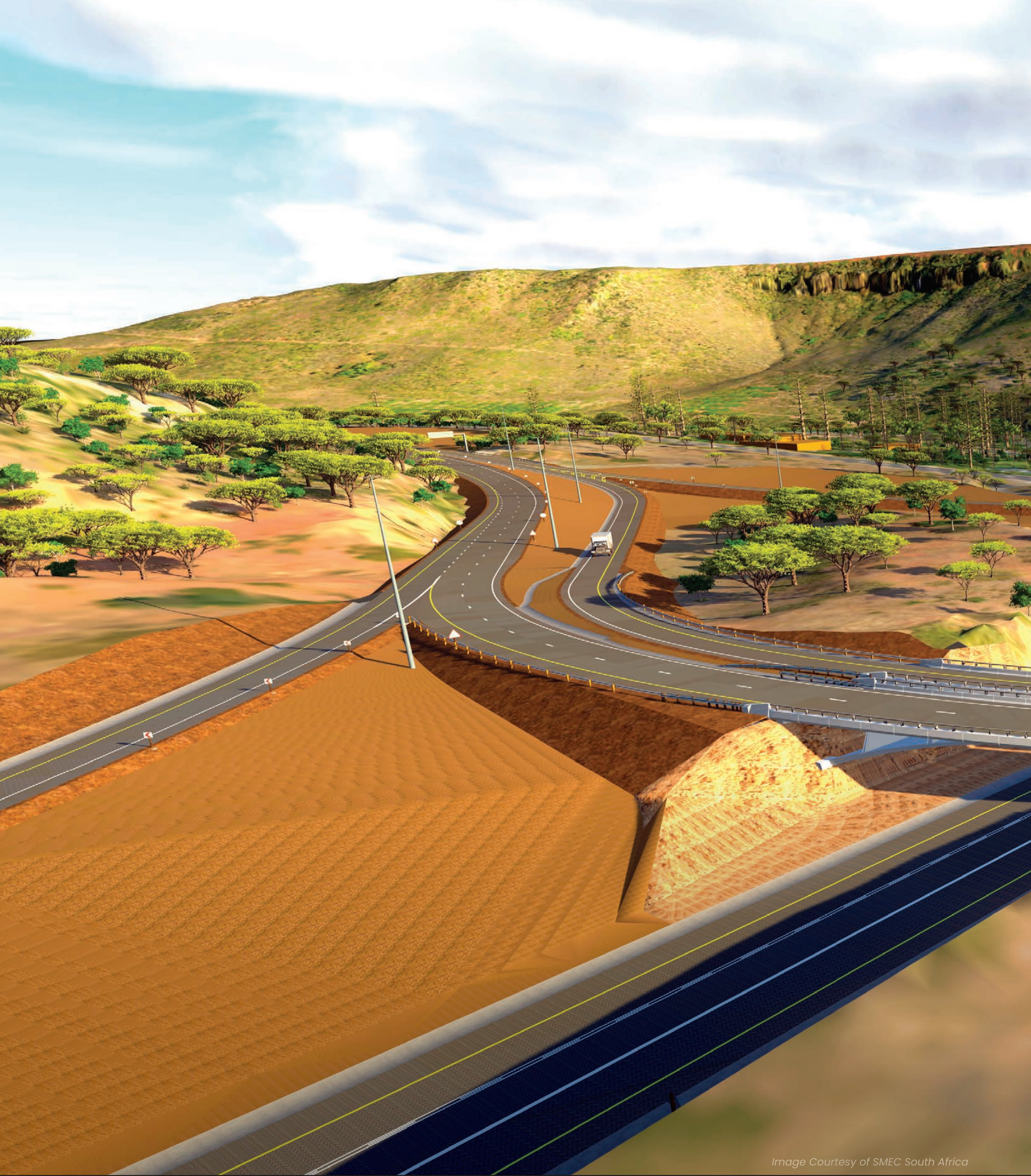
	Year Ended December 31,		
	2023	2022	2021
RSUs	—	718,105	150,017
Convertible senior notes	—	—	13,474,580
Total anti-dilutive securities	—	718,105	13,624,597

Performance Chart

The graph below compares the cumulative total stockholder return on our Class B common stock with the cumulative total return on the Nasdaq Composite Index and the Nasdaq US Benchmark Software Index, assuming an initial investment of $100 at the market close on September 23, 2020, the date our Class B common stock commenced trading on the Nasdaq Global Select Market. Data for the Nasdaq Composite Index and the Nasdaq US Benchmark Software Index assume reinvestment of dividends.

The comparisons in the graph below are based upon historical data and are not indicative of, nor intended to forecast, future performance of our common stock.





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