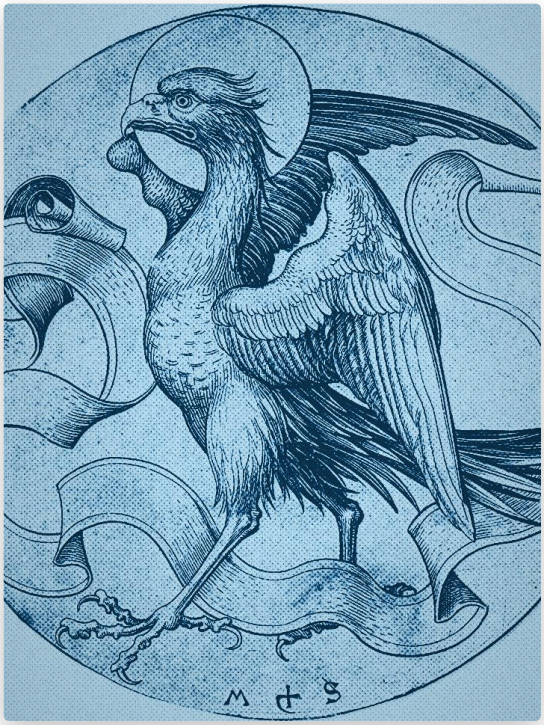
FORM S-1 · REGISTRATION STATEMENT

Altair Engineering Inc

IPO priced 2017-11-01 · $13.00 a share · ALTR



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AS FILED WITH THE SECURITIES AND EXCHANGE COMMISSION ON SEPTEMBER 29, 2017

REGISTRATION NO. 333-

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM S-1

REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

ALTAIR ENGINEERING INC.

(EXACT NAME OF REGISTRANT AS SPECIFIED IN ITS CHARTER)

MICHIGAN (PRIOR TO REINCORPORATION) DELAWARE (AFTER REINCORPORATION) (STATE OR OTHER JURISDICTION OF INCORPORATION OR ORGANIZATION)	7372 (PRIMARY STANDARD INDUSTRIAL CLASSIFICATION CODE NUMBER)	38-2591828 (I.R.S. EMPLOYER IDENTIFICATION NUMBER)

1820 E. BIG BEAVER ROAD

TROY, MICHIGAN 48083

(248) 614-2400

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

JAMES R. SCAPA

CHIEF EXECUTIVE OFFICER

Altair Engineering Inc.

1820 E. BIG BEAVER ROAD, TROY, MICHIGAN 48083

(248) 614-2400

(NAME, ADDRESS, INCLUDING ZIP CODE, AND TELEPHONE NUMBER, INCLUDING AREA CODE, OF AGENT FOR SERVICE)

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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this Registration Statement.

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

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

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

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

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	☒ (do not check if a smaller reporting company)	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 7(a)(2)(B) of the Securities Act. ☐

CALCULATION OF REGISTRATION FEE

TITLE OF EACH CLASS OF SECURITIES TO BE REGISTERED	PROPOSED MAXIMUM AGGREGATE OFFERING PRICE(1)(2)	AMOUNT OF REGISTRATION FEE
Class A common stock, par value $ per share	$150,000,000	$17,385.00

(1) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(o) under the Securities Act of 1933, as amended.

(2) Includes the aggregate offering price of the additional shares that the underwriters have the option to purchase to cover over allotments, if any.

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

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is declared effective. This prospectus is not an offer to sell these securities or a solicitation of an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED SEPTEMBER 29, 2017

PROSPECTUS

SHARES

CLASS A COMMON STOCK

$ PER SHARE

This is the initial public offering of the Class A common stock of Altair Engineering Inc.

The selling stockholders identified in this prospectus are offering shares of our Class A common stock, and we are offering shares of our Class A common stock in this offering. We will not receive any proceeds from the sales of shares of our Class A common stock by the selling stockholders. The estimated initial public offering price is expected to be between $ and $ per share.

We have two classes of common stock, Class A common stock and 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 A common stock is entitled to one vote per share. Each share of Class B common stock is entitled to ten votes per share and is convertible into one share of Class A common stock. The holders of our outstanding Class B common stock will hold approximately % of the voting power of our outstanding capital stock following this offering, with our directors, executive officers and current beneficial owners of 5% or more and their affiliates holding approximately % of the voting power.

Prior to this offering, there has been no public market for our common stock. We intend to apply to list our Class A common stock on the Nasdaq Global Select Market under the symbol “ALTR.”

We are an “emerging growth company” as that term is used in the Jumpstart Our Business Startups Act of 2012, as amended, and may elect to comply with certain reduced United States public company reporting requirements for future filings.

Investing in our Class A common stock involves a high degree of risk. Please see the section entitled “Risk factors” starting on page 21 to read about risks you should consider carefully before buying shares of our Class A common stock.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

	Initial public offering price	Underwriting discounts andcommissions(1)	Proceeds to the Company,before expenses	Proceeds to the sellingstockholders,before expenses
Per share		$		$
Total		$		$

(1) See the section entitled “Underwriting” for a description of the underwriting discounts and commissions and offering expenses.

We have granted the underwriters a 30-day option to purchase up to an additional shares of Class A common stock at the initial public offering price, less the underwriting discount, to cover over-allotments.

The underwriters expect to deliver the shares on or about , 2017.

J.P. Morgan	**RBC Capital Markets**	**Deutsche Bank Securities**
William Blair	**Canaccord Genuity**	

THE DATE OF THIS PROSPECTUS IS , 2017

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None of the Company, the selling stockholders or the underwriters have authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses prepared by or on behalf of us or to which we have referred you. The Company, the selling stockholders, and the underwriters take no responsibility for, and can provide no assurance as to the reliability for any other information that others may give you. This prospectus is an offer to sell only the shares offered hereby, only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus or in any applicable free writing prospectus is current only as of its date, regardless of its time of delivery or any sale of shares of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

INVESTORS OUTSIDE THE UNITED STATES

None of the Company, the selling stockholders or the underwriters have done anything that would permit this offering or possession or distribution of this prospectus or any free writing prospectus we may provide to you in connection with this offering in any jurisdiction where action for that purpose is required, other than in the United States. You are required to inform yourselves about and to observe any restrictions relating to this offering and the distribution of this prospectus and any such free writing prospectus outside of the United States.

Until , 2017 (25 days after the commencement of this offering), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as an underwriter and with respect to their unsold allotments or subscriptions.

Prospectus summary

Prospectus summary *This summary provides a brief overview of information contained elsewhere in this prospectus. This summary does not contain all of the information you should consider before investing in our Class A common stock. You should carefully read this prospectus in its entirety including "Risk factors," "Management's discussion and analysis of financial condition and results of operations" and the financial statements and the notes to those financial statements included in this prospectus before investing in our Class A common stock. References to the "selling stockholders" refer to the selling stockholders named in this prospectus.*

Our vision

Our vision is to transform product design and organizational decision making by applying simulation, optimization and high performance computing throughout product lifecycles.

Overview

Altair exists to unleash the limitless potential of the creative mind.

We are a leading provider of enterprise-class engineering software enabling innovation across the entire product lifecycle from concept design to in-service operation. Our simulation-driven approach to innovation is powered by our broad portfolio of high-fidelity and high-performance physics solvers. Our integrated suite of software optimizes design performance across multiple disciplines encompassing structures, motion, fluids, thermal management, electromagnetics, system modeling, and embedded systems, while also providing data analytics and true-to-life visualization and rendering.

The engineering software industry is challenged by increasingly sophisticated design requirements and enabled by the ever expanding availability of cost effective computing power. Rising expectations of end-market customers, new manufacturing methods such as three-dimensional, or 3D, printing, and new materials such as composites, combined with more powerful math-based computational technologies, are expanding the application of simulation across many industry verticals. The Internet of Things, or IoT, is also changing engineering by broadening the scope of Product Lifecycle Management, or PLM, affording the opportunity to leverage simulation and analytics toward the development of "digital twins" to optimize product performance and manufacturing throughput, predict failure, and schedule maintenance operations for in-service equipment.

CIMdata in its 2017 Simulation and Analysis Market Analysis Report, or the CIMdata Report, forecasts, "the PLM market to grow at a compound annual growth rate (CAGR) of 6.7% to $56.3 billion" in 2021. The CIMdata Report estimates the computer-aided engineering, or CAE, market which they refer to as Simulation and Analysis, as a subset of the PLM market to be approximately $5.3 billion and $5.7 billion in 2016 and 2017, respectively. The CIMdata Report expects the CAE market, "will be one of the more rapidly growing segments within the tools sector of PLM over the next five years, and forecasts that this market sector will exceed $7.8 billion in 2021, with an 8.1% CAGR."

Altair's engineering and design platform offers a wide range of multi-disciplinary CAE solutions which we believe is one of the most innovative and comprehensive offerings available in the market. To ensure customer success and deepen our relationships with them, we engage with our customers to provide consulting, implementation services, training, and support, especially when applying optimization. Altair participates in five software categories related to CAE and high performance computing, or HPC:

- ***Solvers & Optimization:*** Solvers are mathematical software "engines" that use advanced computational algorithms to predict physical performance. Optimization leverages solvers to derive the most efficient solutions to meet desired complex multi-objective requirements.
- ***Modeling & Visualization:*** Tools that allow advanced physics attributes to be modeled and rendered on top of object geometry in high fidelity. These tools are becoming more design-centric and relevant earlier in the development process.
- ***Industrial & Concept Design:*** Tools that generate early concepts to address requirements for ergonomics, aesthetics, performance, and manufacturing feasibility. These tools are simulation-driven and, we believe, emerging as a market force eclipsing traditional computer-aided design, or CAD.
- ***IoT:*** Tools to develop new IoT enabled products, including device and data management, system level and full 3D digital twin simulation, and exploration, predictive analysis, optimization, and visualization of in-service performance.
- ***HPC:*** Software applications that streamline the workflow management of compute-intensive tasks including solvers, optimization, modeling, visualization, and analytics in fields such as PLM, weather modeling, bio-informatics and electronic design analysis. The HPC middleware software market was forecasted to exceed $1.6 billion by 2019 by the former high performance analyst team of International Data Corporation, or IDC, which is now owned by Hyperion Research Holdings, LLC, or Hyperion, and is not affiliated with IDC.

Our software enables customers to enhance product performance, compress development time, and reduce costs. Our thirty-year heritage is in solving some of the most challenging design problems faced by engineers and scientists. Altair is also a leading provider of high performance computing workflow tools which empower our customers to explore designs in ways not possible in traditional computing environments. We believe we are unique in the industry for the depth and breadth of our engineering application software offerings combined with our domain expertise and proprietary technology for harnessing HPC and cloud infrastructures.

Our primary users are highly educated and technical engineers, commonly referred to as simulation specialists. We predominantly reach customers with simulation specialists through Altair's experienced, direct sales force, especially in industries requiring highly engineered products, such as automotive, aerospace, heavy machinery, rail and ship design. To enable concept engineering driven by simulation we make our physics solvers more accessible to designers, who may be less technical and not expert in simulation, by wrapping them in powerful, yet simple interfaces. We are increasing our use of indirect channels to more efficiently address a broader set of customers in consumer products, electronics, energy and other industries.

Altair pioneered a patented units-based subscription licensing model for software and other digital content. This units-based subscription licensing model allows flexible and shared access to all of our offerings, along with over 150 partner products. Our customers license a pool of units for their organizations giving individual users access to our entire portfolio of software applications as well as our growing portfolio of partner products. We believe our units-based subscription licensing model lowers barriers to adoption, creates broad engagement, encourages users to work within our ecosystem, and increases revenue. This, in turn, helps drive our recurring software license rate which has been on average approximately 88% over the past five years. Each year approximately 60% of new software revenue comes from expansion within existing customers.

Altair also provides client engineering services, or CES, to support our customers with long-term ongoing product design and development expertise. This has the benefit of embedding us within customers, deepening our understanding of their processes, and allowing us to more quickly perceive trends in the overall market. Our presence at our customers' sites helps us to better tailor our software products' research and development, or R&D, and sales initiatives.

We were founded in 1985 in Michigan and have a balanced global footprint, with 68 offices in 24 countries, and over 2,000 engineers, scientists and creative thinkers. For the six months ended June 30, 2017 we generated 34%, 33% and 33% of our total billings from customers in the Americas region, or the Americas, from the Asia-Pacific region, or APAC, and from the Europe, Middle East and Africa region, or EMEA, respectively. In 2016, we generated 38%, 32% and 30% of our total billings from customers in the Americas, APAC, and EMEA, respectively. Billings by geographical region can vary significantly by quarter. As of June 30, 2017, we had tens of thousands of users across approximately 5,000 customers worldwide. We define customers as a company, an

educational or governmental institution, any separate or distinct worksite, a business unit, or a particular group that uses our products or services. Billings consists of our total revenue plus the change in our deferred revenue in a given period and is discussed under "Selected historical consolidated financial and other data—Key metrics" of this prospectus.

We believe a critical component of our success has been our company culture, based on our core values of innovation, envisioning the future, communicating honestly and broadly, seeking technology and business firsts, and embracing diversity. This culture is important because it helps attract and retain top people, encourages innovation and teamwork, and enhances our focus on achieving Altair's corporate objectives.

`Industry background`

CAE software is essential to innovation across a wide range of highly engineered products in industry verticals ranging from automotive, aerospace, heavy machinery, rail and ship design to consumer electronics and sporting goods. Physical prototypes and testing have been largely supplanted by CAE for design validation over the last twenty-five years. This process continues unabated. Manual drawing and drafting were also replaced by 3D CAD during the same time period. More recently, CAE is emerging in a conceptualization process called simulation-driven design where new design tools are beginning to replace traditional 3D CAD.

CAE software allows engineers to simulate, predict, and optimize how physical products will perform in the real world under a range of operating conditions. CAE applications can accurately solve complex physical interactions through mathematical methods such as finite element analysis, simulate an extensive set of material types, and generate high-fidelity outputs that are realistic virtual representations of physical system behaviors. Modern CAE software can rapidly solve a wide range of complex physics, including structural, fluid, thermal, electromagnetic, system modeling, and embedded system design.

Beyond just simulating physical behavior, CAE can now solve multi-disciplinary optimization problems to numerically optimize parameters and achieve design objectives such as to minimize weight or cost. Utilizing such advanced simulation and optimization methods, engineers and designers can shorten development cycles, virtually test product performance, explore alternatives, and synthesize designs that enhance product functionality, performance and reliability while reducing complexity and costs.

Principal drivers of growth in demand for simulation & analysis software include:

Improving sophistication and fidelity of CAE technologies The engineering software industry is challenged by increasingly sophisticated design requirements and enabled by the ever-expanding availability of cost effective computing power. Simulation models continue to grow in size, complexity, and range of physics, driving demand for additional computational power and parallelization algorithms, more powerful modeling and visualization tools and more advanced multi-physics solvers. Advances in computing infrastructure have kept pace over time, drastically reducing the time it takes to perform complex simulations and solve large-scale problems such as automotive crash simulation, fluid-structure interaction of subsea oil pipelines and detailed composite simulation of full aircraft structures. As these models continue to grow larger and solve faster, the knowledge and power of these methods to impact design decisions expands across a department, an industry, or from one industry to another, fueling consumption of CAE software.

Fundamental transformations in product engineering The nature of modern manufactured products is rapidly evolving toward intelligent, connected systems. Once composed solely of mechanical parts, products have become complex systems often combining mechanical hardware, electronics, sensors, controls, software, and communications in myriad ways to monitor and adjust behavior using embedded logic. Advanced driver-assistance systems, or ADAS, autonomous vehicles, or AVs, modern industrial robots and most new consumer products are examples of this new paradigm. This complex interplay across domains is forcing engineers to take a systems-level approach to design, and in turn to rely on advanced computer-aided systems simulation as a necessity in product design. Controls algorithm development, modeling of linked systems, and transfer of control logic into embedded systems can all be done using CAE software to achieve optimal performance and cost and ensure product integrity while minimizing physical prototype iterations.

Democratization of CAE CAE software access was historically limited to a small pool of specialist engineers in large organizations with a high level of domain expertise and knowledge of complex mathematical modeling and underlying physics. Exploring different product design ideas at the same time through simulation software required reliable, secure, and dedicated high-speed computing infrastructure, which was typically expensive to own and operate. The dramatic increase in computing performance, and an equally dramatic reduction in computing cost over the last twenty years coupled with the growth of cloud computing is making CAE, and especially optimization, cost effective. Coupled with user-friendly software applications which make multi-run design studies less expensive, businesses have the opportunity to expand their CAE user community and overall application of simulation.

We believe record numbers of engineers and designers involved in product development now have access to CAE tools, and any one engineer involved in product development has access to more CAE tools than ever, thus driving increased adoption of CAE solutions across large organizations and by small and medium businesses.

An emerging paradigm of simulation-driven design Simulation is now driving design innovation, rather than following design. The product development process of recent decades involved creation of a product concept followed by development of a detailed design using 3D CAD. The designs were then passed along to engineering teams to refine, test and optimize. CAE was often too late or too slow to effectively impact the rapid decisions required to correct flawed product designs. Design changes late in the product development process are costly, may delay product launches, and can adversely affect product quality and performance.

Democratization of CAE offers product designers easy access to a user-friendly subset of simulation tools to take into account product performance objectives and manufacturability early in the design process. Going forward, engineering specialists can focus more on detailed validations and complex simulations. This is driving a positive movement toward simulation-driven design processes and a corresponding growth in simulation software consumption.

Expanding scope of simulations to "digital twins" The evolution of products into intelligent, connected devices—which are increasingly embedded in broader systems—is reshaping how products are engineered, manufactured, operated and serviced. Smart, connected products underpin the IoT and generate vast amounts of actionable data. As consumers and industries begin to realize tangible benefits from connected products, IoT adoption is accelerating. Gartner estimates that the installed base of IoT units will grow to reach more than 20 billion units by 2020.* CAE software combined with advanced analytics and operating data from sensors make it possible for manufacturers to improve product performance through complete life-cycles. In-service measurements, combined with simulation models, or digital twins, provide information to predict and prescribe maintenance of components or systems. The IoT is changing engineering by broadening the scope of PLM to leverage simulation and analytics for better and more robust manufacturing and in-service operation.

Market opportunity

Rising expectations of end-market customers, new manufacturing methods such as 3D printing, the ability to design and process composites and new materials, combined with more powerful math-based computational technologies, are expanding the application of simulation across many industry verticals and throughout product life-cycles. CAE software offers companies opportunities to achieve better, lower cost products with fewer physical prototypes and tests, and reduces the time required to bring products to market.

The CIMdata Report forecasts, "the PLM market to grow at a compound annual growth rate (CAGR) of 6.7% to $56.3 billion" in 2021. The CIMdata Report estimates the CAE market which they refer to as Simulation and Analysis, as a subset of the PLM market to be approximately $5.3 billion and $5.7 billion in 2016 and 2017, respectively. The CIMdata Report expects the CAE market, "will be one of the more rapidly growing segments within the tools sector of PLM over the next five years, and forecasts that this market sector will exceed $7.8 billion in 2021, with an 8.1% CAGR."

We believe our strategy of making CAE technologies more accessible through simplified user interfaces with easy access to a broad range of applications and new cloud offerings will help us expand to more designers, engineers and architects at larger companies as well as at small and medium enterprises, thus driving a growth rate that exceeds the overall simulation and analysis, or the S&A, market. In addition, our recent offerings including software for math-based systems modeling, embedded systems design, and visual analytics present an opportunity to expand our customer base.

Our addressable opportunity also includes software to facilitate and optimize the use of HPC infrastructure critical for running complex simulation models in industries ranging from manufacturing to weather prediction, bio-informatics and financial risk-management. According to the former high performance analyst team of IDC which is now owned by Hyperion, the market for high-end HPC servers is estimated to reach $7 billion by 2020. We believe we are positioned attractively to capture spending related to workload management systems for these high-end servers.

We believe Altair's simulation and HPC expertise uniquely positions us to address a portion of spending in the massive and fast growing IoT and analytics market. IDC estimates that $36 billion was spent on IoT platforms in 2015, and estimates the market to grow at a CAGR of 15% through 2020. IDC believes $19.97 billion was spent on business intelligence and analytics software tools in 2016 and will grow at a CAGR of 12% through 2021. We have decades of experience helping our customers aggregate, analyze and visualize vast datasets created by large scale simulations, laboratory tests and in-field sensors. Through our analytics product suite and IoT platform, we are expanding our market reach to a broader set of customers, enabling them to collect and analyze data from an increasing number of connected products to support key business decisions.

Competitive strengths

We believe the following strengths will allow us to maintain and build our position in the growing market for engineering and simulation solutions:

Experienced management and culture of innovation

As a technology and product driven company, we believe Altair's culture of innovation creates engagement and loyalty among our employees and customers.

Our founder and leadership team are deeply experienced with a strong track record of both business and product innovation. Our diversified and global workforce is highly experienced and energetic. Altair's culture affords many opportunities for people to take on new roles and assignments, including significant mobility between locations around the world. Approximately 50% of our employees have been with Altair more than five years and approximately 50% of our managers have a tenure exceeding ten years. Many of our key executives have worked at the company for over 20 years. All of this translates into a significant competitive advantage through deeply rooted institutional knowledge about our market, our competitors' strengths and weaknesses, and engineering technology.

Units-based subscription licensing model

Altair pioneered a patented units-based subscription licensing model for software and other digital content which has transformed the way our customers use software, delivering strong retention rates and revenue growth.

Under a traditional software industry licensing model, customers license rights to use a particular application or a suite of applications, which are typically priced on a per user or central processing unit, or CPU, basis for a specified period of time. The Altair units-based subscription licensing model is different from the traditional licensing model because it allows customers to license a pool of units for their organizations, providing individual users flexible access to our entire portfolio of software applications along with over 150 partner products. Under the Altair units-based subscription licensing model, customers acquire rights to use a "unit" for a specified period of time. Units are held in a pool and drawn when a user runs any of the applications available under our licensing model, either Altair applications or third-party partner applications. When the user closes the application, the units are returned to the pool and become available for use by all users. In 2016, customers accessed an average of 14.6 applications from our overall portfolio. Altair's business model is particularly suited to CAE, as engineers and designers often require several different applications across multiple disciplines when developing products. This model lowers barriers to adoption, creates broad engagement, encourages users to work within our ecosystem and access applications they might otherwise have purchased from competitors, and increases revenue. This, in turn, helps drive our recurring software license rate which has been on average approximately 88% over the past five years. Each year approximately 60% of new revenue comes from expansion within existing customers.

License a pool of units for team use	*Use any time of day,* anywhere in the world	When finished, units return to the pool for someone else on the team to use

Broad simulation portfolio and open interfaces

Altair's broad portfolio of solutions as well as our open philosophy toward interfacing with other solutions, including competitors, positions us as a strong and strategic partner for customers.

We have assembled one of the broadest portfolios of simulation and optimization applications in the industry, spanning multiple domains and technology disciplines. Our software offers multidisciplinary capabilities in simulation, optimization and predictive analytics. We address the entire product lifecycle including concept design, engineering, manufacturing processes, and in-service operations.

Altair has historically offered broad and complete interfaces to most major third party CAD and CAE software on the market. Customers using a variety of platforms within their enterprises and throughout their supply chain have the ability to use Altair's software as a central method to share models across multiple formats and between different simulation disciplines.

Industry-leading simulation performance

Our simulation solutions including modeling, visualization and solvers are noted in the market for their ability to handle large and complex models.

Altair's software applications are highly industrialized and state-of-the-art and take thorough advantage of new compute architectures as they become available including new processors, storage systems, Graphics Processing Units, or GPUs, and on-premise and public high-performance cloud computing. In addition, we are developing and experimenting with solutions for HPC workload management and remote visualization which will allow the delivery of our own as well as other software via a cloud model.

Our software applications deliver high-performance and high scalability, including massive parallelization, which is increasingly important in the CAE market. This allows our customers to run complex high-fidelity simulations quickly and cost-effectively. As the market moves to drive design with numerical optimization and stochastic studies to improve quality, this requires models to be run multiple times, often with hundreds or thousands of changes to input variables. Compute performance and the ability to run larger models are critical to delivering timely and accurate results, and best-in-class designs.

Altair is a leader in integrating optimization technology across all our products including multi-disciplinary applications. We believe our ability to leverage HPC as the industry transitions to cloud computing also provides an important differentiator.

Deep technical engagement with customers

Our services including consulting, implementation services, training and support enhance our ability to drive grassroots demand for our applications.

Altair's software related services team is comprised of approximately 700 highly technical people globally and is differentiated by its significant size and the breadth of their real world experience. We believe our approach differentiates us from our competitors, as we focus on establishing a strong working relationship with the user community allowing us to offer guidance and expertise throughout their product creation process.

Altair has a philosophy of significant engagement with strategic customers on key development projects in our software product roadmap to ensure we deliver solutions which are innovative and comprehensive in addressing customer requirements.

We believe our close technical engagement with users, along with senior engineering relationships developed by our sales personnel, helps our ability to sell future products and services.

Growth strategies

We believe the following represent opportunities for Altair's growth in the engineering simulation market:

- Grow market share for solvers;
- Grow indirect business through our original equipment manufacturer, or OEM, and reseller networks;
- Establish leadership position in the expanding cloud HPC market;
- Expand client adoption for simulation-driven design offerings; and
- Target the emerging IoT market with platform, analytics and digital twin solutions.

We intend to pursue growth by leveraging these opportunities with the following growth strategies:

Increase software usage within our existing customer base

Our existing base of tens of thousands of users across approximately 5,000 customers worldwide provides a significant opportunity to increase revenues. Historically we have derived 60% of our new software revenue from existing clients. The units-based subscription licensing model lowers barriers to usage, and provides customers the flexibility to initially deploy one or more of our products and later expand usage to more of our applications along with partner

products. This land and expand strategy combined with our leadership position in modeling and visualization and our strong portfolio of solver products presents a clear path toward increased usage.

We believe Altair PBS Cloud, complemented by the newly acquired Runtime Design Automation, or Runtime, products, can revolutionize how customer organizations manage their on-premises HPC computing and off-premises cloud infrastructure. As companies transition more HPC workloads to the cloud, we believe Altair PBS Cloud along with Runtime will help them to easily provision, manage and optimize these resources to maximize return on investment.

Invest in our direct sales force

Our direct sales force is highly technical and experienced, and consistently delivers solid growth and customer loyalty. Our subscription business model sometimes results in smaller new and expansion deal sizes than traditional paid-up licensing approaches. However, our model drives recurring software licenses and consistent growth, creates broad engagement, encourages users to work within our ecosystem, and increases revenue. This drives our recurring software license rate which has been on average approximately 88% over the past five years, and is powerful when competing for new business.

We plan to hire additional field and inside sales professionals in most major markets in which we operate, and to support these teams with continued brand and product marketing. We believe adding sales capacity in our direct sales force will grow revenue.

Expand through indirect sales channels

We believe there is growth and margin expansion opportunity through our OEM and reseller networks, and we plan to continue adding more partners across all product suites in the future.

solidThinking indirect channels are intended to deliver important new top line growth into middle-market companies not requiring the full suite of enterprise solutions. We plan to focus significant attention on growing our base of Carriots OEMs, implementation partners, and resellers by targeting specific vertical IoT markets. These relationships are important in creating opportunities for digital twin simulation related to the design of, and in-service predictive analytics of, connected products.

Continue investment in R&D

We organically developed over 15 products which came to market commercially in the last 25 years. These include HyperMesh, HyperView, HyperGraph, OptiStruct, Compose, Activate, Click2Form, HyperStudy, Inspire, MotionView, MotionSolve, Altair PBS Access, Altair PBS Cloud, and Carriots Analytics. We believe this level of organic product creation sustained over such a long period of time is unique in the PLM market.

Analytics from our units-based subscription licensing model gives us insight into our customers' workflows and usage patterns. This helps guide our product development and R&D efforts. We pay attention to how problems are being solved by currently available solutions and look for opportunities to create new products where we can make significant improvements in quality or performance and deliver future revenue streams for our company. We experiment with new methods and emerging technologies as they become available to learn and to find ways they can be relevant in advancing our products' technologies in the markets we serve.

We view our continued investment in R&D as essential to developing new products and technologies, as well as new features for existing products, to support the needs of our users.

Selectively pursue acquisitions and strategic investments

We plan to explore and pursue selective acquisitions and strategic investments to complement and strengthen our product offerings, expand the functionality of our solution, acquire technology or talent, or gain access to new customers and markets.

We acquired 19 companies or strategic technologies since 1996, including 11 in the last three years. These acquisitions brought strategic IP assets, and approximately 200 developers with expertise in disciplines ranging from electronics, material science, crash and safety to industrial design and rendering. Products which are commercially available as a result of these acquisitions include Click2Extrude, Altair PBS Professional, Radioss, Evolve, Acusolve, SimLab, Embed, Click2Cast, Multi-scale Designer, FEKO, FLUX, WinProp, Thea Render, Modeliis, Carriots, and ESAComp.

We believe our ability to integrate expert teams and new IP into our organization, and quickly bring acquired products to market with our business model, is unique in the PLM market.

Subsequent events

On September 28, 2017, we acquired Runtime for $10.0 million in cash, $8.7 million in a deferred cash payment obligation, and 177,000 shares of our Class A voting common stock. Runtime complements Altair's PBS Works™ suite of products for comprehensive, secure workload management for HPC and cloud environments and has solutions to manage highly complex workflows. We believe both Runtime and PBS Works deliver innovative and mission critical technology to optimize the use of HPC for compute-intensive applications. PBS Works targets product design, weather prediction, oil exploration and bio-informatics, and Runtime primarily serves customers in electronic design automation, or EDA.

Risks affecting us

Our business is subject to numerous risks and uncertainties, including those highlighted in the section entitled "Risk factors" immediately following this prospectus summary. These risks include, but are not limited to, the following:

- We have experienced significant revenue growth and we may fail to sustain that growth rate or may not grow in the future;
- If we cannot maintain our company culture of innovation, teamwork, and communication our business may be harmed;

- If our existing customers or users do not increase their usage of our software, or we do not add new customers, the growth of our business may be harmed;
- Our ability to acquire new customers is difficult to predict because our software sales cycle can be long;
- Reduced spending on product design and development activities by our customers may negatively affect our revenues;
- Our business largely depends on annual renewals of our software licenses;
- We believe our future success will depend, in part, on the growth in demand for our software by customers other than simulation engineering specialists and in additional industry verticals;
- We face significant competition, which may adversely affect our ability to add new customers, retain existing customers and grow our business;
- Because we derive a substantial portion of our revenues from customers in the automotive industry, we are susceptible to factors affecting this industry;
- Our quarterly results may fluctuate significantly and may not fully reflect the underlying performance of our business; and
- The dual class structure of our common stock has the effect of concentrating voting control with certain stockholders who hold shares of our Class B common stock, including our founders, certain of our directors and executive officers and affiliates, who will hold in the aggregate % of the voting power of our capital stock following the completion of this offering. This will limit or preclude your ability to influence corporate matters, including the election of directors, amendments of our organizational documents, and any merger, consolidation, sale of all or substantially all of our assets, or other major corporate transaction requiring stockholder approval. Upon the completion of this offering, our executive officers, directors and current beneficial owners of 5% or more of our Class A common stock, together with their respective affiliates, will beneficially own, in the aggregate, approximately % of our outstanding common stock, assuming no exercise of the underwriters' option to purchase additional shares of our common stock in this offering.

Corporate history and information

We were incorporated in Michigan in 1985. We plan to reincorporate in Delaware in connection with this offering. Our principal executive offices are located at 1820 E. Big Beaver Road, Troy, Michigan 48083. On April 3, 2017, we completed a recapitalization of our capital stock by filing a certificate of amendment to our articles of incorporation with the State of Michigan pursuant to which: (i) each share of our Class A voting common stock, or our old Class A shares, automatically converted into one share of new Class B voting common stock entitled to ten votes per share; and (ii) each share of our Class B non-voting common stock, or our old Class B shares, automatically converted into one share of new Class A voting common stock entitled to one vote per share, in each case, without any further action on the part of the holders thereof. We refer to this transaction as our "Recapitalization." Our website address is www.altair.com. Information contained on our website is not incorporated by reference into this prospectus, and you should not consider any information contained on, or that can be accessed through, our website as part of this prospectus or in deciding whether to purchase shares of our Class A common stock.

Unless the context otherwise requires, the terms "Altair," "the Company," "we," "us" and "our" in this prospectus refers to Altair Engineering Inc. and its subsidiaries. The Altair design logo and the marks "OptiStruct," "RADIOSS," "AcuSolve," "FEKO," "Flux," "WinProp," "Multiscale Designer," "HyperStudy," "HyperMesh," "HyperView," "SimLab," "HyperCrash," "HyperGraph," "Inspire," "solidThinking Evolve," "Thea Render," "Click2Cast," "Click2Extrude," "Click2Form," "Carriots," "solidThinking Compose," "solidThinking Activate," "solidThinking Embed," "Altair PBS Works," "Altair PBS Professional," "Altair PBS Cloud," "MotionView," "MotionSolve," "Altair PBS Access" and our other registered or common law trade names, trademarks or service marks appearing in this prospectus are our property. This prospectus contains additional trade names, trademarks and service marks of other companies that are the property of their respective owners. We do not intend our use or display of other companies' trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by these other companies.

Implications of being an emerging growth company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended, or the JOBS Act. An emerging growth company may take advantage of relief from certain reporting requirements and other burdens that are otherwise applicable generally to public companies. These provisions include:

- reduced obligations with respect to financial data, including presenting only two years of audited financial statements and only two years of selected financial data;
- an exemption from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended, or SOX;
- reduced disclosure about our executive compensation arrangements;
- an exemption from the requirements to obtain a nonbinding advisory vote on executive compensation or stockholder approval of any golden parachute arrangements; and
- extended transition period for complying with new and revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (i) are no longer an emerging growth company, or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act.

We may take advantage of these provisions for up to five years or such earlier time that we no longer qualify as an emerging growth company. We would cease to be an emerging growth company if we have more than $1.07 billion in annual revenues, have more than $700 million in market value of our capital stock held by non-affiliates or issue more than $1.0 billion of non-convertible debt over a three-year period. We may choose to take advantage of some but

not all of these reduced reporting burdens.

The offering

Class A common stock offered by us	shares
Class A common stock offered by the selling stockholders	shares
Overallotment option offered by us	shares
Class A common stock to be outstanding after this offering	shares (shares, if the underwriters exercise their option to purchase additional shares in full)
Class B common stock to be outstanding after this offering	shares
Total Class A and Class B common stock to be outstanding after this offering	shares (shares, if the underwriters exercise their option to purchase additional shares in full)
Use of proceeds	We estimate that the net proceeds from our sale of shares of Class A common stock in this offering at an assumed initial public offering price of $ per share, the midpoint of the price range set forth on the front cover of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses, will be approximately $ million, or $ million if the underwriters' overallotment option is exercised in full.

We intend to use the net proceeds of this offering to repay our term loan and our revolving credit facility balance under our Credit Agreement. We intend to use the remaining net proceeds to us for general corporate purposes, including real estate development, working capital, sales and marketing activities, general and administrative matters, capital expenditures, and acquisitions, or investments in, technologies or businesses. We will not receive any proceeds from the sale of shares of our Class A common stock by the selling stockholders. For a more complete description of our intended use of proceeds from this offering, see the section entitled "Use of proceeds."

Proposed symbol	"ALTR"
Voting Rights	Shares of our Class A common stock are entitled to one vote per share. Shares of our Class B common stock are entitled to ten votes per share. Holders of our Class A common stock and Class B common stock will generally vote together as a single class, unless otherwise

required by law or by our Delaware certificate of incorporation. The holders of our outstanding Class B common stock will hold approximately % of the voting power of our outstanding capital stock following this offering and will have the ability to control the outcome of matters submitted to our stockholders for approval, including the election of our directors and the approval of any change in control transaction. See the sections entitled "Principal and selling stockholders" and "Description of capital stock" for additional information.

Conflicts of Interest	Affiliates of J.P. Morgan Securities LLC and RBC Capital Markets, LLC, the joint book running managers for this offering, will receive more than 5% of the net proceeds of this offering in connection with the repayment of outstanding loans under our Credit Agreement. Accordingly, this offering is being conducted in accordance with the applicable provisions of Rule 5121 of the Financial Industry Authority, Inc., or FINRA, Conduct Rules because certain of the underwriters will have a "conflict interest" pursuant to Rule 5121. In accordance with Rule 5121, Deutsche Bank Securities Inc. is acting as the qualified independent underwriter in this offering. Any underwriter that has a conflict of interest pursuant to Rule 5121 will not confirm sales to accounts in which it exercises discretionary authority without the prior written consent of the customer. See the section entitled "Underwriting—Conflicts of interest."

The total number of shares of our common stock to be outstanding following this offering is based on 2,346,878 shares of our Class A common stock and 10,300,857 shares of our Class B common stock, outstanding as of June 30, 2017, and excludes:

- shares of our Class A common stock to be reserved for issuance under our 2017 Equity Incentive Plan, or our 2017 Plan;
- 656,980 shares of our Class A common stock reserved for issuance under our 2012 Incentive and Non-Qualified Stock Option Plan, or our 2012 Plan;
- 1,586,960 shares of our Class A common stock issuable upon exercise of stock options outstanding as of June 30, 2017, with an exercise price of $0.001, under our 2001 Non-Qualified Stock Option Plan, or our 2001 NQSO Plan;
- 732,845 shares of our Class A common stock issuable upon exercise of stock options outstanding as of June 30, 2017, with a weighted average exercise price of $2.56, under our 2001 Incentive and Non-Qualified Stock Option Plan, or 2001 ISO and NQSO Plan (other than the stock options to be exercised by certain of the selling stockholders in connection with this offering, as set forth elsewhere in this prospectus); and

- 552,402 shares of our Class A common stock issuable upon exercise of stock options outstanding as of June 30, 2017, with a weighted average exercise price of $14.91, under our 2012 Plan.

Except as otherwise indicated, all information in this prospectus assumes:

- the filing and effectiveness of our Delaware certificate of incorporation and bylaws immediately prior to the effectiveness of the registration statement of which this prospectus is a part;
- no exercise or cancellations of outstanding stock options after June 30, 2017 (except by certain of the selling stockholders in connection with this offering, as disclosed elsewhere in this prospectus);
- no exercise by the underwriters of their option to purchase up to an additional shares of our Class A common stock; and
- a -for-one stock split of our common stock to be effected prior to the closing of this offering.

Summary historical consolidated financial and other data

The following tables summarize the consolidated financial data for our business. You should read this summary consolidated financial data in conjunction with the "Management's discussion and analysis of financial condition and results of operations" and our consolidated financial statements and related notes included elsewhere in this prospectus. We derived the consolidated statements of operations data for the years ended December 31, 2015 and 2016 and the consolidated balance sheet data as of December 31, 2016, from our audited consolidated financial statements included elsewhere in this prospectus. The consolidated statement of operations and cash flow data for the six months ended June 30, 2016 and 2017, and the consolidated balance sheet data as of June 30, 2017, are derived from our unaudited consolidated financial statements included elsewhere in this prospectus. We have prepared the unaudited consolidated financial statements on the same basis as the audited consolidated financial statements and have included all adjustments, consisting only of normal recurring adjustments that, in our opinion, are necessary to state fairly the financial information set forth in those statements. Our historical results are not necessarily indicative of the results that may be expected in the future, and the results of operations for the six months ended June 30, 2017 are not necessarily indicative of the results to be expected for the full fiscal year or any other period. The summary consolidated financial data in this section are not intended to replace our consolidated financial statements and the related notes, and are qualified in their entirety by the consolidated financial statements and related notes included elsewhere in this prospectus.

	Years ended December 31,		Six months ended June 30,	
(in thousands, except share data)	**2015**	**2016**	**2016**	**2017**
Consolidated statements of operations data:				
Revenue:				
Software	$205,567	$223,818	$106,929	$113,697
Software related services	37,294	35,770	17,790	17,175
Total software	242,861	259,588	124,719	130,872
Client engineering services	45,075	47,702	24,289	24,594
Other	6,193	5,950	3,332	3,062
Total revenue	294,129	313,240	152,340	158,528
Cost of revenue:				
Software[(1)]	27,406	31,962	15,021	17,633
Software related services	30,079	27,653	13,838	13,773
Total software	57,485	59,615	28,859	31,406
Client engineering services	36,081	38,106	19,207	19,969
Other	5,642	4,879	2,692	2,297
Total cost of revenue	99,208	102,600	50,758	53,672
Gross profit	194,921	210,640	101,582	104,856
Operating expenses:				
Research and development[(1)]	62,777	71,325	34,012	41,608
Sales and marketing[(1)]	63,080	66,086	32,093	36,338
General and administrative[(1)]	54,069	57,202	27,882	37,290
Amortization of intangible assets	2,624	3,322	1,477	2,098
Other operating income	(2,576)	(2,742)	(1,129)	(3,330)
Total operating expense	179,974	195,193	94,335	114,004

Operating income (loss)	14,947	15,447	7,247	(9,148)
Interest expense	2,416	2,265	1,247	1,159
Other expense (income), net	782	(520)	(652)	786
Income (loss) before income taxes	11,749	13,702	6,652	(11,093)
Income tax expense (benefit)	818	3,539	2,699	(1,659)
Net income (loss)	$10,931	$10,163	$3,953	$(9,434)
Net income (loss) per share attributable to common stockholders, basic[2]	$0.94	$0.83	$0.33	$(0.75)
Net income (loss) per share attributable to common stockholders, diluted[2]	$0.74	$0.70	$0.28	$(0.75)
Weighted average number of shares used in computing net income (loss) per share, basic[2]	11,652	12,213	11,973	12,564
Weighted average number of shares used in computing net income (loss) per share, diluted[2]	14,677	14,464	14,309	12,564
Pro forma net income (loss)[3]		$12,341		$(3,303)
Pro forma net income (loss) per share attributable to common stockholders, basic[3]		$ 1.01		$ (0.26)
Pro forma net income (loss) per share attributable to common stockholders, diluted[3]		$ 0.85		$ (0.26)
Other financial information:				
Net cash provided by operating activities	$10,838	$21,385	$22,006	$26,117

(1) Includes stock-based compensation expense as follows:

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Cost of revenue—software	$44	$22	$14	$16
Research and development	149	1,370	41	3,784
Sales and marketing	109	775	35	2,115
General and administrative	295	2,965	85	8,122
Total stock-based compensation expense	$597	$5,132	$175	$14,037

(2) See Note 14 to our consolidated financial statements for an explanation of the method used to calculate basic and diluted net income (loss) per share attributable to common stockholders.

(3) The Pro forma amounts reflect the effects of the reversal of the stock-based compensation liability that will occur upon effectiveness (see Note 3 to our consolidated financial statements), but excludes the 177,000 shares of our Class A common stock issued on September 28, 2017 in connection with our acquisition of Runtime.

	As of June 30, 2017		
(in thousands)	**Actual**	**Pro forma[1]**	**Pro forma as adjusted[2][3]**
Consolidated balance sheet data:			
Cash and cash equivalents	$17,419	$17,419	
Working capital	(79,313)	(79,313)	
Total assets	265,610	265,610	
Deferred revenue, current and non-current	136,780	136,780	
Debt	71,095	71,095	
Total stockholders' deficit	(41,434)	(24,583)	

(1) The Pro forma column in the consolidated balance sheet data table above reflects the effects of the reversal of the stock-based compensation liability that will occur upon effectiveness and the filing and effectiveness of our Delaware certificate of incorporation, which is expected to occur immediately prior to the effectiveness of the registration statement of which this prospectus is a part, as if each had occurred on June 30, 2017 (See Note 3 to our consolidated financial statements), but excludes the 177,000 shares of our Class A common stock issued on September 28, 2017 in connection with our acquisition of Runtime.

(2) The Pro forma as Adjusted column gives effect to (i) the pro forma adjustments set forth above, (ii) the receipt by us of $ million in net proceeds from the sale and issuance by us of shares of our Class A common stock offered in this prospectus at an assumed initial public offering price of $ per share, which is the midpoint of the range set forth on the cover page of this prospectus, after deducting the estimated underwriting discounts and commissions from this offering and estimated offering expenses paid or payable by us and, (iii) our use of a portion of our net proceeds from this offering to fully repay our term loan and revolving credit facility balance under our Credit Agreement, which had outstanding balances of $52.5 million and $18.0 million, respectively, as of June 30, 2017.

(3) Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the range set forth on the cover page of this prospectus, would increase or decrease, as applicable, the pro forma as adjusted cash and cash equivalents, working capital, total assets, and total stockholders' deficit by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions from this offering. The pro forma as adjusted information presented in the consolidated balance sheet data is illustrative only and will change based on the actual initial public offering price and other terms of this offering determined at pricing.

Key metrics

We monitor the following key non-GAAP, (United States generally accepted accounting principles), financial and operating metrics to help us evaluate our business, measure our performance, identify trends affecting our business, formulate business plans and make strategic decisions. In addition to our results determined in accordance with GAAP, we believe the following non-GAAP financial and operating metrics are useful in evaluating our operating performance.

Billings. Billings consists of our total revenue plus the change in our deferred revenue in a given period. As we generally bill our customers at the time of sale, but typically recognize a majority of the related revenue ratably over time, management believes that Billings is a meaningful way to measure and monitor our ability to provide our business with the working capital generated by upfront payments from our customers. While we believe that billings provides valuable insight into the cash that will be generated from sales of our software and services, this metric may vary from period-to-period for a number of reasons including the impact of changes in foreign currency exchange rates and the potential impact of acquisitions. See the section entitled "Selected historical consolidated financial and other data—Reconciliation of non-GAAP financial measures" for information regarding the limitations of using Billings as a financial measure and for a reconciliation of Billings to revenue, the most directly comparable financial measure calculated in accordance with GAAP.

Our Billings were as follows:

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Billings	$297,358	$320,653	$165,449	$181,379

Adjusted EBITDA. We define Adjusted EBITDA as net income (loss) adjusted for income tax expense (benefit), interest expense, interest income and other, depreciation and amortization, stock-based compensation expense, restructuring charges, asset impairment charges and other special items as determined by management. We believe that Adjusted EBITDA is a meaningful measure of performance as it is commonly utilized by us and the investment community to analyze operating performance in our industry. See the section entitled "Selected historical consolidated financial and other data—Reconciliation of non-GAAP financial measures" for information regarding the limitations of using Adjusted EBITDA as a financial measure and for a reconciliation of Adjusted EBITDA to net income (loss), the most directly comparable financial measure calculated in accordance with GAAP.

Our Adjusted EBITDA was as follows:

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Adjusted EBITDA	$22,949	$30,830	$12,933	$7,056

Free Cash Flow. Free Cash Flow is a non-GAAP financial measure that we calculate as cash flow provided by operating activities less capital expenditures. We believe that Free Cash Flow is useful in analyzing our ability to service and repay debt and return value directly to stockholders. See the section entitled "Selected historical consolidated financial and other data—Reconciliation of non-GAAP financial measures" for information regarding the limitations of using Free Cash Flow as a financial measure and for a reconciliation of Free Cash Flow to net cash provided by operating activities, the most directly comparable financial measure calculated in accordance with GAAP.

Our Free Cash Flow was as follows:

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Free Cash Flow	$5,605	$11,941	$18,307	$21,782

Recurring Software License Rate. A key factor to our success is our recurring software license rate which we measure through billings, primarily derived from annual renewals of our existing subscription customer agreements. We calculate our recurring software license rate for a particular period by dividing (i) the sum of software term-based license billings, software license maintenance billings, and 20% of software perpetual license billings which we believe approximates maintenance as an element of the arrangement by (ii) the total software license billings including all term-based, maintenance, and perpetual license billings from all customers for that period. For the years ended December 31, 2015, 2016 and six months ended June 30, 2017, our recurring software license rate was 88%, 90% and 91%, respectively.

Risk factors

Risk factors *Investing in our Class A common stock involves a high degree of risk. You should carefully consider the risks and uncertainties described below, together with all the other information in this prospectus, including "Management's discussion and analysis of financial condition and results of operations" and our consolidated financial statements and the notes related thereto, before investing in our Class A common stock. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties that we are unaware of, or that we currently believe are not material, may also become important factors that*

affect our business. If any of the following risks occur, our business, financial condition, operating results and prospects could be materially harmed. In that event, the trading price of our Class A common stock could decline, and you could lose part or all of your investment.

Risks relating to our business and industry

We have experienced significant revenue growth and we may fail to sustain that growth rate or may not grow in the future.

We were founded in 1985 and launched our first commercial software in 1990. Our growth has primarily been attributed to the increasing reliance of manufacturers on our simulation and optimization software to support development of their products and designs. Revenue from our software segment has historically constituted a significant portion of our total revenue. Our revenue growth could decline over time as a result of a number of factors, including increasing competition from smaller entities and well-established, larger organizations, limited ability to, or our decision not to, increase pricing, contraction of our overall market or our failure to capitalize on growth opportunities. Other factors include managing our global organization, revenues generated outside the United States that are subject to adverse currency fluctuations and uncertain international geopolitical landscapes. In connection with operating as a public company, we will also incur additional legal, accounting and other expenses that we did not incur as a private company. Accordingly, we may not achieve similar growth rates in future periods, and you should not rely on our historical revenue growth as an indication of our future revenue or revenue growth.

If we cannot maintain our company culture of innovation, teamwork, and communication our business may be harmed.

We believe that a critical component to our success has been our company culture, which is based on our core values of innovation, envisioning the future, communicating honestly and broadly, seeking technology and business firsts, and embracing diversity. We have invested substantial time and resources in building a company embodying this culture. As we develop the infrastructure of a public company and continue to grow, we may find it difficult to maintain these valuable aspects of our corporate culture. Any failure to preserve our culture could negatively impact our future success, including our ability to attract and retain personnel, encourage innovation and teamwork, and effectively focus on and pursue our corporate objectives.

If our existing customers or users do not increase their usage of our software, or we do not add new customers, the growth of our business may be harmed.

Our software includes a multitude of broad and deep design, simulation, optimization, and analysis applications and functionalities.

Our future success depends, in part, on our ability to increase the:

- number of customers and users accessing our software;
- usage of our software to address expanding design, engineering, computing and analytical needs; and/or
- number of our applications and functionalities accessed by users and customers through our licensing model.

In addition, through our Altair Partner Alliance, or APA, our customers have access to additional software offered by independent third parties, without the need to enter into additional license agreements.

If we fail to increase the number of customers or users and/or application usage among existing users of our software and the software of our APA partners, our ability to license additional software will be adversely affected, which would harm our operating results and financial condition.

Our ability to acquire new customers is difficult to predict because our software sales cycle can be long.

Our ability to increase revenue and maintain or increase profitability depends, in part, on widespread acceptance of our software by mid- to- large-size organizations worldwide. We face long, costly, and unpredictable sales cycles. As a result of the variability and length of the sales cycle, we have only a limited ability to forecast the timing of sales. A delay in or failure to complete sales could harm our business and financial results, and could cause our financial results to vary significantly from period to period. Our sales cycle varies widely, reflecting differences in potential customers' decision making processes, procurement requirements and budget cycles, and is subject to significant risks over which we have little or no control, including:

- longstanding use of competing products and hesitancy to change;
- customers' budgetary constraints and priorities;
- timing of customers' budget cycles;
- need by some customers for lengthy evaluations;
- hesitation to adopt new processes and technologies;
- length and timing of customers' approval processes; and
- development of software by our competitors perceived to be equivalent or superior to our software.

To the extent any of the foregoing occur, our average sales cycle may increase and we may have difficulty acquiring new customers.

Reduced spending on product design and development activities by our customers may negatively affect our revenues.

Our revenues are largely dependent on our customers' overall product design and development activities, particularly demand from mid- to- large-size organizations worldwide and their supplier base. The licensing of our software is discretionary. Our customers may reduce their research and development budgets, which could cause them to reduce, defer, or forego licensing of our software. To the extent licensing of our software is perceived by existing and potential customers to be extraneous to their needs, our revenue may be negatively affected by our customers' delays or reductions in product development research and development spending. Customers may delay or cancel software licensing or seek to lower their costs. Deterioration in the demand for product design and development software for any reason would harm our business, operating results, and financial condition in the future.

Our business largely depends on annual renewals of our software licenses.

We typically license our software to our customers on an annual basis. In order for us to maintain or improve our operating results, it is important that our customers renew and/or increase the amount of software licensed on an annual basis. Customer renewal rates may be affected by a number of factors, including:

- our pricing or license term and those of our competitors;
- our reputation for performance and reliability;
- new product releases by us or our competitors;
- customer satisfaction with our software or support;
- consolidation within our customer base;
- availability of comparable software from our competitors;
- effects of global or industry specific economic conditions;
- our customers' ability to continue their operations and spending levels; and
- other factors, a number of which are beyond our control.

If our customers fail to renew their licenses or renew on terms that are less beneficial to us, our renewal rates may decline or fluctuate, which may harm our business.

We believe our future success will depend, in part, on the growth in demand for our software by customers other than simulation engineering specialists and in additional industry verticals.

Historically, our customers have been simulation engineering specialists. To enable concept engineering, driven by simulation, we make our physics solvers more accessible to designers by wrapping them in powerful simple interfaces. We believe our future success will depend, in part, on growth in demand for our software by these designers, which could be negatively impacted by the lack of:

- continued and/or growing reliance on software to optimize and accelerate the design process;
- adoption of simulation technology by designers other than simulation engineering specialists;
- continued proliferation of mobility, large data sets, cloud computing and IoT; our ability to predict demands of designers other than simulation engineering specialists and achieve market acceptance of our products within these additional areas and customer bases or in additional industry verticals; or
- our ability to respond to changes in the competitive landscape, including whether our competitors establish more widely adopted products for designers other than simulation engineering specialists.

If some or all of this software does not achieve widespread adoption, our revenues and profits may be adversely affected.

We face significant competition, which may adversely affect our ability to add new customers, retain existing customers, and grow our business.

The market for CAE software is highly fragmented but has been undergoing significant consolidation. Our primary competitors include Dassault Systèmes, Siemens, Ansys and MSC Software. Dassault and Siemens are large public companies, with significant financial resources, which have historically focused on CAD and product data management. More recently, these two companies have been investing in simulation software through acquisitions. Ansys and MSC are focused on CAE. In addition to these competitors, we compete with many smaller companies offering CAE software applications.

A significant number of companies have developed or are developing software and services that currently, or in the future may, compete with some or all of our software and services. We may also face competition from participants in adjacent markets, including two-dimensional, or 2D, and 3D, CAD, and broader PLM competitors, that may enter our markets by leveraging related technologies and partnering with or acquiring other companies.

The principal competitive factors in our industry include:

- breadth, depth and integration of software;

- domain expertise of sales and technical support personnel;
- consistent global support;
- performance and reliability; and
- price.

Many of our current and potential competitors have longer-term and more extensive relationships with our existing and potential customers that provide them with an advantage in competing for business with those customers. They may be able to devote greater resources to the development and improvement of their offerings than we can. These competitors could incorporate additional functionality into their competing products from their wider product offerings or leverage their commercial relationships in a manner that uses product bundling or closed technology platforms to discourage enterprises from purchasing our applications.

Many existing and potential competitors enjoy competitive advantages over us, such as:

- larger sales and marketing budgets and resources;
- access to larger customer bases, which often provide incumbency advantages;
- broader global distribution and presence;
- greater resources to make acquisitions;
- the ability to bundle competitive offerings with other software and services;
- greater brand recognition;
- lower labor and development costs;
- greater levels of aggregate investment in research and development;
- larger and more mature intellectual property portfolios; and
- greater financial, technical, management and other resources.

These competitive pressures in our markets or our failure to compete effectively may result in fewer customers, price reductions, licensing of fewer units, increased sales and marketing expenses, reduced revenue and gross profits and loss of market share. Any failure to address these factors could harm our business.

Because we derive a substantial portion of our revenues from customers in the automotive industry, we are susceptible to factors affecting this industry.

The automotive industry accounted for approximately 50% of our total revenue for the year ended December 31, 2016. An adverse occurrence, including industry slowdown, recession, political instability, costly or constraining regulations, excessive inflation, prolonged disruptions in one or more of our customers' production schedules or labor disturbances, that results in significant decline in the volume of sales in this industry, or in an overall downturn in the business and operations of our customers in this industry, could adversely affect our business.

The automotive industry is highly cyclical in nature and sensitive to changes in general economic conditions, consumer preferences and interest rates. Any weakness in demand in this industry, the insolvency of a manufacturer or suppliers, or constriction of credit markets may cause our automotive customers to reduce their amount of software licensed or services requested or request discounts or extended payment terms, any of which may cause fluctuations or a decrease in our revenues and timing of cash flows.

Our quarterly results may fluctuate significantly and may not fully reflect the underlying performance of our business.

Our quarterly results of operations and our key metrics, including billings, Adjusted EBITDA and Free Cash Flow may vary significantly in the future. Period-to-period comparisons of our operating results may not be meaningful. The results of any one quarter should not be relied upon as an indication of future performance. Our quarterly financial results and key metrics may fluctuate as a result of a variety of factors including:

- our ability to retain and/or increase sales to existing customers at various times;
- our ability to attract new customers;
- the addition or loss of large customers, including through their acquisitions or industry consolidations;
- the timing of recognition of revenues;

- the amount and timing of billings;
- the amount and timing of operating expenses and capital expenditures;
- significant security breaches, technical difficulties or unforeseen interruptions to the functionality of our software;
- the number of new employees added;
- the amount and timing of billing for professional services engagements;
- the timing and success of new products, features, enhancements or functionalities introduced by us or our competitors;
- changes in our pricing policies or those of our competitors;
- changes in the competitive dynamics of our industry, including consolidation among competitors;
- the timing of expenses related to the development or acquisition of technology;
- any future charges for impairment of goodwill from acquired companies;
- extraordinary expenses such as litigation or other dispute-related settlement payments;
- the impact of new accounting pronouncements; and
- general economic conditions.

Billings have historically been highest in the first and fourth quarters of any calendar year and may vary in future quarters. This seasonality or the occurrence of any of the factors above may cause our results of operations to vary and our financial statements may not fully reflect the underlying performance of our business.

In addition, we may choose to grow our business for the long-term rather than to optimize for profitability or cash flows for a particular shorter term period. If our quarterly results of operations fall below the expectations of investors or securities analysts the price of our Class A common stock could decline and we could face lawsuits, including securities class action suits.

Seasonal variations in the purchasing patterns of our customers may lead to fluctuations in the timing of our cash flows.

We have experienced and expect to continue to experience seasonal variations in the timing of customers' purchases of our software and services. Many customers make purchase decisions based on their fiscal year budgets, which often coincide with the calendar year. These seasonal trends materially affect the timing of our cash flows, as license fees become due at the time the license term commences based upon agreed payment terms that customers may not adhere to. As a result, new and renewal licenses have been concentrated in the first and fourth quarter of the year, and our cash flows from operations have been highest late in the first quarter and early in the second quarter of the succeeding fiscal year.

In connection with the preparation of our consolidated financial statements in recent years, we and our independent registered public accounting firm identified material weaknesses in our internal control over financial reporting. If we are not able to remediate the material weaknesses and otherwise maintain an effective system of internal control over financial reporting, the reliability of our financial reporting, investor confidence in us and the value of our common stock could be adversely affected.

As a public company, we will be required to maintain internal control over financial reporting and to report any material weaknesses in such internal controls. Section 404 of SOX, or Section 404, requires that we evaluate and determine the effectiveness of our internal controls over financial reporting and, beginning with our second annual report following this offering, provide a management report on internal control over financial reporting. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of annual or interim financial statements will not be prevented or detected and corrected on a timely basis.

In connection with the audits of fiscal years 2015 and 2016 financial statements, we and our independent registered public accounting firm identified two material weaknesses in our internal controls over financial reporting. The first material weakness pertained to controls over accounting for income taxes. Specifically, that: (i) certain misstatements were either not identified by management or were not identified timely by management; (ii) the preparation of the consolidation provision and various technical accounting analysis were not prepared or reviewed timely; and (iii) additional technical resources were necessary to enable timely and sufficient review controls over accounting for income taxes. We have taken steps to remediate this by hiring additional technical resources and increasing management review and oversight over the income tax process.

Also in connection with our audits of the fiscal year 2015 and 2016 consolidated financial statements, we and our independent registered public accounting firm identified a second material weakness related to the lack of timely preparation and review of our consolidated financial statements and related disclosures consistent with the requirements for a publicly traded company. Specifically that our internal controls over the financial statement close process were not designed to be precise enough to detect a material error in the financial statements in a timely manner. We have taken steps to remediate this material weakness, by hiring additional personnel and increasing management review and oversight over the financial statement close process.

If our steps are insufficient to successfully remediate the material weaknesses and otherwise establish and maintain an effective system of internal control over financial reporting, the reliability of our financial reporting, investor confidence in us and the value of our common stock could be materially and adversely affected. The process of designing and implementing internal control over financial reporting required to comply with Section 404 will be time consuming, costly and complicated. Our independent registered public accounting firm was not engaged to audit the effectiveness of our internal control over financial reporting. We may discover other control deficiencies in the future, and we cannot assure you that we will not have a material weakness in future periods.

Effective internal control over financial reporting is necessary for us to provide reliable and timely financial reports and, together with adequate disclosure controls and procedures, are designed to reasonably detect and prevent fraud. Any failure to implement required new or improved controls, or difficulties encountered in their implementation could cause us to fail to meet our reporting obligations. For as long as we are an "emerging growth company" under the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, our independent registered public accounting firm will not be required to attest to the effectiveness of our internal control over financial reporting pursuant to Section 404. We could be an "emerging growth company" for up to five years. An independent assessment of the effectiveness of our internal control over financial reporting could detect problems that our management's assessment might not. Undetected material weaknesses in our internal control over financial reporting could lead to financial statement restatements and require us to incur the expense of remediation.

Fluctuations in foreign currency exchange rates could result in declines in our reported revenue and operating results.

As a result of our international activities, we have revenue, expenses, cash, accounts receivable and payment obligations denominated in foreign currencies including Euros, British Pounds Sterling, Indian Rupees, Japanese Yen, and Chinese Yuan. Foreign currency risk arises primarily from the net difference between non-United States dollar receipts from customers and non-United States dollar operating expenses. The value of foreign currencies against the United States dollar can fluctuate significantly, and those fluctuations may occur quickly. We cannot predict the impact of future foreign currency fluctuations.

Further strengthening of the United States dollar could cause our software to become relatively more expensive to some of our customers leading to decreased sales and a reduction in billings and revenue not denominated in United States dollars. A reduction in revenue or an increase in operating expenses due to fluctuations in foreign currency exchange rates could have an adverse effect on our financial condition and operating results. Such foreign currency exchange rate fluctuations may make it more difficult to detect underlying trends in our business and operating results.

We do not currently, and do not have plans to, engage in currency hedging activities to limit the risk of exchange rate fluctuations. In the future, we may use derivative instruments, such as foreign currency forward and option contracts, to hedge certain exposures to fluctuations in foreign currency exchange rates. The use of such hedging activities may not offset any or more than a portion of the adverse financial effects of unfavorable movements in foreign exchange rates over the limited time the hedges are in place, and the cost of those hedging techniques may have a significant negative impact on our operating results. The use of hedging instruments may introduce additional risks if we are unable to structure effective hedges with such instruments. If we are not able to successfully manage or hedge against the risks associated with currency fluctuations, our financial condition and operating results could be adversely affected.

If we fail to attract new or retain existing third party independent software vendors to participate in the APA, we may not be able to grow the APA program.

The APA program allows our customers to use third party software that may be unrelated to our software, without the need to enter into additional license agreements. The APA program results in increased revenues through revenue sharing, and encourages users to stay within the Altair software ecosystem. If third party software providers are unwilling to join the APA on appropriate terms, including agreeing with our revenue share allocations, or if we are unable to retain our current APA participants, we may not be able to grow the APA program.

Licensing of our solidThinking software is dependent on performance of our distributors and resellers.

We have historically licensed our software primarily through our direct sales force. Our solidThinking offerings are primarily licensed through a recently expanded network of distributors and resellers. If these distributors and resellers become unstable, financially insolvent, or otherwise do not perform as we expect, our revenue growth derived from solidThinking could be negatively impacted.

If we fail to adapt to technology changes our software may become less marketable, less competitive, or obsolete.

Our success depends in part on our ability to:

- anticipate customer needs;
- foresee changes in technology, including to cloud-enabled hardware, software, networking, browser and database technologies;
- differentiate our software;
- maintain operability of our software with changing technology standards; and
- develop or acquire additional or complementary technologies.

We may not be able to develop or market new or enhanced software in a timely manner, which could result in our software becoming less marketable, less competitive, or obsolete.

We believe our long-term value as a company will be greater if we focus on growth, which may negatively impact our profitability in the near term.

Part of our business strategy is to focus on our long-term growth. As a result, our profitability may be lower in the near term than it would be if our strategy was to maximize short-term profitability. Expanding our research and development efforts, sales and marketing efforts, infrastructure and other such investments may not ultimately grow our business or cause higher long-term profitability. If we are ultimately unable to achieve greater profitability at the level anticipated by analysts and our stockholders, our Class A common stock price may decline.

Our research and development may not generate revenue or yield expected benefits.

A key element of our strategy is to invest significantly in research and development to create new software and enhance our existing software to address additional applications and serve new markets. Research and development projects can be technically challenging and expensive, and there may be delays between the time we incur expenses and the time we are able to generate revenue, if any. Anticipated customer demand for any software we may develop could decrease after the development cycle has commenced, and we could be unable to avoid costs associated with the development of any such software. If we expend a significant amount of resources on research and development and our efforts do not lead to the timely introduction or improvement of software that is competitive in our current or future markets, it could harm our business.

Our continued innovation may not generate revenue or yield expected benefits.

As a business focused on innovation, we expect to continue developing new software and products both internally and through acquisitions. These offerings may focus either on our existing markets or other markets in which we see opportunities. We may not receive revenue from these investments sufficient to either grow our business or cover the related development or acquisition costs.

If we lose our senior executives, we may be unable to achieve our business objectives.

We currently depend on the continued services and performance of James Scapa, our chief executive officer, and other senior executives. Many members of this executive team have served the Company for more than 15 years, with Mr. Scapa having served since our founding in 1985. Loss of Mr. Scapa's services or those of other senior executives could delay or prevent the achievement of our business objectives.

If we are unable to attract and retain key personnel, we may be unable to achieve our business objectives.

Our business is dependent on our ability to attract and retain highly skilled software engineers, salespeople, and support teams. There is significant industry competition for these individuals. We have many employees whose equity awards in our company are fully vested and may increase their personal wealth after giving effect to our offering, which could affect their decision to remain with the Company. Failure to attract or retain key personnel could delay or prevent the achievement of our business objectives.

Defects or errors in our software could result in loss of revenue or harm to our reputation.

Our software is complex and, despite extensive testing and quality control, may contain undetected or perceived bugs, defects, errors, or failures. From time to time we have found defects or errors in our software and we may discover additional defects in the future. We may not find defects or errors in new or enhanced software before release and these defects or errors may not be discovered by us or our customers until after they have used the software. We have in the past issued, and may in the future need to issue, corrective releases or updates of our software to remedy bugs, defects and errors or failures. The occurrence of any real or perceived bugs, defects, errors, or failures could result in:

- lost or delayed market acceptance of our software;
- delays in payment to us by customers;
- injury to our reputation;
- diversion of our resources;
- loss of competitive position;
- claims by customers for losses sustained by them;
- breach of contract claims or related liabilities;
- increased customer support expenses or financial concessions; and
- increased insurance costs.

Any of these problems could have a material adverse effect on our business, financial position, results of operations and cash flows.

Acquisitions may dilute our stockholders, disrupt our core business, divert our resources, or require significant management attention.

Most of our software has been developed internally with acquisitions used to augment our capabilities. We may not effectively identify, evaluate, integrate, or use acquired technology or personnel from future acquisitions, or accurately forecast the financial impact of an acquisition, including accounting charges.

After the completion of an acquisition, it is possible that our valuation of such acquisition for purchase price allocation purposes may change compared to initial expectations and result in unanticipated write-offs or charges, impairment of our goodwill, or a material change to the fair value of the assets and liabilities associated with a particular acquisition.

We may pay cash, incur debt, or issue equity securities to fund an acquisition. The payment of cash will decrease available cash. The incurrence of debt would likely increase our fixed obligations and could subject us to restrictive covenants or obligations. The issuance of equity securities would likely be dilutive to our stockholders. We may also incur unanticipated liabilities as a result of acquiring companies. Future acquisition activity may disrupt our core business, divert our resources, or require significant management attention.

Failure to protect and enforce our proprietary technology and intellectual property rights could substantially harm our business.

The success of our business depends, in part, on our ability to protect and enforce our proprietary technology and intellectual property rights, including our trade secrets, patents, trademarks, copyrights, and other intellectual property. We attempt to protect our intellectual property under trade secret, patent, trademark, and copyright laws. Despite our efforts, we may not be able to protect our proprietary technology and intellectual property rights, if we are unable to enforce our rights or if we do not detect unauthorized use of our intellectual property. It may be possible for unauthorized third parties to copy our technology and use information that we regard as proprietary to create products and services that compete with ours. Provisions in our licenses protect against unauthorized use, copying, transfer and disclosure of our technology, but such provisions may be difficult to enforce or are unenforceable under the laws of certain jurisdictions and countries. The laws of some countries do not protect proprietary rights to the same extent as the laws of the United States. Our international activities expose us to unauthorized copying and use of our technology and proprietary information.

We primarily rely on our unpatented proprietary technology and trade secrets. Despite our efforts to protect our proprietary technology and trade secrets, unauthorized parties may attempt to misappropriate, reverse engineer or otherwise obtain and use them. The contractual provisions that we enter into with employees, consultants, partners, vendors and customers may not be sufficient to prevent unauthorized use or disclosure of our proprietary technology or trade secrets and may not provide an adequate remedy in the event of unauthorized use or disclosure of our proprietary technology or trade secrets.

Policing unauthorized use of our technologies, software and intellectual property is difficult, expensive and time-consuming, particularly in countries where the laws may not be as protective of intellectual property rights as those in the United States and where mechanisms for enforcement of intellectual property rights may be weak. We may be unable to detect or determine the extent of any unauthorized use or infringement of our software, technologies or intellectual property rights.

From time to time, we may need to engage in litigation or other administrative proceedings to protect our intellectual property rights or to defend against allegations by third parties that we have infringed or misappropriated their intellectual property rights, including in connection with requests for indemnification by our customers who may face such claims. We have been approached and may be approached in the future by certain of our customers to indemnify them against third party intellectual property claims. Litigation and/or any requests for indemnification by our customers could result in substantial costs and diversion of resources and could negatively affect our business and revenue. If we are unable to protect and enforce our intellectual property rights, our business may be harmed.

Intellectual property disputes could result in significant costs and harm our business.

Intellectual property disputes may occur in the markets in which we compete. Many of our competitors are large companies with significant intellectual property portfolios, which they may use to assert claims of infringement, misappropriation or other violations of intellectual property rights against us, or our customers. Any allegation of infringement, misappropriation or other violation of intellectual property rights by a third party, even those without merit, could cause us to incur substantial costs defending against the claim, could distract our management from our business, and could cause uncertainty among our customers or prospective customers, all of which could have an adverse effect on our business or revenue. We are currently engaged in ongoing litigation with MSC, a competitor of ours, who brought suit against us in 2007 alleging misappropriation of trade secrets, breach of confidentiality and other employment-related claims. A jury returned a verdict against us in April 2014. After a successful challenge by us in November 2014, this verdict was partially vacated except for damages for $425,000 related to certain employment matters and the court ordered a new trial on damages for the trade secrets claims. No trial date is scheduled. On August 21, 2017, the court granted Altair's motion to strike the testimony of MSC's damage expert. The court has not provided guidance on how the case will proceed. We cannot be certain of the outcome of this matter. We agreed to indemnify our employees named in the MSC litigation. See the section entitled "Business—Legal and regulatory—Legal proceedings—Litigation."

Our agreements may include provisions that require us to indemnify others for losses suffered or incurred as a result of our infringement of a third party's intellectual property rights infringement, including certain of our employees and customers.

An adverse outcome of a dispute or an indemnity claim may require us to:

- pay substantial damages;
- cease licensing our software or portions of it;
- develop non-infringing technologies;
- acquire or license non-infringing technologies; and
- make substantial indemnification payments.

Any of the foregoing or other damages could harm our business, decrease our revenue, increase our expenses or negatively impact our cash flow.

Security breaches, computer malware, computer hacking attacks and other security incidents could harm our business, reputation, brand and operating results.

Security incidents have become more prevalent across industries and may occur on our systems. Security incidents may be caused by, or result in but are not limited to, security breaches, computer malware or malicious software, computer hacking, unauthorized access to confidential information, denial of service attacks, security system control failures in our own systems or from vendors we use, email phishing, software vulnerabilities, social engineering, sabotage and drive-by downloads. Such security incidents, whether intentional or otherwise, may result from actions of hackers, criminals, nation states, vendors, employees or customers.

We may experience disruptions, data loss, outages and other performance problems on our systems due to service attacks, unauthorized access or other security related incidents. Any security breach or loss of system control caused by hacking, which involves efforts to gain unauthorized access to information or systems, or to cause intentional malfunctions or loss, modification or corruption of data, software, hardware or other computer equipment and the inadvertent transmission of computer malware could harm our business.

In addition, our software stores and transmits customers' confidential business information in our facilities and on our equipment, networks and corporate systems. Security incidents could expose us to litigation, remediation costs, increased costs for security measures, loss of revenue, damage to our reputation and potential liability. Our customer data and corporate systems and security measures may be compromised due to the actions of outside parties, employee error, malfeasance, capacity constraints, a combination of these or otherwise and, as a result, an unauthorized party may obtain access to our data or our customers' data. Outside parties may attempt to fraudulently induce our employees to disclose sensitive information in order to gain access to our customers' data or our information. We must continuously examine and modify our security controls and business policies to address new threats, the use of new devices and technologies, and these efforts may be costly or distracting.

Because the techniques used to obtain unauthorized access, disable or degrade service, or sabotage systems change frequently or may be designed to remain dormant until a predetermined event and often are not recognized until launched against a target, we may be unable to anticipate these techniques or implement sufficient control measures to defend against these techniques. Though it is difficult to determine what harm may directly result from any specific incident or breach, any failure to maintain confidentiality, availability, integrity, performance and reliability of our systems and infrastructure may harm our reputation and our ability to retain existing customers and attract new customers. If an actual or perceived security incident occurs, the market perception of the effectiveness of our security controls could be harmed, our brand and reputation could be damaged, we could lose customers, and we could suffer financial exposure due to such events or in connection with remediation efforts, investigation costs, regulatory fines and changed security control, system architecture and system protection measures.

Adverse global conditions, including economic uncertainty, may negatively impact our financial results.

Global conditions, including the effects of the outcome of the United Kingdom's referendum on membership in the European Union or any negative financial impacts affecting United States corporations operating on a global basis as a result of tax reform or changes to existing trade agreements or tax conventions, could adversely impact our business in a number of ways, including longer sales cycles, lower prices for our software license fees, reduced licensing renewals or foreign currency fluctuations.

During challenging economic times our customers may be unable or unwilling to make timely payments to us, which could cause us to incur increased bad debt expenses. Our customers may unilaterally extend the payment terms of our invoices, adversely affecting our short-term or long-term cash flows.

International operations expose us to risks inherent in international activities.

Operating in international markets requires significant resources and management attention and subjects us to regulatory, economic and political risks that are different from those in the United States. We face risks in doing business internationally that could adversely affect our business, including:

- the need to localize and adapt our software for specific countries, including translation into foreign languages and associated expenses;
- foreign exchange risk;
- import and export restrictions and changes in trade regulation, including uncertainty regarding renegotiation of international trade agreements and partnerships;
- sales and customer service challenges associated with operating in different countries;
- enhanced difficulties of integrating any foreign acquisitions;
- difficulties in staffing and managing foreign operations and working with foreign partners;
- different pricing environments, longer sales cycles, longer accounts receivable payment cycles, and collections issues;
- compliance challenges related to the complexity of multiple, conflicting and changing governmental laws and regulations, including the Foreign Corrupt Practices Act of 1977, or the FCPA, employment, ownership, tax, privacy and data protection laws and regulations;
- limitations on enforcement of intellectual property rights;
- more restrictive or otherwise unfavorable government regulations;
- increased financial accounting and reporting burdens and complexities;

- restrictions on the transfer of funds;
- withholding and other tax obligations on remittance and other payments made by our subsidiaries; and
- unstable regional, economic and political conditions.

Our inability to manage any of these risks successfully, or to comply with these laws and regulations, could reduce our sales and harm our business.

We may lose customers if our software does not work seamlessly with our customers' existing software.

Our customers may use our software, which in many instances has been designed to seamlessly interface with software from some of our competitors, together with their own software and software they license from third parties. If our software ceases to work seamlessly with our customers' existing software applications, we may lose customers.

Our customers use our software and services to design and develop their products, which when built and used may expose us to claims.

Many of our customers use our software and services, together with software and services from other third parties and their own resources, to assist in the design and development of products intended to be used in a commercial setting. To the extent our customers design or develop a product that results in potential liability, including product liability, we may be included in resulting litigation. We may be subject to litigation defense costs or be subject to potential judgments or settlement costs for which we may not be fully covered by insurance, which would result in an increase of our expenses.

We also license our software on Altair branded computer hardware, which we acquire from an original equipment manufacturer, which we refer to as an OEM, exposing us to potential liability for the hardware, such as product liability. To the extent this liability is greater than the warranty and liability protection from our OEM, we may incur additional expenses, which may be significant.

If we fail to educate and train our users regarding the use and benefits of our software, we may not generate additional revenue.

Our software is complex and highly technical. We continually educate and train our existing and potential users regarding the depth, breadth, and benefits of our software including through classroom and online training. If these users do not receive education and training regarding the use and benefits of our software, or the education and training is ineffective, they may not increase their usage of our software. We incur costs of training directly related to this activity prior to generating additional revenue, if any.

If we are unable to match engineers to open positions in our CES business or are otherwise unable to grow our CES business, our revenue could be adversely affected.

We operate our client engineering services business by hiring engineers for placement at a customer site for specific customer-directed assignments and pay them only for the duration of the placement. The success of this business is dependent upon our ability to recruit and retain highly skilled, qualified engineers to meet the requirements of our customers and to maintain ongoing relationships with these customers. Our CES business constituted approximately 15% of our total revenues for each of the years ended December 31, 2015 and 2016. Some of our customers operate their engineering personnel needs through managed service providers, or MSPs. A significant percentage of the engineers we place, either directly or through MSPs, are with U.S.-based customers and are citizens of countries other than the United States. In the event these engineers are unable to enter into the United States legally, we may be unable to match engineers with the appropriate skill sets matched to open customer positions. If we are unable to attract highly skilled, qualified engineers because of competitive factors or immigration laws, or otherwise fail to match engineers to open customer positions, our revenue may be adversely affected.

Our sales to United States government agencies and their suppliers may be subject to reporting and compliance requirements.

Our customers include agencies of the United States government and their suppliers of products and services. These customers may procure our software and services through United States government mandated procurement regulations. Because of United States government reporting and compliance requirements we may incur unexpected costs. United States government agencies and their suppliers may have statutory, contractual or other legal rights to terminate contracts for convenience or due to a default, and any such termination may adversely affect our future operating results.

Our sales to non-United States government agencies and their suppliers may be subject to reporting and compliance requirements.

Our customers include agencies of various non-United States governments and their suppliers of products and services. These customers procure our software and services through various governments' mandated procurement regulations. Because of governmental reporting and compliance requirements we may incur unexpected costs. Government agencies and their suppliers may have statutory, contractual or other legal rights to terminate contracts for convenience or due to a default, and any such termination may adversely affect our future operating results.

We may require additional capital to support our business, which may not be available on acceptable terms.

We expect to continue to make investments in our business, which may require additional funds. We may raise these funds through either equity or debt financings. Issuances of equity or convertible debt securities may significantly dilute stockholders and any new equity securities could have rights, preferences and privileges superior to those holders of our Class A common stock. Future debt financings could contain restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital, manage our business and pursue business opportunities, including potential acquisitions.

We may not be able to obtain additional financing on terms favorable to us. If we are unable to obtain adequate financing or financing on terms satisfactory to us when we require it, our ability to continue to support our growth, develop new software or add capabilities and enhancements to our existing software and respond to business challenges could be significantly impaired, and our business may be adversely affected.

Our loan agreements contain operating and financial covenants that may restrict our business and financing activities.

Our Credit Agreement is unconditionally guaranteed by us and all existing and subsequently acquired controlled domestic subsidiaries. It is also collateralized by a first priority, perfected security interest in, and mortgages on, substantially all of our tangible assets. The Credit Agreement contains operating financial restrictions and covenants, including liens, limitations on indebtedness, fundamental changes, limitations on guarantees, limitations on sales of assets and sales of receivables, dividends, distributions and other restricted payments, transactions with affiliates, prepayment of indebtedness and limitations on loans and investments in each case subject to certain exceptions. The Credit Agreement also requires us to maintain a minimum level of liquidity, which shall not be less than $20,000,000 at the end of each fiscal quarter. We expect to repay borrowings under our Credit Agreement with the proceeds of this offering. The restrictions and covenants in the Credit Agreement, as well as those contained in any future debt financing agreements that we may enter into, may restrict our ability to finance our operations and engage in, expand or otherwise pursue our business activities and strategies. Our ability to comply with these covenants and restrictions may be affected by events beyond our control, and breaches of these covenants and restrictions could result in a default under the loan agreement and any future financing agreements that we may enter into. See the section entitled "Management's discussion and analysis of financial condition and results of operations—Liquidity and capital resources—Credit facility" and Note 7 to our consolidated financial statements included elsewhere in this prospectus for further information about our credit facility.

We operate internationally and must comply with employment and related laws in various countries, which may, in turn, result in unexpected expenses.

We are subject to a variety of domestic and foreign employment laws, including those related to safety, discrimination, whistle-blowing, employment of illegal aliens, classification of employees, wages, statutory benefits, and severance payments. Such laws are subject to change as a result of judicial decisions or otherwise, and there can be no assurance that we will not be found to have violated any such laws in the future. Such violations could lead to the assessment of significant fines against us by federal, state or foreign regulatory authorities or to the award of damages claims, including severance payments, against us in judicial or administrative proceedings by employees or former employees, any of which would reduce our net income or increase our net loss.

Changes in government trade, immigration or currency policies may harm our business.

We operate our business globally in multiple countries that have policies and regulations relating to trade, immigration and currency, which may change. Governments may change their trade policies by withdrawing from negotiations on new trade policies, renegotiating existing trade agreements, imposing tariffs or imposing other trade restrictions or barriers. Any such changes may result in:

- changes in currency exchange rates;
- changes in political or economic conditions;
- import or export licensing requirements or other restrictions on technology imports and exports;
- laws and business practices favoring local companies;
- changes in diplomatic and trade relationships;
- modification of existing or implementation of new tariffs;
- imposition or increase of trade barriers; or
- establishment of new trade or currency restrictions.

Any of these changes, changes in immigration policies, government intervention in currency valuation or other government policy changes may adversely impact our ability to sell software and services, which could, in turn, harm our revenues and our business. We are headquartered in the United States and may be particularly impacted by changes affecting the United States.

Our use of open source technology could impose limitations on our ability to commercialize our software.

We use open source software in some of our software and expect to continue to use open source software in the future. Although we monitor our use of open source software to avoid subjecting our software to conditions we do not intend, we may face allegations from others alleging ownership of, or seeking to enforce the terms of, an open source license, including by demanding release of the open source software, derivative works, or our proprietary source code that was developed using such software. These allegations could also result in litigation. The terms of many open source licenses have not been interpreted by United States courts. There is a risk that these licenses could be construed in a way that could impose unanticipated conditions or restrictions on our ability to commercialize our software. In such an event, we may be required to seek licenses from third parties to continue commercially offering our software, to make our proprietary code generally available in source code form, to re-engineer our software or to discontinue the sale of our software if re-engineering could not be accomplished on a timely basis, any of which could adversely affect our business and revenue.

The use of open source software subjects us to a number of other risks and challenges. Open source software is subject to further development or modification by anyone. Others may develop such software to be competitive with or no longer useful by us. It is also possible for competitors to develop their own solutions using open source software, potentially reducing the demand for our software. If we are unable to successfully address these challenges, our business and operating results may be adversely affected and our development costs may increase.

We currently open source certain of our software and may open source other software in the future, which could have an adverse effect on our revenues and expenses.

We offer a portion of our Altair PBS workload management software in an open source version to generate additional usage and broaden user-community development and enhancement of the software. We offer related software and services on a paid basis. We believe increased usage of open source software leads to increased purchases of these related paid offerings. We may offer additional software on an open source basis in the future. There is no assurance that the incremental revenues from related paid offerings will outweigh the lost revenues and incurred expenses attributable to the open sourced software.

Our revenue mix may vary over time, which could harm our gross margin and operating results.

Our revenue mix may vary over time due to a number of factors, including the mix of term-based licenses and perpetual licenses. Due to the differing revenue recognition policies applicable to our term-based licenses, perpetual licenses and professional services, shifts in the mix between subscription and perpetual licenses from quarter to quarter, or increases or decreases in revenue derived from our professional engineering services, which have lower gross margins than our software services, could produce substantial variation in revenues recognized even if our billings remain consistent. Our gross margins and operating results could be harmed by changes in revenue mix and costs, together with other factors, including: entry into new markets or growth in lower margin markets; entry into markets with different pricing and cost structures; pricing discounts; and increased price competition. Any one of these factors or the cumulative effects of certain of these factors may result in significant fluctuations in our gross margin and operating results. This variability and unpredictability could result in our failure to meet internal expectations or those of securities analysts or investors for a particular period. If we fail to meet or exceed such expectations for these or any other reasons, the market price of our common stock could decline.

The estimates of market opportunity and forecasts of market growth included in this prospectus may prove to be inaccurate, and even if the market in which we compete achieves the forecasted growth, our business could fail to grow at similar rates, if at all.

Market opportunity estimates and growth forecasts included in this prospectus, including those we have generated ourselves, are subject to significant uncertainty and are based on assumptions and estimates that may not prove to be accurate. Even if the market in which we compete meets the size estimates and growth forecasted in this prospectus, our business could fail to grow for a variety of reasons, which would adversely affect our results of operations. For more information regarding the estimates of market opportunity and the forecasts of market growth included in this prospectus, see the section entitled "Business—Market opportunity."

We are subject to governmental export and import controls that could impair our ability to compete in international markets due to licensing requirements and subject us to liability if we are not in compliance with applicable laws.

Our software, services and hardware are subject to export control and import laws and regulations. As a company headquartered in the United States we are subject to regulations, including the International Traffic in Arms Regulations, or ITAR, and Export Administration Regulations, or EAR, United States Customs regulations and various economic and trade sanctions regulations administered by the United States Treasury Department's Office of Foreign Assets Controls presenting further risk of unexpected reporting and compliance costs. Compliance with these regulations may also prevent and restrict us from deriving revenue from potential customers in certain geographic locations for certain of our technologies.

If we fail to comply with these laws and regulations, we and certain of our employees could be subject to substantial civil or criminal penalties, including the possible loss of export or import privileges, fines which may be imposed on us and responsible employees or managers and, in extreme cases, the incarceration of responsible employees or managers. Obtaining the necessary authorizations, including any required license, for a particular sale may be time-consuming, is not guaranteed and may result in the delay or loss of sales opportunities. In addition, changes in our software or changes in applicable export or import regulations may create delays in the introduction and sale of our software in international markets, prevent our customers with international operations from deploying our software or, in some cases, prevent the export or import of our software to certain countries, governments or persons altogether. Any change in export or import regulations, shift in the enforcement or scope of existing regulations, or change in the countries, governments, persons or technologies targeted by such regulations, could also result in decreased use of our software, or in our decreased ability to export or license our software to existing or potential customers with international operations. Any decreased use of our software or limitation on our ability to export or license our software will likely adversely affect our business.

We incorporate encryption technology into portions of our software. Various countries regulate the import of certain encryption technology, including through import permitting and licensing requirements, and have enacted laws that could limit our ability to distribute our software or could limit our customers' ability to implement our software in those countries. Encrypted software and the underlying technology may also be subject to export control restrictions. Governmental regulation of encryption technology and regulation of imports or exports of encryption products, or our failure to obtain required import or export approval for our software, when applicable, could harm our international sales and adversely affect our revenue. Compliance with applicable regulatory requirements regarding the export of our software, including with respect to new releases of our software, may create delays in the introduction of our software in international markets, prevent our customers with international operations from deploying our software throughout their globally-distributed systems or, in some cases, prevent the export of our software to some countries altogether.

United States export control laws and economic sanction programs prohibit the shipment of certain software and services to countries, governments and persons that are subject to United States economic embargoes and trade sanctions. Any violations of such economic embargoes and trade sanction regulations could have negative consequences, including government investigations, penalties and reputational harm.

Any change in export or import regulations, economic sanctions or related legislation, shift in the enforcement or scope of existing regulations, or change in the countries, governments, persons or technologies targeted by such regulations, could result in decreased use of our software by, or in our decreased ability to export or license our software to, existing or potential customers with international operations. Any decreased use of our software or limitation on our ability to export or license our software could adversely affect our business.

Our business is subject to a wide range of laws and regulations, and our failure to comply with those laws and regulations could harm our business.

Our business is subject to regulation by various federal, state, local and foreign governmental agencies, including agencies responsible for monitoring and enforcing employment and labor laws, workplace safety, environmental laws, privacy and data protection laws, anti-bribery laws, import and export controls, federal securities laws and tax laws and regulations. In certain foreign jurisdictions, these regulatory requirements may be more stringent than

those in the United States. These laws and regulations are subject to change over time and thus we must continue to monitor and dedicate resources to ensure continued compliance. Non-compliance with applicable regulations or requirements could subject us to investigations, sanctions, mandatory product recalls, enforcement actions, disgorgement of profits, fines, damages, civil and criminal penalties or injunctions. If any governmental sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation, our business, operating results, and financial condition could be materially adversely affected. In addition, responding to any action will likely result in a significant diversion of management's attention and resources and an increase in professional fees. Enforcement actions and sanctions could harm our business, operating results and financial condition.

If we or any of our employees violate the United States Foreign Corrupt Practices Act, the U.K. Bribery Act or similar anti-bribery laws we could be adversely affected.

The United States Foreign Corrupt Practices Act, or FCPA, the U.K. Bribery Act and similar anti-bribery laws generally prohibit companies and their intermediaries from authorizing, offering or providing, directly or indirectly, improper payments or benefits for the purpose of obtaining or retaining business to government officials, political parties and private-sector recipients. United States based companies are required to maintain records that accurately and fairly represent their transactions and have an adequate system of internal accounting controls. We operate in areas of the world that potentially experience corruption by government officials to some degree and, in certain circumstances, compliance with anti-bribery laws may conflict with local customs and practices. We cannot assure that our employees, resellers or distributors will not engage in prohibited conduct. If we are found to be in violation of the FCPA, the U.K. Bribery Act or other anti-bribery laws we could suffer criminal or civil penalties or other sanctions.

Business interruptions could adversely affect our business.

Our operations and our customers are vulnerable to interruptions by fire, flood, earthquake, power loss, telecommunications failure, terrorist attacks, wars and other events beyond our control. A catastrophic event that results in the destruction of any of our critical business or information technology systems could severely affect our ability to conduct normal business operations, including system interruptions, reputational harm, delays in our software development, breaches of data security and loss of critical data.

We rely on our network and third party infrastructure and applications, internal technology systems, and our websites for our development, marketing, operational support, hosted services and sales activities. If these systems were to fail or be negatively impacted as a result of a natural disaster or other event, our ability to deliver software and training to our customers could be impaired.

Our business interruption insurance may not be sufficient to compensate us fully for losses or damages that may occur as a result of these events, if at all.

Our reported financial results may be adversely affected by changes in accounting principles generally accepted in the United States.

GAAP are subject to interpretation by the Financial Accounting Standards Board, or FASB, the United States Securities and Exchange Commission, or the SEC, and various bodies formed to promulgate and interpret appropriate accounting principles. A change in these principles or interpretations could have a significant effect on our reported financial results for periods prior and subsequent to such change. We will need to comply with the FASB issued Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers. This standard outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes most existing revenue recognition guidance under GAAP. The core principle of the guidance is that an entity should recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods and services. We expect the timing of revenue recognition to be accelerated because we anticipate that license revenue will be recognized at a point in time, rather than over time, which is our current practice. Generally, the license revenue component of an arrangement represents a significant portion of the overall fair value of a software arrangement. While we continue to assess the potential impacts, under the new standards there is the potential for significant impacts on the consolidated financial statements.

The application of this new guidance may result in a change in the timing and pattern of revenue recognition including the retrospective recognition of revenue in historical periods that may negatively affect our future revenue trend, which, despite no change in associated cash flows, could have a material adverse effect on our net income (loss). The adoption of new standards may potentially require enhancements or changes in our systems and will require significant time and cost on behalf of our financial management.

As an "emerging growth company" the JOBS Act allows us an extended transition period for complying with new and revised accounting standards that have different effective dates for public and private companies until the earlier of the date (i) we are no longer an emerging growth company, or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. We have elected to use this extended transition period under the JOBS Act, including with respect to ASU 2014-09. As a result, we will not be required to apply ASU 2014-09 until January 1, 2019.

We cannot predict the impact of all of the future changes to accounting principles or our accounting policies on our consolidated financial statements going forward, which could have a significant effect on our reported financial results, and could affect the reporting of transactions completed before the announcement of the change. In addition, if we were to change our critical accounting estimates, including those related to the recognition of license revenue and other revenue sources, our operating results could be significantly affected.

If our goodwill or intangible assets become impaired, we may be required to record a significant charge to earnings, which could harm our business.

Under GAAP, we review our intangible assets for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. Goodwill is required to be tested for impairment at least annually. As of June 30, 2017, and December 31, 2016 respectively, we have $43.7 million and $36.6 million of goodwill and $16.0 million and $11.2 million of other intangible assets—net. An adverse change in market conditions, particularly if such change has the effect of changing one of our critical assumptions or estimates, could result in a change to the estimation of fair value that could result in an impairment charge.

We have significant deferred tax assets in the United States, which we may not use in future taxable periods.

As of June 30, 2017, and December 31, 2016 we had net deferred tax assets, or DTAs, of $65.8 million and $61.5 million, respectively, primarily related to tax credits, share-based compensation, deferred revenue, and capitalized research and development expenses. We are entitled to a United States federal tax deduction when non-qualified stock options, or NSOs, are exercised. In connection with this offering, we expect a significant number of our NSOs will be exercised, creating substantial additional tax deductions for us. These deductions are expected to result in future net operating losses for United States tax purposes which are expected to result in our needing to establish a valuation allowance for the majority of our DTAs. Our ability to utilize any net operating losses or tax credits could be limited under provisions of the Internal Revenue Code of 1986, or the Code, if we undergo an ownership change in connection with or after this offering, provided, that for this purpose an ownership change is generally defined as a greater than 50-percentage-point cumulative change, by value, in the equity ownership of certain stockholders over a rolling three-year period. We do not expect to experience an ownership change in connection with our initial public offering. We may also be unable to realize our tax credit carryforwards as they begin to expire in 2018.

If our global tax methodology is challenged our tax expense may increase.

As a global business headquartered in the United States, we are required to pay tax in a number of different countries, exposing us to transfer pricing and other adjustments. Transfer pricing refers to the methodology of allocating revenue and expenses for tax purposes to particular countries. Taxing authorities may challenge our transfer pricing methodology, which if successful could increase our professional expenses and result in one-time tax charges, a higher worldwide effective tax rate, reduced cash flows, and lower overall profitability of our operations.

Our tax expense could be impacted depending on the applicability of withholding and other taxes including taxes on software licenses and related intercompany transactions under the tax laws of jurisdictions in which we have business operations. Our future income taxes may fluctuate if our earnings are either lower in countries that have low statutory tax rates or higher in countries that have high statutory tax rates. We are subject to review and audit by the United States and other taxing authorities. Any review or audit could increase our professional expenses and, if determined adversely, could result in unexpected costs.

Sales and use, value-added and similar tax laws and rates vary by jurisdiction. Any of these jurisdictions may assert that such taxes are applicable, which could result in tax assessments, penalties and interest.

In addition to our software, we manufacture, distribute and sell products, which may expose us to product liability claims, product recalls, and warranty claims that could be expensive and harm our business.

We manufacture, distribute and sell products through two wholly owned subsidiaries, Altair Product Design, Inc., which we refer to as APD, and Ilumisys, Inc. doing business as toggled and which we refer to in this prospectus as toggled. Generally, APD supports our customers with engineering and design services, which may include the fabrication of equipment and prototypes that are sold to businesses but not sold to consumers. From time to time, certain customers may contract directly with us for services similar to those provided by APD. toggled designs, sources through contract manufacturers, and assembles in our own facilities LED lighting and related products for sale to consumers and businesses.

To the extent these products do not perform as expected, cause injury or death or are otherwise unsuitable for usage, we may be held liable for claims, including product liability and other claims. A product liability claim, any product recalls or an excessive warranty claim, whether arising from defects in design or manufacture or otherwise could negatively affect our APD or toggled sales or require a change in the design or manufacturing process of these products, any of which may harm our reputation and business.

Failure to protect and enforce toggled's proprietary technology and intellectual property rights could substantially harm toggled's lighting business.

Part of the success of toggled's lighting business depends on our ability to protect and enforce toggled's proprietary rights, including its patents, trademarks, copyrights, trade secrets and other intellectual property rights. As of December 31, 2016, toggled had 109 issued patents in the United States and more than 20 pending patent applications. We attempt to protect toggled's intellectual property under patent, trademark, copyright, and trade secret laws. However, the steps we take to protect its intellectual property may be inadequate. We will not be able to protect toggled's intellectual property if we are unable to enforce its rights or if we do not detect unauthorized use of its intellectual property. It may be possible for unauthorized third parties to copy toggled's technology and use information that it regards as proprietary to create products that compete with toggled's products. Some license provisions protecting against unauthorized use, copying, transfer and disclosure of toggled's technology may be unenforceable under the laws of certain jurisdictions and foreign countries. Further, the laws of some countries do not protect proprietary rights to the same extent as the laws of the United States.

The process of obtaining patent protection is uncertain, expensive and time-consuming, and we may not be able to prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. In addition, issuance of a patent does not guarantee that we have an absolute right to practice our patented technology, or that we have the right to exclude others from practicing our patented technology. As a result, we may not be able to obtain adequate patent protection or to enforce our issued patents effectively.

From time to time, toggled enforces its patents and other intellectual property rights including through initiating litigation. Any such litigation could result in substantial costs and diversion of resources and could negatively affect toggled's business, operating results, financial condition and cash flows. If toggled is unable to protect toggled's intellectual property rights, its business, operating results and financial condition will be harmed.

Assertions by third parties of infringement or other violations by toggled of their intellectual property rights, or other lawsuits brought against toggled, could result in significant costs and substantially harm toggled's business.

Patent and other intellectual property disputes are common in the markets in which toggled competes. Some of toggled's competitors, own large numbers of patents, copyrights, trademarks and trade secrets, which they may use to assert claims of infringement, misappropriation or other violations of intellectual property rights against toggled or its customers. As the number of patents and competitors in this market increases, allegations of infringement, misappropriation and other violations of intellectual property rights may increase. Any allegation of infringement, misappropriation or other violation of intellectual property rights by a third party, even those without merit, could cause toggled to incur substantial costs and resources defending against the claim, which could have an adverse effect on toggled's business.

Some of our businesses may collect personal information and are subject to privacy laws.

Companies that collect personal information are required to comply with the privacy laws adopted by United States and various state and foreign governments, including member states of the European Union. These privacy laws regulate the collection, use, storage, disclosure and security of data, such as names, email addresses and, in some jurisdictions, Internet Protocol addresses, that may be used to identify or locate an individual, including a customer or an employee.

Our Company includes the WEYV business, a consumer music and content service, which in the course of providing its service directly to consumers, collects and stores consumer information. Currently we expect to operate WEYV only within the United States and are only subject to the United States privacy laws. To the extent we expand our WEYV offering beyond the United States we will need to comply with the privacy laws of every country in which we operate. Some of our other products may collect personal data and would also be subject to these privacy laws.

These laws and regulations may require us to implement privacy and security policies, permit end-customers to access, correct and delete personal information stored or maintained by us, inform individuals of security breaches that affect their personal information, and, in some cases, obtain individuals' consent to use personally identifiable information for certain purposes. Governments could require that any personally identifiable information collected in a country not be disseminated outside of that country. We also may find it necessary or desirable to join industry or other self-regulatory bodies or other information security, or data protection, related organizations that require compliance with their rules pertaining to information security and data protection. We may agree to be bound by additional contractual obligations relating to our collection, use and disclosure of personal, financial and other data. Our failure to comply with these privacy laws or any actual or suspected security incident may result in governmental actions, fines and non-monetary penalties, which may harm our business.

The privacy laws in the member states of the European Union are in a state of flux and may evolve or change in the near to mid-term. To the extent any European Union member state or other country in which we operate, modifies or changes its interpretation of an existing privacy law or enacts any new privacy law, we may incur unexpected costs.

Risks related to this offering and ownership of our Class A common stock

An active public trading market for our Class A common stock may not develop or be sustained.

Prior to this offering, there has been no public market or active private market for trading shares of our Class A common stock. We expect to list our Class A common stock on the Nasdaq Global Select Market, in connection with this offering, however, an active trading market may not develop following the completion of this offering or, if developed, may not be sustained. The lack of an active market may impair your ability to sell your shares at the time you wish to sell them or at a price that you consider reasonable. The lack of an active market may also reduce the price of shares of Class A common stock. An inactive market may impair our ability to raise capital by selling shares and our ability to use our capital stock to acquire other companies or technologies. We cannot predict the prices at which our Class A common stock will trade. The initial public offering price of our Class A common stock may not bear any relationship to the market price at which our Class A common stock will trade after this offering.

The market price of our Class A common stock may be volatile, and you could lose all or part of your investment.

The market price of our Class A common stock following this offering will depend on a number of factors, many of which are beyond our control and may not be related to our operating performance. These fluctuations could cause you to lose all or part of your investment in our Class A common stock, since you might not be able to sell your shares at or above the price you paid in this offering. Factors that could cause fluctuations in the market price of our Class A common stock include the following:

- price and volume fluctuations in the overall stock market from time to time, including as a result of trends in the economy as a whole;
- volatility in the market prices and trading volumes of technology stocks;
- changes in operating performance and stock market valuations of other technology companies generally, or those in our industry in particular;
- the expiration of market stand-off or contractual lock-up agreements and sales of shares of our Class A common stock by us or our stockholders;
- the volume of shares of our Class A common stock available for public sale;
- failure of financial analysts to maintain coverage of us, changes in financial estimates by any analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- the financial projections we may provide to the public, any changes in these projections or our failure to meet these projections;
- announcements by us or our competitors of new software or new or terminated significant contracts, commercial relationships or capital commitments;
- public analyst or investor reaction to our press releases, other public announcements and filings with the SEC;
- rumors and market speculation involving us or other companies in our industry;
- actual or anticipated changes or fluctuations in our operating results;

- actual or anticipated developments in our business, our customers' businesses, or our competitors' businesses or the competitive landscape generally;
- litigation involving us, our industry or both, or investigations by regulators into our operations or those of our competitors;
- developments or disputes concerning our intellectual property or our solutions, or third party proprietary rights;
- announced or completed acquisitions of businesses or technologies by us or our competitors;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business;
- changes in accounting standards, policies, guidelines, interpretations or principles;
- any major changes in our management or our board of directors;
- general economic conditions and slow or negative growth of our markets; and
- other events or factors, including those resulting from war, incidents of terrorism or responses to these events.

In addition, the stock market in general, and the market for technology companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry factors may affect the market price of our Class A common stock, regardless of our actual operating performance. In the past, following periods of volatility in the overall market and the market prices of a particular company's securities, securities class action litigation has often been instituted against that company. We may become the target of this type of litigation in the future. Securities litigation, if instituted against us, could result in substantial costs and divert our management's attention and resources from our business.

We cannot predict the impact our capital structure may have on our stock price.

In July 2017, S&P Dow Jones, a provider of widely followed stock indices, announced that companies with multiple share classes, such as ours, will not be eligible for inclusion in certain of their indices. As a result, our Class A common stock will likely not be eligible for these stock indices. Additionally, FTSE Russell, another provider of widely followed stock indices, recently stated that it plans to require new constituents of its indices to have at least five percent of their voting rights in the hands of public stockholders. Many investment funds are precluded from investing in companies that are not included in such indices, and these funds would be unable to purchase our Class A common stock. We cannot assure you that other stock indices will not take a similar approach to S&P Dow Jones or FTSE Russell in the future. Exclusion from indices could make our Class A common stock less attractive to investors and, as a result, the market price of our Class A common stock could be adversely affected.

Sales of substantial amounts of our Class A common stock may dilute your voting power and your ownership interest in us.

Sales of a substantial number of shares of our Class A common stock after this offering, particularly sales by our directors, executive officers and significant stockholders could adversely affect the market price of our Class A common stock and may make it more difficult to sell Class A common stock at a time and price that you deem appropriate. Based on the total number of outstanding shares of our common stock as of June 30, 2017, upon completion of this offering, we will have an aggregate of shares of Class A common stock and shares of Class B common stock outstanding, assuming no exercise of our outstanding stock options after June 30, 2017 and assuming the underwriters do not exercise their option to purchase additional shares.

All of the shares of Class A common stock sold in this offering will be freely tradable without restrictions or further registration under the Securities Act of 1933, as amended, or the Securities Act, except for any shares held by our affiliates as defined in Rule 144 under the Securities Act.

A substantial majority our outstanding shares of common stock are currently restricted from resale as a result of market standoff and "lock-up" agreements, as more fully described in "Shares Eligible for Future Sale." These shares will become available to be sold 181 days after the date of this prospectus. Shares held by directors, executive officers and other affiliates will be subject to volume limitations under Rule 144 under the Securities Act and various vesting agreements. In addition, the underwriters may, in their sole discretion, release all or some portion of the shares subject to market standoff or lock-up agreements prior to the expiration of the lock-up period. See the section entitled "Shares eligible for future sale" for more information. Sales of a substantial number of such shares upon expiration of the market standoff and lock-up agreements, or the perception that such sales may occur, or early release of these agreements, could cause our market price to fall or make it more difficult for you to sell your Class A common stock at a time and price that you deem appropriate.

We intend to register the offer and sale of an aggregate of approximately shares of Class A common stock that have been issued or reserved for future issuance under our equity compensation plans on a Form S-8 registration statement. Once we register the offer and sale of these shares, they can be freely sold in the public market upon issuance, subject to the market standoff or lock-up agreements or unless they are held by "affiliates," as that term is defined in Rule 144 of the Securities Act. If the holders of these shares choose to sell a large number of shares, they could adversely affect the market price for our Class A common stock.

We may also issue shares of our Class A common stock or securities convertible into shares of our Class A common stock from time to time in connection with a financing, acquisition, investment or otherwise. Any such issuance could result in substantial dilution to our existing stockholders and cause the trading price of our Class A common stock to decline.

Our initial public offering price is substantially higher than the pro forma as adjusted net tangible book value per share of our outstanding Class A common stock, and new investors will experience immediate and substantial dilution.

Our initial public offering price is substantially higher than the pro forma as adjusted net tangible book value per share of our Class A common stock based on the expected total value of our total assets, less our goodwill and other intangible assets, less our total liabilities immediately following this offering. If you purchase shares of our Class A common stock in this offering, you will experience immediate and substantial dilution of $ per share in the price you pay for our Class A common stock as compared to the pro forma as adjusted net tangible book value as of June 30, 2017, after giving effect to the issuance of shares of our Class A common stock in this offering at the initial public offering price of $ per share. Furthermore, if the underwriters exercise their option to purchase additional shares, if outstanding options are exercised, if we issue awards to our employees under our equity incentive plans, or if we otherwise issue additional shares of our Class A common stock, you could experience further dilution. For a further description of the dilution that you will experience immediately after this offering, see the section entitled "Dilution."

If financial or industry analysts do not publish research or reports about our business or if they issue inaccurate or unfavorable commentary or downgrade our Class A common stock, our stock price and trading volume could decline.

The trading market for our Class A common stock will be influenced by the research and reports that industry or financial analysts publish about us or our business. We do not control these analysts or the content and opinions included in their reports. As a new public company, we may be slow to attract research coverage, and the analysts who publish information about our Class A common stock will have had relatively little experience with our company, which could affect their ability to accurately forecast our results and make it more likely that we fail to meet their estimates. In the event we obtain industry or financial analyst coverage, if any of the analysts who cover us issue an inaccurate or unfavorable opinion regarding our stock price, our stock price would likely decline. In addition, the stock prices of many companies in the technology industry have declined significantly after those companies have failed to meet, or often times exceeded, the financial guidance publicly announced by the companies or the expectations of analysts. If our financial results fail to meet, or significantly exceed, our announced guidance or the expectations of analysts or public investors, analysts could downgrade our Class A common stock or publish unfavorable research about us. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

The dual class structure of our common stock has the effect of concentrating voting control with certain stockholders who hold shares of our Class B common stock, including our founders, certain of our directors and executive officers and affiliates, who will hold in the aggregate % of the voting power of our capital stock following the completion of this offering. This will limit or preclude your ability to influence corporate matters, including the election of directors, amendments of our organizational documents, and any merger, consolidation, sale of all or substantially all of our assets, or other major corporate transaction requiring stockholder approval.

Upon the completion of the Recapitalization, our Class B common stock was granted ten votes per share, and our Class A common stock, which is the common stock we are offering pursuant to this prospectus, has one vote per share. Following this offering, our Class B stockholders, including our founders, certain of our directors and executive officers, and affiliates, will hold, in the aggregate % of the voting power of our capital stock. The ten-to-one voting ratio between our Class B and Class A common stock, results in the holders of our Class B common stock collectively controlling a majority of the combined voting power of our common stock and therefore being able to control all matters submitted to our stockholders for approval until 2029, or upon the occurrence of a triggering event at which time all shares of our Class B common stock will automatically convert into shares of our Class A common stock, or on an earlier date, as set forth in our Delaware certificate of incorporation.

This concentrated control will limit or preclude your ability to influence corporate matters for the foreseeable future, including the election of directors, amendments of our organizational documents, and any merger, consolidation, sale of all or substantially all of our assets, or other major corporate transaction requiring stockholder approval. In addition, this may prevent or discourage unsolicited acquisition proposals or offers for our capital stock that you may feel are in your best interest as one of our stockholders.

Future transfers by holders of our Class B common stock will generally result in those shares converting to Class A common stock, subject to the specific exceptions set forth in our Delaware certificate of incorporation, such as certain transfers effected for estate planning purposes and between or among our founders. The conversion of Class B common stock to Class A common stock will have the effect, over time, of increasing the relative voting power of those holders of Class B common stock who retain their shares in the long-term. For a description of the dual class structure, see the section entitled "Description of capital stock–Anti-takeover effects of Delaware law and our certificate of incorporation and bylaws."

Our management has broad discretion in the use of the net proceeds from this offering, and our use of the net proceeds may not enhance our operating results or the price of our Class A common stock.

We intend to use a portion of our net proceeds that we receive from this offering for the repayment of our existing term loan, which had an outstanding balance of $52.5 million as of June 30, 2017 and to pay off our revolving credit balance of $18.0 million as of June 30, 2017. We intend to use the remaining net proceeds we receive from this offering for general corporate purposes, including working capital, sales and marketing activities, application and application enhancement development, acquisition, investment in our technology and analytics, general and administrative matters and capital expenditures. We may use a portion of the net proceeds to acquire complementary businesses, products, services or technologies and to build and develop our new headquarters building. While we do not have agreements or commitments for any specific acquisitions at this time, other than as disclosed elsewhere in this prospectus, we continually evaluate potential acquisition candidates to enhance our product offerings. Accordingly, our management will have considerable discretion over the specific use of the net proceeds that we receive in this offering and might not be able to obtain a significant return, if any, on investment of these net proceeds. You will not have the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. Investors in this offering will need to rely upon the judgment of our management with respect to the use of proceeds. Until the net proceeds are used, they may be placed in investments that do not produce significant income, may be held in demand deposit accounts, or in investments intended to be highly liquid that may nevertheless lose value. If we do not use the net proceeds that we receive in this offering effectively, our business and prospects could be harmed, and the market price of our Class A common stock could decline.

We do not intend to pay dividends in the foreseeable future. As a result, your ability to achieve a return on your investment will depend on appreciation in the price of our Class A common stock.

We have never declared or paid any cash dividends on our Class A common stock. We currently intend to retain all available funds and any future earnings for use in the operation of our business and do not anticipate paying any dividends on our Class A common stock in the foreseeable future. Any determination to pay dividends in the future will be at the discretion of our board of directors. Consequently, your only opportunity to achieve a return on your investment in our company will be if the market price of our Class A common stock appreciates and you sell your shares at a profit. There is no guarantee that the price of our Class A common stock that will prevail in the market after this offering will ever exceed the price that you pay. For additional information about our dividend policy, see the section entitled "Dividend policy" elsewhere in this prospectus.

Our management team has limited experience managing a public company.

Most members of our management team have limited experience managing a publicly-traded company, interacting with public company investors, and complying with laws pertaining to public companies. Our management team may not successfully or efficiently manage our transition to being a public company subject to significant regulatory oversight and reporting obligations under the federal securities laws and the continuous scrutiny of securities analysts and investors. These new obligations and constituents will require significant attention from our senior management and could divert their attention away from the day-to-day management of our business, which could adversely affect our business, financial condition, and operating results.

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

As a public company, we will incur legal, accounting and other expenses that we did not incur as a private company. We will be subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and will be required to comply with the applicable requirements of the Sarbanes-Oxley Act of 2002, or SOX, and the Dodd-Frank Wall Street Reform and Consumer Protection Act, or Dodd-Frank, as well as rules and regulations subsequently implemented by the SEC and the Nasdaq Global Select Market, including the establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. We expect that compliance with these requirements will increase our legal and financial compliance costs and will make some activities more time consuming and costly. In addition, we expect that our management and other personnel will need to divert attention from operational and other business matters to devote additional time to these public company requirements. In particular, we expect to incur additional expenses and devote additional management effort toward ensuring compliance with the requirements of Section 404 of SOX, which will increase when we are no longer an emerging growth company, as defined by the JOBS Act. We may need to hire additional accounting and financial staff with appropriate experience and technical accounting knowledge to support internal auditing. We cannot predict or estimate the amount of additional costs we may incur as a result of becoming a public company or the timing of such costs.

If we fail to maintain effective internal controls, we may not be able to report financial results accurately or on a timely basis, or to detect fraud, which could have a material adverse effect on our business or share price.

Effective internal controls are necessary for us to provide reasonable assurance with respect to our financial reports and to effectively prevent financial fraud. Pursuant to SOX, we will be required to periodically evaluate the effectiveness of the design and operation of our internal controls. Internal controls over financial reporting may not prevent or detect misstatements because of inherent limitations, including the possibility of human error or collusion, the circumvention or overriding of controls, or fraud. If we fail to maintain an effective system of internal controls, our business and operating results could be harmed, and we could fail to meet our reporting obligations, which could have a material adverse effect on our business and our share price.

As a public company, we will be required to maintain internal controls over financial reporting and to report any material weaknesses in such internal controls. Section 404 of SOX requires annual management assessments of the effectiveness of our internal controls over financial reporting beginning with our Annual Report for the year ending December 31, 2018. Both our independent auditors and we will be testing our internal controls pursuant to the requirements of Section 404 of SOX and could, as part of that documentation and testing, identify areas for further attention or improvement. We are in the process of designing, implementing, and testing the internal control over financial reporting required to comply with this obligation, which process is time consuming, costly, and complicated. We have identified material weaknesses in our internal controls over financial reporting for the fiscal years ended December 31, 2015 and 2016. If we identify material weaknesses in our internal control over financial reporting in the future or if we are unable to successfully remediate the identified material weaknesses or, if we are unable to comply with the requirements of Section 404 in a timely manner or assert that our internal control over financial reporting is effective, or if our independent registered public accounting firm is unable to express an opinion as to the effectiveness of our internal control over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports and the market price of our Class A common stock could be negatively affected, and we could become subject to investigations by the stock exchange on which our securities are listed, the SEC, or other regulatory authorities, which could require additional financial and management resources.

We are an emerging growth company and we cannot be certain if (i) the reduced disclosure requirements or (ii) extended transition periods for complying with new or revised accounting standards applicable to emerging growth companies will make our common stock less attractive to investors.

We qualify as an emerging growth company. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We have elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (i) are no longer an emerging growth company, or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

For as long as we continue to be an emerging growth company, we intend to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies including, but not limited to, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder

approval of any golden parachute payments not previously approved. We cannot predict if investors will find our common stock less attractive because we will rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

We will remain an emerging growth company until the earliest of (i) the end of the fiscal year in which the market value of our common stock that is held by non-affiliates exceeds $700 million as of June 30, (ii) the end of the fiscal year in which we have total annual gross revenues of $1.07 billion or more during such fiscal year, (iii) the date on which we issue more than $1 billion in non-convertible debt in a three-year period or (iv) the end of the fiscal year that is five years from the date of this prospectus.

Certain provisions in our charter documents and Delaware law could prevent an acquisition of our company, limit attempts by our stockholders to replace or remove members of our board of directors or current management and may adversely affect the market price of our Class A common stock.

Our Delaware certificate of incorporation and bylaws, which will be effective upon completion of this offering, contain provisions that could delay or prevent a change in control of our company that stockholders may consider favorable, including transactions in which stockholders might otherwise receive a premium for their shares. These provisions may also prevent or delay attempts by stockholders to replace or remove our current management or members of our board of directors. These provisions include:

- providing for a dual class common stock structure for 15 years following the completion of this offering;
- providing for a classified board of directors with staggered three-year terms, which could delay the ability of stockholders to change the membership of a majority of our board of directors;
- authorizing our board of directors to issue shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval;
- the requirement that a special meeting of stockholders may be called only by the chairman of our board of directors, our chief executive officer, our president, or a majority vote of our board of directors, which could delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors;
- requiring the affirmative vote of holders of at least 66 $^{2}/_{3}$% of the voting power of all of the then outstanding shares of the voting stock, voting together as a single class, to adopt, amend, or repeal provisions of (i) our certificate of incorporation relating to the issuance of preferred stock without stockholder approval, voting rights of our Class A common stock and our Class B common stock, and management of our business, and (ii) our bylaws relating to the ability of stockholders to call a special meeting and amending our bylaws in their entirety, which may inhibit the ability of an acquirer to effect such amendments to facilitate an unsolicited takeover attempt;
- the ability of our board of directors, by majority vote, to amend our bylaws, which may allow our board of directors to take additional actions to prevent an unsolicited takeover and inhibit the ability of an acquirer to amend our bylaws to facilitate an unsolicited takeover attempt; and
- requiring advance notice procedures with which stockholders must comply to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of us.

In addition, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law upon completion of this offering. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a certain period of time. See the section entitled "Description of capital stock—Anti-takeover effects of Delaware law and our certificate of incorporation and bylaws."

These and other provisions in our certificate of incorporation, our bylaws and under Delaware law could discourage potential takeover attempts, reduce the price that investors might be willing to pay for shares of our Class A common stock in the future and result in the market price being lower than it would be without these provisions. See the sections entitled "Description of capital stock—Preferred Stock" and "Description of capital stock—Anti-takeover effects of Delaware law and our certificate of incorporation and bylaws."

Information regarding forward looking statements

Information regarding forward looking statements This prospectus includes forward-looking statements. All statements other than statements of historical facts contained in this prospectus, including statements regarding our future results of operations and financial position, customer lifetime value, strategy and plans, market size and opportunity, competitive position, industry environment, potential growth opportunities and our expectations for future operations, are forward-looking-statements. The words "believe," "may," "will," "estimate," "continue," "anticipate," "design," "intend," "expect," "could," "plan," "potential," "predict," "seek," "should," "would" or the negative version of these words and similar expressions are intended to identify forward-looking statements. We have based these forward-looking statements on our current expectations and projections about future events and trends that we believe may affect our financial condition, results of operations, strategy, short- and long-term business operations and objectives, and financial needs. The forward-looking statements are contained principally in "Prospectus summary," "Risk factors," "Management's discussion and analysis of financial condition and result of operations" and "Business."

These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in "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 forward-looking events and circumstances discussed in this prospectus may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

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 that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Moreover, except as required by law, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this prospectus to conform these statements to actual results or to changes in our expectations.

You should read this prospectus and the documents that we reference in this prospectus and have filed with the SEC as exhibits to the registration statement of which this prospectus is a part with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

Market, industry and other data

Market, industry and other data We obtained the industry, market and competitive position data used throughout this prospectus from our own internal estimates and research, as well as from industry and general publications, in addition to research, surveys and studies conducted by third parties. Internal estimates are derived from publicly-available information released by industry analysts and third party sources, our internal research and our industry experience, and are based on assumptions made by us based on such data and our knowledge of our industry and market, which we believe to be reasonable. In addition, while we believe the industry, market and competitive position data included in this prospectus is reliable and is based on reasonable assumptions, such data involves risks and uncertainties and are subject to change based on various factors, including those discussed in the section entitled "Risk factors." These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties and by us.

Information based on estimates, forecasts, projections, market research, or similar methodologies is inherently subject to uncertainties, and actual events or circumstances may differ materially from events and circumstances that are assumed in this information. In some cases, we do not expressly refer to the sources from which data is derived.

Certain information in this prospectus is contained in independent industry publications. The source of these independent industry publications is provided below:

- CIMdata, Inc., *2017 Simulation and Analysis Market Analysis Report, 2017.*
- International Data Corporation, *IDC HPC Update at ISC 16, 2016.*
- International Data Corporation, *Market Forecast Report: Worldwide Business Analytics Software Forecast, 2017.*
- International Data Corporation, *Market Forecast Report: Worldwide Internet of Things Forecast Update, 2016-2020, 2016.*
- *The Gartner Report described herein (the "Gartner Report") represents research opinion or viewpoints published, as part of a syndicated subscription service, by Gartner, Inc. ("Gartner"), and are not representations of fact. Each Gartner Report speaks as of its original publication date (and not as of the date of this prospectus) and the opinions expressed in the Gartner Report are subject to change without notice. The Gartner Report consists of a Gartner, Inc., *Press Release* dated *February 7, 2017: "Gartner Says 8.4 Billion Connected 'Things' Will Be in Use in 2017, Up 31 Percent from 2016."*

The independent publications described herein represent research opinions or viewpoints published and are not representations of fact. Each publication speaks as of its original publication date (and not as of the date of this prospectus) and are subject to change without notice.

Use of proceeds

Use of proceeds We estimate that the net proceeds from our sale of shares of Class A common stock in this offering at an assumed initial public offering price of $ per share, the midpoint of the price range set forth on the front cover of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses, will be approximately $ million, or $ million if the underwriters' option to purchase additional shares is exercised in full. A $1.00 increase (decrease) in the assumed initial public offering price would increase (decrease) the net proceeds to us from this offering by $ million, assuming the number of shares offered by us, as set forth on the front cover of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions. We will not receive any proceeds from the sale of Class A common stock by the selling stockholders.

We currently intend to use $ million of the net proceeds of this offering to repay our term loan, which had an outstanding balance of $52.5 million as of June 30, 2017 and to pay off the revolving credit balance under our credit facility as set forth in the Credit Agreement. At June 30, 2017, we were required to make quarterly principal payments on Term Loan A of $2.5 million in 2017, 2018 and March 2019. Any outstanding principal balance is to be paid in full on the maturity date of April 18, 2019. At December 31, 2015 and 2016, and June 30, 2017, respectively, there was $67.1 million, $57.5 million, and $52.5 million outstanding under Term Loan A at an interest rate of 2.2%, 2.6% and 2.8%.

As of June 30, 2017, the principal amount of the revolving loans outstanding was $18.0 million. See Note 7 to the financial statements included elsewhere in this prospectus.

We intend to use the remaining net proceeds to us from this offering primarily for general corporate purposes, including real estate development, working capital, sales and marketing activities, general and administrative matters and capital expenditures. We may also use a portion of the net proceeds for the acquisition of, or investment in, technologies, solutions or businesses that complement our business. We will have broad discretion over the uses of the net proceeds in this offering. Pending these uses, we may invest the net proceeds from this offering in short-term, investment-grade interest-bearing securities such as money market accounts, certificates of deposit, commercial paper and guaranteed obligations of the United States government.

By establishing a public market for our Class A common stock, this offering is also intended to facilitate our future access to public markets.

Dividend policy

Dividend policy We have never declared or paid and do not anticipate declaring or paying, any cash dividends on our Class A common stock. We currently intend to retain all available funds and any future earnings for use in the operation of our business. Any future determination to declare dividends will be made at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, general business conditions and other factors that our board of directors may deem relevant.

Capitalization

Capitalization The following table shows our cash and cash equivalents and our capitalization as of June 30, 2017 on:

- an actual basis;
- a pro forma basis, giving effect to the reversal of the stock-based compensation liability (see Note 3 to the consolidated financial statements) which will occur upon effectiveness as if it had occurred on June 30, 2017 and excluding the 177,000 shares of our Class A common stock issued on September 28, 2017 in connection with our acquisition of Runtime; and
- a pro forma as adjusted basis, giving effect to (i) the pro forma adjustments set forth above, (ii) the receipt of $ million in net proceeds from the sale and issuance by us of shares of common stock offered by us in this prospectus at an assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, after deducting the estimated underwriting discounts and commissions from this offering and estimated offering expenses paid or payable by us and (iii) our use of a portion of our net proceeds from this offering to fully repay our term loan and revolving credit balance under our credit facility, which had an outstanding balance of $52.5 million and $18.0 million, respectively, as of June 30, 2017.

You should read the following table in conjunction with “Management’s discussion and analysis of financial condition and results of operations,” “Description of capital stock” and our consolidated financial statements and the related notes appearing elsewhere in this prospectus.

	As of June 30, 2017		
(In thousands, except share and per share data)	Actual	Pro forma	Pro forma as adjusted[1]
Cash and cash equivalents	$17,419	$17,419	$
Credit Agreement:			
Revolving credit facility[2]	$18,018	$18,018	
Term Loan A[2]	52,500	52,500	
Stockholders’ equity (deficit):			
Preferred stock, no par value per share: no shares authorized, issued and outstanding, actual; shares authorized, no shares issued or outstanding, pro forma and pro forma as adjusted	—	—	
Class A common stock, no par value per share: 19,000,000 shares authorized, 2,346,878 shares issued and outstanding, actual; no par value per share: 19,000,000 shares authorized, 2,346,878 shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	—	—	
Class B common stock, no par value per share: 11,000,000 shares authorized, 10,300,857 shares issued and outstanding, actual; no par value per share; 11,000,000 shares authorized, 10,300,857 shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	—	—	
Additional paid-in capital	40,889	40,889	
Accumulated deficit	(76,526)	(59,675)	
Accumulated other comprehensive loss	(5,797)	(5,797)	
Total stockholders’ equity (deficit)	(41,434)	(24,583)	
Total capitalization	$29,084	$45,935	$

(1) The pro forma as adjusted information is illustrative only and will be adjusted based on the actual public offering price and other terms of this offering determined at pricing. Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the midpoint of the range on the cover of this prospectus, would increase (decrease) our pro forma as adjusted cash and cash equivalents, additional paid-in capital, total stockholders’ (deficit) equity and total capitalization by approximately $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions payable by us.

(2) Our credit facility consists of a $60 million term loan, of which $52.5 million was outstanding as of June 30, 2017, a $60 million revolving commitment, of which $18.0 million was outstanding as of June 30, 2017, and a $4.0 million ancillary facility.

The total number of shares of our common stock to be outstanding following this offering is based on 2,346,878 shares of our Class A common stock and 10,300,857 shares of our Class B common stock, outstanding as of June 30, 2017, and excludes:

- shares of our Class A common stock to be reserved for issuance under our 2017 Plan;
- 656,980 shares of our Class A common stock reserved for issuance under our 2012 Plan;
- 1,586,960 shares of our Class A common stock issuable upon exercise of stock options outstanding as of June 30, 2017, with an exercise price of $0.001, under our 2001 NQSO Plan.
- 732,845 shares of our Class A common stock issuable upon exercise of stock options outstanding as of June 30, 2017, with a weighted average exercise price of $2.56, under our 2001 Incentive and Non-Qualified Stock Option Plan, or 2001 ISO and NQSO Plan (other than the stock options to be exercised by certain of the selling stockholders in connection with this offering, as set forth elsewhere in this prospectus); and
- 552,402 shares of our Class A common stock issuable upon exercise of stock options outstanding as of June 30, 2017, with a weighted average exercise price of $14.91, under our 2012 Plan.

See the section entitled “Executive compensation—Employee benefit and equity compensation plans” and Note 11 in the notes to consolidated financial statements included elsewhere in this prospectus for a description of our equity plans.

Dilution

Dilution

If you invest in our Class A common stock, your interest will be diluted to the extent of the difference between the initial public offering price per share of our Class A common stock and the pro forma as adjusted net tangible book value per share of our Class A common stock immediately after this offering. The historical net tangible negative book value of our common stock as of June 30, 2017 was $(101.2) million, or $(8.00) per share. Our pro forma net tangible negative book value as of June 30, 2017 was $(84.3) million, or $(6.67) per share, taking into account the reversal of the stock-based compensation liability (see Note 3 to the consolidated financial statements) which will occur upon effectiveness, but excluding the 177,000 shares of our Class A common stock issued on September 28, 2017 in connection with our acquisition of Runtime. Historical net tangible negative book value per share represents our total tangible assets less our total liabilities, divided by the number of shares of outstanding common stock.

After giving effect to the receipt of the net proceeds from our sale of shares of our Class A common stock in this offering at an assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, after deducting underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of June 30, 2017 would have been $ million, or $ per share. This represents an immediate increase in pro forma as adjusted net tangible book value of $ per share to existing stockholders and an immediate dilution of $ per share to new investors purchasing Class A common stock in this offering.

The following table illustrates this dilution on a per share basis to new investors:

Initial public offering price per share, based on the midpoint of the price range set forth of the cover page of this prospectus.	$
Pro forma net tangible negative book value per share as of June 30, 2017	$
Increase in pro forma net tangible book value per share attributable to new investors	
Pro forma as adjusted net tangible book value per share after this offering	
Dilution per share to new investors in this offering	$

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) the pro forma net tangible book value, as adjusted to give effect to this offering, by $ per share and the dilution to new investors by $ per share, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting underwriting discounts and commissions and estimated expenses payable by us. Similarly, each increase (decrease) of one million shares in the number of shares of Class A common stock offered by us would increase (decrease) the pro forma net tangible book value, as adjusted to give effect to this offering, by $ per share and the dilution to new investors by $ per share, assuming the assumed initial public offering price remains the same and after deducting underwriting discounts and commissions and estimated expenses payable by us. If the underwriters exercise their over-allotment option in full, the pro forma net tangible book value per share of our common stock, as adjusted to give effect to this offering, would be $ per share, and the dilution in pro forma net tangible book value per share to investors in this offering would be $ per share of common stock.

The table below summarizes as of June 30, 2017, on a pro forma as adjusted basis described above, the number of shares of our common stock, the total consideration and the average price per share (i) paid to us by existing stockholders and (ii) to be paid by new investors purchasing our Class A common stock in this offering at an assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, before deducting underwriting discounts and commissions and estimated offering expenses:

	Shares purchased		Total consideration		Average price per share
	Number	Percent	Amount	Percent	
Existing stockholders		%		$ %	$
New investors					

Totals	100.0%	$100.0%

The total number of shares of our common stock to be outstanding following this offering is based on 2,346,878 shares of our Class A common stock and 10,300,857 shares of our Class B common stock, outstanding as of June 30, 2017, and excludes:

- shares of our Class A common stock to be reserved for issuance under our 2017 Plan;
- 656,980 shares of our Class A common stock reserved for issuance under our 2012 Plan;
- 1,586,960 shares of our Class A common stock issuable upon exercise of stock options outstanding as of June 30, 2017, with an exercise price of $0.001, under our 2001 NQSO Plan;
- 732,845 shares of our Class A common stock issuable upon exercise of stock options outstanding as of June 30, 2017, with a weighted average exercise price of $2.56, under our 2001 Incentive and Non-Qualified Stock Option Plan, or 2001 ISO and NQSO Plan (other than the stock options to be exercised by certain of the selling stockholders in connection with this offering, as set forth elsewhere in this prospectus); and
- 552,402 shares of our Class A common stock issuable upon exercise of stock options outstanding as of June 30, 2017, with a weighted average exercise price of $14.91, under our 2012 Plan.

Sales by the selling stockholders in this offering will cause the number of shares held by existing stockholders to be reduced to shares, or % of the total number of shares of our common stock outstanding after this offering, and will increase the number of shares held by new investors to shares, or % of the total number of shares of our common stock outstanding after this offering. In addition, if the underwriters' over-allotment option is exercised in full, the number of shares held by the existing stockholders after this offering would be reduced to % of the total number of shares of our common stock outstanding after this offering, and the number of shares held by new investors would increase to shares, or % of the total number of shares of our common stock outstanding after this offering.

To the extent that any outstanding options are exercised, new options are issued under our stock-based compensation plans or we issue additional shares of our common stock in the future, there will be further dilution to investors participating in this offering. If all outstanding options under our 2012 Plan, our 2001 NQSO Plan and our 2001 ISO and NQSO Plan as of June 30, 2017 were exercised, then our existing stockholders, including the holders of these options, would own % and our new investors would own % of the total number of shares of our common stock outstanding upon the completion of this offering. In such event, the total consideration paid by our existing stockholders, including the holders of these options, would be approximately $ million, or %, the total consideration paid by our new investors would be $ million, or %, the average price per share paid by our existing stockholders would be $ and the average price per share paid by our new investors would be $.

Selected historical consolidated financial and other data

Selected historical consolidated financial and other data The following selected consolidated financial data should be read in conjunction with the section entitled "Management's discussion and analysis of financial condition and results of operations" and the consolidated financial statements and related notes included within this prospectus. The consolidated statement of operations data for the years ended December 31, 2015 and 2016, and the consolidated balance sheet data as of December 31, 2015 and 2016, are derived from our audited consolidated financial statements and related notes included elsewhere in this prospectus. The consolidated statement of operations data for the six months ended June 30, 2016 and 2017, and the consolidated balance sheet data as of June 30, 2017, are derived from our unaudited consolidated financial statements included elsewhere in this prospectus. We have prepared the unaudited consolidated financial statements on the same basis as the audited consolidated financial statements and have included all adjustments, consisting only of normal recurring adjustments that, in our opinion, are necessary to state fairly the financial information set forth in those statements. Our historical results are not necessarily indicative of our future results and the results of operations for the six months ended June 30, 2017 are not necessarily indicative of the results to be expected for the full fiscal year or any other period. The selected consolidated financial data in this section are not intended to replace our consolidated financial statements and the related notes, and are qualified in their entirety by the consolidated financial statements and related notes included elsewhere in this prospectus.

	Years ended December 31,		Six months ended June 30,	
(in thousands, except share data)	**2015**	**2016**	**2016**	**2017**
Consolidated Statements of Operations Data:				
Revenue:				
Software	$205,567	$223,818	$106,929	$113,697
Software related services	37,294	35,770	17,790	17,175
Total software	242,861	259,588	124,719	130,872
Client engineering services	45,075	47,702	24,289	24,594
Other	6,193	5,950	3,332	3,062
Total revenue	294,129	313,240	152,340	158,528
Cost of revenue:				

Software[1]	27,406	31,962	15,021	17,633
Software related services	30,079	27,653	13,838	13,773
Total software	57,485	59,615	28,859	31,406
Client engineering services	36,081	38,106	19,207	19,969
Other	5,642	4,879	2,692	2,297
Total cost of revenue	99,208	102,600	50,758	53,672
Gross profit	194,921	210,640	101,582	104,856
Operating expenses:				
Research and development[1]	62,777	71,325	34,012	41,608
Sales and marketing[1]	63,080	66,086	32,093	36,338
General and administrative[1]	54,069	57,202	27,882	37,290
Amortization of intangible assets	2,624	3,322	1,477	2,098
Other operating income	(2,576)	(2,742)	(1,129)	(3,330)
Total operating expense	179,974	195,193	94,335	114,004

Operating income (loss)	14,947	15,447	7,247	(9,148)
Interest expense	2,416	2,265	1,247	1,159
Other expense (income), net	782	(520)	(652)	786
Income (loss) before income taxes	11,749	13,702	6,652	(11,093)
Income tax expense (benefit)	818	3,539	2,699	(1,659)
Net income (loss)	$10,931	$10,163	$3,953	$(9,434)
Net income (loss) per share attributable to common stockholders, basic[2]	$0.94	$0.83	$0.33	$(0.75)
Net income (loss) per share attributable to common stockholders, diluted[2]	$0.74	$0.70	$0.28	$(0.75)
Weighted average number of shares used in computing net income (loss) per share attributable to common stockholders, basic[2]	11,652	12,213	11,973	12,564
Weighted average number of shares used in computing net income (loss) per share attributable to common stockholders, diluted[2]	14,677	14,464	14,309	12,564
Pro forma net income (loss)[3]		$12,341		$(3,303)
Pro forma net income (loss) per share attributable to common stockholders, basic[3]		$ 1.01		$(0.26)
Pro forma net income (loss) per share attributable to common stockholders, diluted[3]		$ 0.85		$(0.26)

(1) Includes stock-based compensation expense as follows:

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Cost of revenue—software	$44	$22	$14	$16
Research and development	149	1,370	41	3,784
Sales and marketing	109	775	35	2,115
General and administrative	295	2,965	85	8,122
Total stock-based compensation expense	$597	$5,132	$175	$14,037

(2) See Note 14 in the notes to consolidated financial statements for an explanation of the method used to calculate basic and diluted net income (loss) per share attributable to common stockholders.

(3) The Pro forma amounts reflect the effects of the reversal of the stock-based compensation liability that will occur upon effectiveness (see Note 3 in the notes to consolidated financial statements) but excludes the 177,000 shares of our Class A common stock issued on September 28, 2017 in connection with our acquisition of Runtime.

	As of December 31,		As of June 30,
(in thousands)	**2015**	**2016**	**2017**
Consolidated balance sheet data:			
Cash and cash equivalents	$13,756	$16,874	$17,419

Working capital	(55,097)	(52,902)	(79,313)
Total assets	221,850	250,776	265,610
Deferred revenue, current and non-current	106,516	113,929	136,780
Debt	83,177	85,241	71,095
Total stockholders' deficit	(42,039)	(34,653)	(41,434)

Key metrics

We monitor the following key non-GAAP financial and operating metrics to help us evaluate our business, measure our performance, identify trends affecting our business, formulate business plans and make strategic decisions. In addition to our results determined in accordance with GAAP, we believe the following non-GAAP financial and operating metrics are useful in evaluating our operating performance.

Billings. Billings consists of our total revenue plus the change in our deferred revenue in a given period. As we generally bill our customers at the time of sale, but typically recognize a majority of the related revenue ratably over time, management believes that Billings is a meaningful way to measure and monitor our ability to provide our business with the working capital generated by upfront payments from our customers. While we believe that billings provides valuable insight into the cash that will be generated from sales of our software and services, this metric may vary from period-to-period for a number of reasons including the impact of changes in foreign currency exchange rates and the potential impact of acquisitions.

See the section entitled "Selected historical consolidated financial and other data—Reconciliation of non-GAAP financial measures" for information regarding the limitations of using Billings as a financial measure and for a reconciliation of Billings to revenue, the most directly comparable financial measure calculated in accordance with GAAP.

Our Billings were as follows:

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Billings	$297,358	$320,653	$165,449	$181,379

Adjusted EBITDA. We define Adjusted EBITDA as net income (loss) adjusted for income tax expense (benefit), interest expense, interest income and other, depreciation and amortization, stock-based compensation expense, restructuring charges, asset impairment charges and other special items as determined by management. We believe that Adjusted EBITDA is a meaningful measure of performance as it is commonly utilized by us and the investment community to analyze operating performance in our industry. See the section entitled "Selected historical consolidated financial and other data—Reconciliation of non-GAAP financial measures" for information regarding the limitations of using Adjusted EBITDA as a financial measure and for a reconciliation of Adjusted EBITDA to net income (loss), the most directly comparable financial measure calculated in accordance with GAAP.

Our Adjusted EBITDA was as follows:

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Adjusted EBITDA	$22,949	$30,830	$12,933	$7,056

Free Cash Flow. Free Cash Flow is a non-GAAP financial measure that we calculate as cash flow provided by operating activities less capital expenditures. We believe that Free Cash Flow is useful in analyzing our ability to service and repay debt and return value directly to stockholders. See the section entitled "Selected historical consolidated financial and other data—Reconciliation of non-GAAP financial measures" for information regarding the limitations of using Free Cash Flow as a financial measure and for a reconciliation of Free Cash Flow to net cash provided by operating activities, the most directly comparable financial measure calculated in accordance with GAAP.

Our Free Cash Flow was as follows:

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Free Cash Flow	$5,605	$11,941	$18,307	$21,782

Recurring Software License Rate. A key factor to our success is our recurring software license rate which we measure through billings, primarily derived from annual renewals of our existing subscription customer agreements. We calculate our recurring software license rate for a particular period by dividing (i) the sum of software term-based license billings, software license maintenance billings, and 20% of software perpetual license billings which we believe approximates maintenance as an element of the arrangement by (ii) the total software license billings including all term-based, maintenance, and perpetual license billings from all customers for that period. For the years ended December 31, 2015, 2016 and six months ended June 30, 2017, our recurring software license rate was 88%, 90% and 91%, respectively.

These non-GAAP financial measures reflect an additional way of viewing aspects of our business that, when viewed with our GAAP results and the accompanying reconciliations to corresponding GAAP financial measures included in the tables below, may provide a more complete understanding of factors and trends affecting our business. These non-GAAP financial measures should not be relied upon to the exclusion of GAAP financial measures and are by definition an incomplete understanding of the Company and must be considered in conjunction with GAAP measures.

We believe that the non-GAAP measures disclosed herein are only useful as an additional tool to help management and investors make informed decisions about our financial and operating performance and liquidity. By definition, non-GAAP measures do not give a full understanding of the Company. To be truly valuable, they must be used in conjunction with the comparable GAAP measures. In addition, non-GAAP financial measures are not standardized. It may not be possible to compare these financial measures with other companies' non-GAAP financial measures having the same or similar names. We strongly encourage investors to review our consolidated financial statements and the notes thereto in their entirety and not to rely on any single financial measure.

Reconciliation of non-GAAP financial measures

The following tables provide reconciliations of revenue to Billings, income (loss) before income taxes to Adjusted EBITDA and net cash provided by operating activities to Free Cash Flow:

Billings

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Revenue	$294,129	$313,240	$152,340	$158,528
Ending deferred revenue	106,516	113,929	119,625	136,780
Beginning deferred revenue	(103,287)	(106,516)	(106,516)	(113,929)
Billings	$ 297,358	$ 320,653	$ 165,449	$ 181,379

Adjusted EBITDA

	Year Ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Net income (loss)	$10,931	$10,163	$3,953	$(9,434)
Income tax expense (benefit)	818	3,539	2,699	(1,659)
Stock-based compensation	597	5,132	175	14,037
Interest expense	2,416	2,265	1,247	1,159
Interest income and other[(1)]	(191)	(249)	12	(2,131)
Depreciation and amortization	8,378	9,980	4,847	5,084
Adjusted EBITDA	$22,949	$30,830	$12,933	$ 7,056

(1) Includes a non-recurring adjustment for a change in estimated legal expenses resulting in $2 million of income for the six months ended June 30, 2017.

Free Cash Flow

	Year ended December 31,			Six months ended June 30,	
(in thousands)	**2015**	**2016**		**2016**	**2017**
Net cash provided by operating activities	$10,838	$21,385		$22,006	$26,117
Capital expenditures	(5,233)	(9,444)	(1)	(3,699)	(4,335)
Free Cash Flow	$5,605	$11,941		$18,307	$21,782

(1) Includes $4.0 million purchase of real property adjacent to our corporate headquarters.

Management's discussion and analysis of financial condition and results of operations

Management's discussion and analysis of financial condition and

results of operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the "Selected historical consolidated financial and other data" and our financial statements and related notes included elsewhere in this prospectus. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those discussed below. Factors that could cause or contribute to such differences include, but are not limited to, those identified below and those discussed in "Risk factors" and "Information regarding forward looking statements" included elsewhere in this prospectus.

Vision

Our vision is to transform product design and organizational decision making by applying simulation, optimization and high performance computing throughout product lifecycles.

Overview

We are a leading provider of enterprise-class engineering software enabling innovation across the entire product lifecycle from concept design to in-service operation. Our simulation-driven approach to innovation is powered by our broad portfolio of high-fidelity and high performance physics solvers. Our integrated suite of software optimizes design performance across multiple disciplines encompassing structures, motion, fluids, thermal management, electromagnetics, system modeling and embedded systems, while also providing data analytics and true-to-life visualization and rendering.

Our engineering and design platform offers a wide range of multi-disciplinary computer aided engineering, or CAE, solutions which we believe is one of the most innovative and comprehensive offerings available in the market. To ensure customer success and deepen our relationships with them, we engage with our customers to provide consulting, implementation services, training, and support, especially when applying optimization. We participate in five software categories related to CAE and high performance computing, or HPC:

- Solvers & Optimization;
- Modeling & Visualization;
- Industrial & Concept Design;
- Internet of Things, or IoT; and
- HPC.

Altair also provides client engineering services, or CES, to support our customers with long-term ongoing product design and development expertise. This has the benefit of embedding us within customers, deepening our understanding of their processes, and allowing us to more quickly perceive trends in the overall market. Our presence at our customers' sites helps us to better tailor our software products' research and development, or R&D, and sales initiatives.

Our business model

We pioneered a patented units-based licensing subscription model for software and other digital content. Our customers license a pool of units for their organizations, which allows individual users within the organization to have flexible and shared access to our entire portfolio of software applications, along with over 150 partner products. We believe our units-based subscription licensing model lowers barriers to adoption, creates broad engagement, encourages users to work within our ecosystem, and increases revenue. This, in turn, helps drive our recurring software license rate which has been on average approximately 88% over the past five years. Each year approximately 60% of new revenue comes from expansion within existing customers.

Our corporate history and culture

We were founded in 1985 in Michigan and have a balanced global footprint, with 68 offices in 24 countries, and over 2,000 engineers, scientists and creative thinkers. We believe a critical component of our success has been our company culture, based on our core values of innovation, envisioning the future, communicating honestly and broadly, seeking technology and business firsts, and embracing diversity. This culture is important because it helps attract and retain top people, encourages innovation and teamwork, and enhances our focus on achieving Altair's corporate objectives.

Factors affecting our performance

We believe that our future success will depend on many factors, including those described below. While these areas present significant opportunity, they also present risks that we must manage to achieve successful results. If we are unable to address these challenges, our business, operating results and prospects could be harmed. See the section entitled "Risk factors" included elsewhere in this prospectus.

Seasonality and quarterly results

Our billings have historically been highest in the first and fourth quarters of any calendar year and may vary in future quarters. The timing of recording billings and the corresponding effect on our cash flows may vary due to the seasonality of the purchasing patterns of our customers. In addition, the timing of the recognition of revenue, the amount and timing of operating expenses including, employee compensation, sales and marketing activities, and capital expenditures, may vary from quarter-to-quarter which may cause our reported results to fluctuate significantly. In addition, we may choose to grow our business for the long-term rather than to optimize for profitability or cash flows for a particular shorter term period. This seasonality or the occurrence of any of the factors above may cause our results of operations to vary and our financial statements may not fully reflect the underlying performance of our business.

Foreign currency fluctuations

Because of our substantial international operations, we are exposed to foreign currency risks that arise from our normal business operations, including in connection with our transactions that are denominated in foreign currencies, including the Euro, British Pound Sterling, Indian Rupee, Japanese Yen, and Chinese Yuan. To present the changes in our underlying business without regard to the impact of currency fluctuations, we evaluate certain of our operating results both on an as reported basis, as well as on a constant currency basis.

Constant currency amounts exclude the effect of foreign currency fluctuations on our reported results. Our comparative financial results were impacted by fluctuations in the value of the United States dollar relative to other currencies during the six months ended June 30, 2017 as compared to the six months ended June 30, 2016. To present this information, the results for 2017 for entities whose functional currency is a currency other than the United States dollar were converted to United States dollars at rates that were in effect for 2016. These adjusted amounts are then compared to our current period reported amounts to provide operationally driven variances in our results.

The effects of currency fluctuations on our Revenue and Adjusted EBITDA are reflected in the table below. Amounts in brackets indicate a net adverse impact from currency fluctuations.

(in thousands)	Six months ended June 30, 2017
Revenue	$(2,253)
Adjusted EBITDA	$(916)

Expanded use of our software applications

Our ability to grow our revenue is affected, in part, by the pace at which our customers continue to expand their use of our design, simulation, optimization and analysis applications and the degree to which prospective customers realize the benefit of using our software applications. To grow our presence within our customers and attract new customers, we devote substantial sales and marketing resources to drive increased adoption across our existing customers and encourage new customers to commence using our software. As a result of this "land and expand" business model, we expect to generate additional revenue from our current and future customer base. To the extent our sales and marketing efforts do not translate into customer retention or expansion, or if we do not allocate those expenses efficiently, our financial performance may be adversely affected. Therefore, our financial performance will depend in part on the degree to which our "land and expand" strategies are successful.

Investments for growth

We have made and plan to continue to make investments for long-term growth, including investments in our ongoing research and development activities seeking to create new software and to enhance our existing applications to address emerging technology trends and additional customer needs. Generally, the development of new or improved applications in our software can result in the expansion of our user base within an organization and a potential increase in revenue over time, although the expenditures associated with such developments may adversely affect our performance in the near term. We intend to continue to invest resources in sales and marketing, by further expanding our sales teams and increasing our marketing activities. Our ability to continue to grow revenue from our current and potential customer base is dependent, in part, upon the success of our current and future research and development and sales and marketing activities.

Business Segments

We have identified two reportable segments: Software and Client Engineering Services:

- *Software*—our Software segment includes software and software related services. The software component of this segment includes our portfolio of software products including our solvers and optimization technology products, modeling and visualization tools, industrial and concept design tools, IoT platform and analytics tools, and high performance computing, or HPC, software applications, as well as support and the complementary software products we offer through our Altair Partner Alliance, or APA. The APA includes technologies ranging from computational fluid dynamics and fatigue to manufacturing process simulation and cost estimation. The software related services component of this segment includes consulting, implementation services, and training focused on product design and development expertise and analysis from the component level up to complete product engineering.

- *Client Engineering Services*—our client engineering services, or CES, segment provides client engineering services to support our customers with long-term, ongoing product design and development expertise. We operate our CES business by hiring engineers for placement at a customer site for specific customer-directed assignments. We employ and pay the engineers only for the duration of the placement.

Our other businesses which do not meet the criteria to be separate reportable segments are combined and reported as "Other" which represents innovative services and products, including toggled, our LED lighting and IoT business. toggled is focused on developing and selling next-generation solid state lighting technology along with communication and control protocols based on our intellectual property for the direct replacement of fluorescent light tubes with LED lamps. Other businesses combined within Other include potential services and product concepts that are still in their development stages.

For additional information about our reportable segments and other businesses, see Note 19 in the notes to consolidated financial statements included elsewhere in this prospectus.

Components of results of operations

Revenue

We primarily derive revenue from our units-based subscription licensing model for software and other digital content, other software licensing, and software related services. Our CES business derives revenue from providing engineers to support our customers' long-term, ongoing product design and development projects.

Software Segment

Software segment revenue consists of revenue from software licenses and software related services including consulting, implementation services, training, and support.

Software

Software revenue is principally comprised of subscription license agreements, typically with 12 month terms, which include maintenance and support. Software revenue is also comprised of perpetual license agreements, and associated maintenance and support agreements. We generally recognize software license revenue ratably over the period of the arrangement. Each year approximately 60% of our new revenue comes from expansion within existing customers.

Software related services Software related services includes consulting, implementation services and training. Our software related services team is comprised of almost 700 highly technical people globally. We focus on establishing a strong working relationship with the user community allowing us to offer guidance and expertise throughout their product creation process.

We generally recognize revenue for software related services on a time and materials or, for fixed price arrangements, on a proportional performance basis.

Client engineering services segment We provide CES to support our customers with long-term, ongoing product design and development expertise. We operate our CES business by hiring engineers for placement at a customer site for specific customer-directed assignments. We employ and pay the engineers only for the duration of the placement.

Our CES business generates revenue from placing simulation specialists, industrial designers, design engineers, materials experts, development and test engineers, manufacturing engineers and information technology specialists on-site with our customers in businesses operating in the virtual simulation, product design and development, software development, and high-performance computing spaces. We recognize CES revenue based upon hours worked and contractually agreed-upon hourly rates.

The average CES assignment was 1.8 years during the period from 2011 through 2016, with a current average length of service for all CES employees of 2.4 years. As of December 31, 2016, 44% of CES employees were in their assignments for over two years. The terms of our CES arrangements generally provide that our customers pay us within 30 days of invoice. The amount and timing of CES revenue depends on our customers demand for engineering services and the number of available qualified employees to service our customers' needs.

Other

Our Other revenue consists primarily of revenue related to our LED lighting business operated out of our wholly-owned subsidiary, toggled. toggled designs, sources through contract manufacturers, and assembles in our own facilities, LED lighting and related products for sale to consumers and businesses. We also generate revenue through royalties from licensing our technology to third party manufacturers and resellers.

Cost of revenue

Software segment

Cost of software revenue consists of expenses related to software licensing and customer support. Significant expenses include employee related costs for support team members, travel costs, and royalties for third-party software products available to customers through our products or as part of our APA.

Software

Cost of software revenue consists of the cost of personnel and related costs such as salaries, benefits, bonuses and stock-based compensation, travel expenses and certain data center and facility costs and substantially all royalty expenses.

Software related services Cost of software related services revenue consists of the cost of personnel and related costs such as salaries, benefits, bonuses and stock-based compensation, travel expenses and certain data center and facility costs.

Cost of client engineering services Cost of engineering services revenue consists primarily of employee compensation costs. We operate our CES business by hiring engineers for placement at a customer site for specific customer-directed assignments. We employ and pay the engineers only for the duration of the placement.

Cost of other

Cost of other revenue includes the cost of LED lighting products and freight related to products sold to retail and commercial sales channels.

Operating expenses

Operating expenses, as defined and discussed below, support all of the products and services that we provide to our customers and, as a result, they are presented in an aggregate total.

Research and development Research and development expenses consist primarily of expenses of our development team, including salaries, benefits, bonuses, stock-based compensation expense and allocated overhead costs. Our research and development efforts are focused on enhancing the functionality, breadth and scalability of our software, addressing new use cases, and developing additional innovative simulation technologies. Timely development of new products is essential to maintaining our competitive position, and we release new versions of our software on a regular basis. All software development costs are expensed as incurred as our current software development process is essentially completed concurrent with the establishment of technological feasibility.

Sales and marketing

Sales and marketing expenses consist primarily of the cost of personnel and related costs associated with our sales and marketing staff, including salaries, benefits, bonuses, commissions and stock-based compensation, and costs relating to our marketing and business development programs including trade shows and events. We intend to continue to invest resources in our sales and marketing initiatives in order to continue to drive growth and extend our market position.

General and administrative General and administrative expenses consist of personnel costs and related expenses for executive, finance, legal, human resources, recruiting, and employee-related information technology and administrative personnel, including salaries, benefits, bonuses and stock-based compensation expense, professional fees for external legal, accounting, facilities, recruiting and other consulting services, allocated overhead costs, and legal settlements.

Amortization of intangible assets Amortization of intangible assets consists primarily of amortization of intangibles associated with acquisitions. We expect to incur additional amortization expenses resulting from future strategic acquisitions.

Other operating income Other operating income consists primarily of government subsidies, primarily in France, in the form of grant income associated with certain of our research and development activities.

Interest expense

Interest expense consists of interest expense on our outstanding indebtedness and accretion of interest expense on debt issuance costs. In connection with this offering, we intend to repay substantially all our outstanding indebtedness.

Other expense (income), net Other expense (income), net is comprised primarily of foreign currency exchange gains and losses generated from the settlement and remeasurement of transactions denominated in currencies other than the functional currency of our operating units.

Income tax expense (benefit) Income tax expense (benefit) is comprised primarily of income taxes related to United States, foreign, and state jurisdictions in which we conduct business. We record interest and penalties related to income tax matters as income tax expense. We expect the amount of income tax expense (benefit), if any, to vary each reporting period depending upon fluctuations in our income. We have substantial United States tax credit carryforwards which, if not utilized, will begin to expire in 2018. The ability to utilize these tax credit carryforwards is highly dependent upon our ability to generate taxable income in the United States in the future.

Our future effective annual tax rate may be materially impacted by the amount of benefits and charges from tax amounts associated with our foreign earnings that are taxed at rates different from the federal statutory rate, changes in valuation allowances, level of profit before tax, accounting for uncertain tax positions, stock-based compensation, business combinations, closure of statute of limitations, or settlements of tax audits, and changes in tax laws including possible United States tax law changes that, if enacted, could significantly impact how United States multinational companies are taxed on foreign subsidiary earnings. A significant amount of our earnings is generated in the EMEA and APAC regions. Our future effective tax rates may be adversely affected to the extent earnings are lower than anticipated in countries where we have lower statutory tax rates or we repatriate certain foreign earnings on which United States taxes have not previously been provided.

As of December 31, 2016 and June 30, 2017, we had net deferred tax assets, or DTAs, of $61.5 million and $65.8 million, respectively, primarily related to tax credits, share-based compensation, deferred revenue, and capitalized research and development expenses. We are also entitled to a United States federal tax deduction when non-qualified stock options, or NSOs, are exercised. In connection with this offering, we expect a significant number of our NSOs will be exercised, creating substantial additional tax deductions for us. These deductions are expected to result in future net operating losses for United States tax purposes which are expected to result in our needing to establish a valuation allowance for the majority of our DTAs. Our ability to utilize any net operating losses or tax credits could be limited under provisions of the Code if we undergo an ownership change in connection with or after this offering (generally defined as a greater than 50-percentage point cumulative change (by value) in the equity ownership of certain stockholders over a rolling three-year period). It is also possible that we will be unable to realize our tax credit carryforwards as they begin to expire in 2018.

Results of operations

The following table sets forth our results of operations and the period-over-period percentage change in certain financial data for the years ended December 31, 2015 and 2016 and the six months ended June 30, 2016 and 2017:

	Year ended December 31,		Change	Six months ended June 30,		Change
(dollars in thousands)	**2015**	**2016**	**%**	**2016**	**2017**	**%**
Revenue:						
Software	$205,567	$223,818	9%	$106,929	$113,697	6%
Software related services	37,294	35,770	(4%)	17,790	17,175	(3%)
Total software	242,861	259,588	7%	124,719	130,872	5%
Client engineering services	45,075	47,702	6%	24,289	24,594	1%
Other	6,193	5,950	(4%)	3,332	3,062	(8%)
Total revenue	294,129	313,240	6%	152,340	158,528	4%
Cost of revenue:						
Software	27,406	31,962	17%	15,021	17,633	17%
Software related services	30,079	27,653	(8%)	13,838	13,773	—%
Total software	57,485	59,615	4%	28,859	31,406	9%
Client engineering services	36,081	38,106	6%	19,207	19,969	4%
Other	5,642	4,879	(14%)	2,692	2,297	(15%)
Total cost of revenue	99,208	102,600	3%	50,758	53,672	6%
Gross profit	194,921	210,640	8%	101,582	104,856	3%
Operating expenses:						
Research and development	62,777	71,325	14%	34,012	41,608	22%

Sales and marketing	63,080	66,086	5%	32,093	36,338	13%
General and administrative	54,069	57,202	6%	27,882	37,290	34%
Amortization of intangible assets	2,624	3,322	27%	1,477	2,098	42%
Other operating income	(2,576)	(2,742)	6%	(1,129)	(3,330)	195%
Total operating expenses	179,974	195,193	8%	94,335	114,004	21%
Operating income (loss)	14,947	15,447	3%	7,247	(9,148)	NM
Interest expense	2,416	2,265	(6%)	1,247	1,159	(7%)
Other expense (income), net	782	(520)	NM	(652)	786	NM
Income (loss) before income taxes	11,749	13,702	17%	6,652	(11,093)	NM
Income tax expense (benefit)	818	3,539	333%	2,699	(1,659)	NM
Net income (loss)	$10,931	$10,163	(7%)	$3,953	$(9,434)	NM
Other financial information:						
Billings[(1)]	$297,358	$320,653	8%	$165,449	$181,379	10%
Adjusted EBITDA[(2)]	$22,949	$30,830	34%	$12,933	$7,056	(45%)
Net cash provided by operating activities	$10,838	$21,385	97%	$22,006	$26,117	19%
Free Cash Flow[(3)]	$5,605	$11,941	113%	$18,307	$21,782	19%

NM=Not meaningful.

(1) Billings consists of our total revenue plus the change in our deferred revenue. For more information about Billings and our other non-GAAP financial measures and reconciliations of our non-GAAP financial measures to the most directly comparable financial measures calculated and presented in accordance with GAAP, see the section entitled "Selected historical consolidated financial and other data—Reconciliation of non-GAAP financial measures."

(2) We define Adjusted EBITDA as net income (loss) adjusted for income tax expense (benefit), interest expense, interest income and other, depreciation and amortization, stock-based compensation expense, restructuring charges, asset impairment charges and other special items as determined by management. For more information about Adjusted EBITDA and our other non-GAAP financial measures and reconciliations of our non-GAAP financial measures to the most directly comparable financial measure calculated and presented in accordance with GAAP, see the section entitled "Selected historical consolidated financial and other data—Reconciliation of non-GAAP financial measures."

(3) We define Free Cash Flow as net cash provided by operating activities less capital expenditures. See the section entitled "Selected historical consolidated financial and other data—Reconciliation of non-GAAP financial measures" for a reconciliation of Free Cash Flow.

The following table sets forth our revenue growth on a constant currency basis for the year ended December 31, 2016 compared to the year ended December 31, 2015, and the six months ended June 30, 2017 compared to the six months ended June 30, 2016:

	Year ended December 31,		Change	Constant currencychange[(1)]	Six months ended June 30,		Change	Constant currencychange[(1)]
(dollars in thousands)	**2015**	**2016**	%	%	**2016**	**2017**	%	%
Revenue:								
Software	$205,567	$223,818	9%	9%	$106,929	$113,697	6%	8%
Software related services	37,294	35,770	(4%)	(3%)	17,790	17,175	(3%)	(1%)
Total software	242,861	259,588	7%	7%	124,719	130,872	5%	7%
Client engineering services	45,075	47,702	6%	6%	24,289	24,594	1%	1%
Other	6,193	5,950	(4%)	(4%)	3,332	3,062	(8%)	(8%)
Total revenue	$294,129	$313,240	6%	7%	$152,340	$158,528	4%	6%

(1) The results for entities whose functional currency is a currency other than the United States dollar were converted to United States dollars at rates that were in effect for the corresponding period of the prior year.

Six months ended June 30, 2016 and 2017

Revenue

Total revenue increased by $6.2 million, or 4%, for the six months ended June 30, 2017 as compared to the six months ended June 30, 2016. The increase was primarily attributable to an increase in subscription and software revenue.

Software segment

Software

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**	**$**	**%**

Software revenue	$106,929	$113,697	$6,768	6%
As a percent of software segment revenue	86%	87%		
As a percent of consolidated revenue	70%	72%		

The 6% increase in our software revenue for the six months ended June 30, 2017, as compared to the six months ended June 30, 2016, was primarily the result of an expansion in the number of units licensed by our existing customers under renewed software license agreements and, to a lesser extent, licensing of units to new customers pursuant to new software license agreements.

Software related services

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$ %**
Software related services revenue	$17,790	$17,175	$(615)	(3%)
As a percent of software segment revenue	14%	13%		
As a percent of consolidated revenue	12%	11%		

The 3% decrease in our software related services revenue for the six months ended June 30, 2017 as compared to the six months ended June 30, 2016, was primarily the result of our continued focus on higher-value projects aligned with our software products, and the completion of projects that had been in process.

Client engineering services segment

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$ %**
Client engineering services revenue	$24,289	$24,594	$305	1%
As a percent of consolidated revenue	16%	16%		

CES revenue increased $0.3 million, or 1%, for the six months ended June 30, 2017, as compared to the six months ended June 30, 2016.

Other

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$ %**
Other revenue	$3,332	$3,062	$(270)	(8%)
As a percent of consolidated revenue	2%	2%		

Other revenue decreased $0.3 million, or 8%, for the six months ended June 30, 2017 as compared to the six months ended June 30, 2016, primarily due to decreased sales prices with our largest distributor of lighting products.

Cost of revenue

Software segment

Software

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$ %**
Cost of software revenue	$15,021	$17,633	$2,612	17%
As a percent of software revenue	14%	16%		
As a percent of consolidated revenue	10%	11%		

Cost of software revenue increased by $2.6 million, or 17%, for the six months ended June 30, 2017, as compared to the six months ended June 30, 2016. This increase was primarily attributable to higher employee costs of $1.1 million as a result of annual compensation adjustments and the addition of new personnel in connection with 2016 acquisitions, and increased third party royalty costs of $0.6 million for software programs.

Software related services

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$ %**
Cost of software related services revenue	$13,838	$13,773	$(65)	—%
As a percent of software related services revenue	78%	80%		
As a percent of consolidated revenue	9%	9%		

Cost of software related services revenue was consistent for the six months ended June 30, 2017 as compared to the six months ended June 30, 2016.

Client engineering services segment

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$ %**
Cost of client engineering services revenue	$19,207	$19,969	$762	4%
As a percent of client engineering services segment revenue	79%	81%		
As a percent of consolidated revenue	13%	13%		

Cost of CES revenue increased by $0.8 million, or 4%, for the six months ended June 30, 2017, as compared to the six months ended June 30, 2016. This increase is primarily due to compensation expenses associated with placements to meet customer demand and compensation increases to the CES staff in advance of when those costs can be passed through to our CES clients.

Other

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$%**
Cost of other revenue	$2,692	$2,297	$(395)	(15%)
As a percent of other revenue	81%	75%		
As a percent of consolidated revenue	2%	1%		

Cost of other revenue decreased by $0.4 million, or 15%, for the six months ended June 30, 2017, as compared to the six months ended June 30, 2016. This decrease is primarily due to our introduction of new products that have a lower average cost than the older products.

Gross profit

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$%**
Gross profit	$101,582	$104,856	$3,274	3%
As a percent of consolidated revenue	67%	66%		

Gross profit increased by $3.3 million, or 3%, for the six months ended June 30, 2017, as compared to the six months ended June 30, 2016. This increase in gross profit was primarily attributable to the growth of our software revenue of $6.8 million driven by the expansion in the number of units purchased by our existing customers and, to a lesser extent, sales to new customers. The increase in revenue was partially offset by the increase in cost of revenues as described above.

Operating expenses

Operating expenses, as discussed below, support all the products and services that we provide to our customers and, as a result, they are reported and discussed here in an aggregate total.

Research and development

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$%**
Research and development	$34,012	$41,608	$7,596	22%
As a percent of consolidated revenue	22%	26%		

Research and development expenses increased by $7.6 million, or 22%, for the six months ended June 30, 2017, as compared to the six months ended June 30, 2016. This increase is attributable to higher employee costs of $3.7 million resulting from an increase in our headcount, primarily due to acquisitions and annual compensation adjustments. In addition, the stock-based compensation expense component of our research and development expense increased during the six months ended June 30, 2017 by $3.7 million as compared to the six months ended June 30, 2016 primarily due to the increased value of our shares of common stock.

Sales and marketing

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$%**
Sales and marketing	$32,093	$36,338	$4,245	13%
As a percent of consolidated revenue	21%	23%		

Sales and marketing expenses increased by $4.2 million, or 13%, for the six months ended June 30, 2017, as compared to the six months ended June 30, 2016. This increase is primarily attributable to a $3.2 million increase in employee compensation costs, including stock-based compensation expense of $2.1 million, and a $0.7 million increase in sales and marketing campaigns to support our direct sales force.

General and administrative

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$%**
General and administrative	$27,882	$37,290	$9,408	34%
As a percent of consolidated revenue	18%	24%		

General and administrative expenses increased by $9.4 million, or 34%, for the six months ended June 30, 2017 as compared to the six months ended June 30, 2016. This increase is primarily attributable to an $8.9 million increase in employee compensation cost, including stock-based compensation expense of $8.0 million.

Excluding the impact of stock-based compensation, general and administrative expenses increased by 5%, primarily from annual compensation adjustments, from $27.8 million to $29.2 million for the six months ended June 30, 2017 and 2016, respectively.

Amortization of intangible assets

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$%**
Amortization of intangible assets	$1,477	$2,098	$621	42%
As a percent of consolidated revenue	1%	1%		

Amortization of intangible assets increased by $0.6 million for the six months ended June 30, 2017 as compared to the six months ended June 30, 2016. This increase was attributable to the amortization of intangible assets associated with acquisitions completed during the year ended December 31, 2016.

Other operating income

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$ %**
Other operating income	$(1,129)	$(3,330)	$2,201	195%
As a percent of consolidated revenue	1%	2%		

Other operating income increased $2.2 million, or 195%, for the six months ended June 30, 2017 as compared to the six months ended June 30, 2016. This increase was due to an increase in grant income as a result of an acquisition in the second quarter of 2016 and a non-recurring adjustment for a change in estimated legal expenses resulting in $2 million for the six months ended June 30, 2017.

Interest expense

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$%**
Interest expense	$1,247	$1,159	$(88)	(7%)
As a percent of consolidated revenue	1%	1%		

Interest expense decreased by $0.1 million, or 7%, for the six months ended June 30, 2017, as compared to the six months ended June 30, 2016. This decrease was due to a reduction in our interest expense related to our Credit Agreement as a result of a reduction in outstanding debt, partially offset by slightly higher rates based upon Libor interest rate based borrowings.

Other (income) expense, net

	Six months ended June 30,		Period-to-period change	
(in thousands)	**2016**	**2017**		**$ %**
Other (income) expense, net	$(652)	$786	$1,438	NM
As a percent of consolidated revenue	—%	—%		

Other (income) expense, net increased by $1.4 million for the six months ended June 30, 2017, as compared to the six months ended June 30, 2016. This increase was due to fluctuations in the United States dollar relative to other functional currencies during the six months ended June 30, 2017, compared to the six months ended June 30, 2016.

Income tax expense (benefit)

	Six months ended June 30,	Period-to-period change

(in thousands)	2016	2017	$	%
Income tax expense (benefit)	$2,699	$(1,659)	$(4,358)	NM

The effective tax rate was 15% and 41% for the six months ended June 30, 2017 and 2016, respectively. The tax rate is affected by the Company being a United States resident taxpayer, the tax rates in the United States and other jurisdictions in which the Company operates, the relative amount of income earned by jurisdiction and the relative amount of losses or income for which no benefit or expense is recognized. The effective tax rate was impacted by the geographic income mix in 2017 as compared to 2016, primarily related to the United States pre-tax income of $7.2 million in 2016 compared to a $14.9 million pre-tax loss in 2017, and nondeductible stock-based compensation in the amount of $0.1 million in 2016 compared to $9.3 million in 2017.

Net income (loss)

	Six months ended June 30,		Period-to-period change	
(in thousands)	2016	2017	$	%
Net income (loss)	$3,953	$(9,434)	$(13,387)	NM

Net income decreased by $13.4 million resulting in a net loss of $9.4 million for the six months ended June 30, 2017, as compared to net income of $4.0 million for the six months ended June 30, 2016. This decrease in net income was primarily attributable to increased stock-based compensation expense of $13.9 million and increased cost of revenue which related to higher employee related costs and royalty share payments to our partners for the six months ended June 30, 2017. Operating expenses increased primarily due to annual employee cost adjustments and increased headcount as a result of acquisitions in 2016. These increased costs are partially offset by increased revenue in the Software segment.

Years ended December 31, 2015 and 2016

Revenue

Total revenue increased by $19.1 million, or 6%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This increase was primarily attributable to an increase in software revenue of $18.3 million, or 9%, for the same period, partially offset by a decrease in software related services revenue of $1.5 million, or 4%. Our CES revenue also increased by $2.6 million, or 6% for the year ended December 31, 2016 as compared to the corresponding prior year.

Software segment

Software

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	2015	2016	$	%
Software revenue	$205,567	$223,818	$18,251	9%
As a percent of software segment revenue	85%	86%		
As a percent of consolidated revenue	70%	71%		

The 9% increase in our software revenue for the year ended December 31, 2016 as compared to the year ended December 31, 2015, was primarily the result of an expansion in the number of units licensed by our existing customers under renewed software license agreements and, to a lesser extent, licensing of units to new customers pursuant to new software license agreements. This increase in software revenue occurred across the Americas, EMEA and APAC.

Software related services

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	2015	2016	$	%
Software related services revenue	$37,294	$35,770	$(1,524)	(4%)
As a percent of software segment revenue	15%	14%		
As a percent of consolidated revenue	13%	11%		

The 4% decrease in our software related services revenue for the year ended December 31, 2016 as compared to the year ended December 31, 2015, was primarily the result of our continued focus on higher-value projects aligned with our software.

Client engineering services

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	2015	2016	$	%
Client engineering services revenue	$45,075	$47,702	$2,627	6%
As a percent of consolidated revenue	15%	15%		

The 6% increase in our CES revenue for the year ended December 31, 2016 as compared to the year ended December 31, 2015, was primarily due to an increase in demand for our consulting services and corresponding higher billable headcount placements during the period. Our headcount in the CES business increased 4% in 2016 as compared to the prior year.

Other

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**	**$**	**%**
Other revenue	$6,193	$5,950	$(243)	(4%)
As a percent of consolidated revenue	2%	2%		

Other revenue for the year ended December 31, 2015 included $2.0 million of revenue related to royalties from our licensing of intellectual property technology that did not reoccur in the year ended December 31, 2016. Excluding the impact of these royalties, our Other revenue increased 42% for the year ended December 31, 2016 as compared to the prior year. This increase in our Other revenue was primarily due to an increase in demand for LED lighting and increased royalties received from licensing our technology to third party manufacturers and resellers.

Cost of revenue

Software segment

Software

	Year ended December 31,		Period-to -period change	
(dollars in thousands)	**2015**	**2016**	**$**	**%**
Cost of software revenue	$27,406	$31,962	$4,556	17%
As a percent of software revenue	13%	14%		
As a percent of consolidated revenue	9%	10%		

Cost of software revenue increased by $4.6 million, or 17%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015, primarily attributable to a $3.3 million increase in employee compensation costs, including stock-based compensation expense of $0.3 million and increased third party royalty costs for software programs we include in our APA program of $0.7 million.

Software related services

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**	**$**	**%**
Cost of software related services revenue	$30,079	$27,653	$(2,426)	(8%)
As a percent of software related services revenue	81%	77%		
As a percent of consolidated revenue	10%	9%		

Cost of software related services revenue decreased by $2.4 million, or 8%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015, primarily related to a reorganization of personnel and the corresponding decrease in software related services revenue and our continued focus on higher-value projects aligned with our software.

Client engineering services segment

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**	**$**	**%**
Cost of client engineering services revenue	$36,081	$38,106	$2,025	6%
As a percent of client engineering services segment revenue	80%	80%		
As a percent of consolidated revenue	12%	12%		

Cost of CES revenue increased by $2.0 million, or 6%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This increase is primarily due to compensation expenses associated with a larger number of placements to meet customer demand.

Other

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**	**$**	**%**
Cost of other revenue	$5,642	$4,879	$(763)	(14%)
As a percent of other revenue	91%	82%		
As a percent of consolidated revenue	2%	2%		

Cost of Other revenue decreased by $0.8 million, or 14%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This decrease is primarily due to our introduction of new products that have a lower cost of manufacturing.

Gross profit

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**		**$%**
Gross profit	$194,921	$210,640	$15,719	8%
As a percent of consolidated revenue	66%	67%		

Gross profit increased by $15.7 million, or 8%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This increase in gross profit was primarily attributable to the growth of our software revenue of $18.3 million driven by the expansion in the number of units purchased by our existing customers and, to a lesser extent, sales to new customers. Gross profit margin increased to 67% in the year ended December 31, 2016 from 66% in the year ended December 31, 2015.

Operating expenses

Operating expenses, as discussed below, support all of the products and services that we provide to our customers and, as a result, they are reported and discussed here in an aggregate total.

Research and development

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**		**$%**
Research and development	$62,777	$71,325	$8,548	14%
As a percent of consolidated revenue	21%	23%		

Research and development expenses increased by $8.5 million, or 14%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This increase is attributable to an increase in employee costs of $6.2 million resulting from an increase in our headcount in 2016, primarily due to acquisitions and annual compensation adjustments. In addition, the share-based compensation expense component of our research and development expense increased during the year ended December 31, 2016 by $1.2 million as compared to the corresponding prior year primarily due to the increased value of our shares of common stock. Excluding the impact of stock-based compensation, research and development costs increased by 12% from $62.6 million to $70.0 million for the years ended December 31, 2015 and 2016, respectively.

Sales and marketing

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**		**$%**
Sales and marketing	$63,080	$66,086	$3,006	5%
As a percent of consolidated revenue	21%	21%		

Sales and marketing expenses increased by $3.0 million, or 5%, for the year ended December 31, 2016, as compared to the year ended December 31, 2015. This increase is primarily attributable to a $2.4 million increase in employee compensation costs, including stock-based compensation and a $0.7 million increase in our sales and marketing campaigns to support our direct sales force.

General and administrative

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**		**$%**
General and administrative	$54,069	$57,202	$3,133	6%
As a percent of consolidated revenue	18%	18%		

General and administrative expenses increased by $3.1 million, or 6%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This increase is primarily attributable to a $2.7 million increase in share-based compensation expense. These expenses were partially offset by decreases in professional services expenses primarily related to a decline in legal costs for outstanding legal matters. Excluding the impact of stock-based compensation, general and administrative expenses increased by 1%, from $53.8 million to $54.2 million for the years ended December 31, 2015 and 2016, respectively.

Amortization of intangible assets

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**		**$%**
Amortization of intangible assets	$2,624	$3,322	$698	27%

As a percent of consolidated revenue	1%	1%

Amortization of intangible assets increased by $0.7 million, or 27%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This increase was attributable to the amortization of intangible assets associated with acquisitions completed during the year ended December 31, 2016 and a full year of amortization related to acquisitions completed during the year ended December 31, 2015.

Other operating income

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**		**$%**
Other operating income	$(2,576)	$(2,742)	$(166)	(6)%
As a percent of consolidated revenue	(1)%	(1)%		

Other operating income increased by $0.2 million, or 6%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This increase was primarily attributable to an increase in government subsidies, primarily in France, in the form of grant income associated with certain of our research and development activities.

Interest expense

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**		**$%**
Interest expense	$2,416	$2,265	$(151)	(6%)
As a percent of consolidated revenue	1%	1%		

Interest expense decreased by $0.2 million, or 6%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This decrease was due to a reduction in our interest expense related to our Credit Agreement as a result of a partial debt repayment and the use of lower cost short-term borrowing contracts related to our line of credit borrowings.

Other expense (income), net

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**		**$%**
Other expense (income), net	$782	$(520)	$(1,302)	NM
As a percent of consolidated revenue	—%	—%		

Other expense (income), net decreased by $1.3 million for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This decrease was due to fluctuations in the United States dollar relative to other functional currencies during the year ended December 31, 2016 compared to the prior year.

Income tax expense

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**		**$%**
Income tax expense	$818	$3,539	$2,721	333%

Income tax expense increased by $2.7 million for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This increase is primarily due to a $1.8 million increase in tax expense related to nondeductible stock-based compensation, a $0.8 million increase in the expense related to an increase in pre-tax income related to foreign operations, partially offset by certain tax deductions and credits and foreign income taxes at rates other than the federal statutory rates. See Note 13 in the notes to consolidated financial statements included elsewhere in this prospectus.

Net income (loss)

	Year ended December 31,		Period-to-period change	
(dollars in thousands)	**2015**	**2016**		**$ %**
Net income (loss)	$10,931	$10,163	$768	(7%)

Net income (loss) decreased by $0.8 million, or 7%, for the year ended December 31, 2016, as compared to the year ended December 31, 2015. This decrease in Net income (loss) was primarily attributable to increased stock- based compensation expense of $4.5 million and increased cost of revenue which related to higher employee related costs and royalty share payments to our partners for the year ended December 31, 2016. Operating expenses increased primarily due to annual employee cost adjustments and for those employees who joined us in connection with acquisitions in 2016 and a full year of compensation expense related to those employees who joined in connection with acquisitions completed in 2015. These increased costs are mostly offset by increased revenue in all segments with the largest increase in the Software segment.

Key metrics

We monitor the following key non-GAAP financial and operating metrics to help us evaluate our business, measure our performance, identify trends affecting our business, formulate business plans and make strategic decisions. In addition to our results determined in accordance with GAAP, we believe the following non-GAAP financial and operating metrics are useful in evaluating our operating performance.

Billings. Billings consists of our total revenue plus the change in our deferred revenue in a given period. As we generally bill our customers at the time of sale, but typically recognize a majority of the related revenue ratably over time, management believes that Billings is a meaningful way to measure and monitor our ability to provide our business with the working capital generated by upfront payments from our customers. While we believe that billings provides valuable insight into the cash that will be generated from sales of our software and services, this metric may vary from period-to-period for a number of reasons including the impact of changes in foreign currency exchange rates and the potential impact of acquisitions. See the section entitled "Selected historical consolidated financial and other data—Reconciliation of non-GAAP financial measures" for information regarding the limitations of using Billings as a financial measure and for a reconciliation of Billings to revenue, the most directly comparable financial measure calculated in accordance with GAAP.

Our Billings were as follows:

	Year ended December 31,		Period-to-period change	Six months ended June 30,		Period-to-period change
(dollars in thousands)	2015	2016	%	2016	2017	%
Billings	$297,358	$320,653	8%	$165,449	$181,379	10%

Billings increased by $15.9 million, or 10%, for the six months ended June 30, 2017, as compared to the six months ended June 30, 2016. This increase in Billings was attributable to a 10% increase in Software segment billings.

Billings increased by $23.3 million, or 8%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This increase in Billings was primarily attributable to an 8% increase in Software segment billings equaling $22.5 million, with the remaining increase in the CES segment and our other businesses.

Adjusted EBITDA. We define Adjusted EBITDA as net income (loss) adjusted for income tax expense (benefit), interest expense, interest income and other, depreciation and amortization, stock-based compensation expense, restructuring charges, asset impairment charges and other special items as determined by management. We believe that Adjusted EBITDA is a meaningful measure of performance as it is commonly utilized by us and the investment community to analyze operating performance in our industry. See the section entitled "Selected historical consolidated financial and other data—Reconciliation of non-GAAP financial measures" for information regarding the limitations of using Adjusted EBITDA as a financial measure and for a reconciliation of Adjusted EBITDA to net income (loss), the most directly comparable financial measure calculated in accordance with GAAP.

Our Adjusted EBITDA was as follows:

	Year ended December 31,		Period-to-period change	Six months ended June 30,		Period-to-period change
(dollars in thousands)	2015	2016	%	2016	2017	%
Adjusted EBITDA	$22,949	$30,830	34%	$12,933	$7,056	(45%)

Adjusted EBITDA decreased by $5.9 million, or 45%, for the six months ended June 30, 2017, as compared to the six months ended June 30, 2016. This decrease in Adjusted EBITDA was primarily attributable to the Software segment. The increase in revenue was offset by the increase in cost of revenue which related to higher employee related costs and royalty payments to our partners for the six months ended June 30, 2017. The increase in operating expenses was primarily related to annual employee cost adjustments and increased headcount as a result of acquisitions in 2016.

Adjusted EBITDA increased by $7.9 million, or 34%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This increase in Adjusted EBITDA was primarily attributable to increases in all segments with the largest increase in the Software segment. The increase in revenue more than offset the increase in cost of revenue which related to higher employee related costs and royalty share payments to our partners for the year ended December 31, 2016. The increase in operating expenses was primarily related to annual employee cost adjustments and for those employees who joined us in connection with acquisitions in 2016 and a full year of compensation expense related to those employees who joined us in connection with acquisitions completed in 2015.

Free Cash Flow. Free Cash Flow is a non-GAAP financial measure that we calculate as cash flow provided by operating activities less capital expenditures. We believe that Free Cash Flow is useful in analyzing our ability to service and repay debt and return value directly to stockholders. See the section entitled "Selected historical consolidated financial and other data—Reconciliation of non-GAAP financial measures" for information regarding the limitations of using Free Cash Flow as a financial measure and for a reconciliation of Free Cash Flow to net cash provided by operating activities, the most directly comparable financial measure calculated in accordance with GAAP.

Our Free Cash Flow was as follows:

	Year ended December 31,		Period-to-period change	Six months ended June 30,		Period-to-period change
(dollars in thousands)	2015	2016	%	2016	2017	%
Net cash provided by operating activities	$10,838	$21,385	97%	$22,006	$26,117	19%
Free Cash Flow	$5,605	$11,941	113%	$18,307	$21,782	19%

Free Cash Flow increased by $3.5 million, or 19%, for the six months ended June 30, 2017 as compared to the six months ended June 30, 2016. This increase in Free Cash Flow was attributable to an increase in net cash from operating activities of $4.1 million, partially offset by an increase of $0.6 million in capital expenditures.

Free Cash Flow increased by $6.3 million, or 113%, for the year ended December 31, 2016 as compared to the year ended December 31, 2015. This increase in Free Cash Flow was primarily attributable to the increase in net cash from operating activities of $10.5 million, which was partially offset by an increase of $4.2 million in capital expenditures. Net cash from operating activities increased primarily due to higher net income, adjusted for non-cash items and changes in working capital. The capital expenditures increase included a $4.0 million capital expenditure for the purchase of land adjacent to our corporate headquarters. Excluding this land purchase, our capital expenditures were consistent with the prior year and our Free Cash Flow would have increased by $10.3 million.

Recurring Software License Rate. A key factor to our success is our recurring software license rate which we measure through billings, primarily derived from annual renewals of our existing subscription customer agreements. We calculate our recurring software license rate for a particular period by dividing (i) the sum of software term-based license billings, software license maintenance billings, and 20% of software perpetual license billings which we believe approximates maintenance as an element of the arrangement by (ii) the total software license billings including all term-based, maintenance, and perpetual license billings from all customers for that period. For the years ended December 31, 2015, 2016 and six months ended June 30, 2017, our recurring software license rate was 88%, 90% and 91%, respectively.

Quarterly results of operations

The following tables set forth selected unaudited quarterly consolidated statements of operations data for each of the six quarters in the period ended June 30, 2017, as well as the percentage of revenues that each line item represents for each quarter. The information for each of these quarters has been prepared on the same basis as the audited annual consolidated financial statements included elsewhere in this prospectus and, in the opinion of management, includes all adjustments, which consist only of normal recurring adjustments, necessary for the fair presentation of the results of operations for these periods in accordance with GAAP. This data should be read in conjunction with our audited and unaudited consolidated financial statements and related notes included elsewhere in this prospectus. These quarterly operating results are not necessarily indicative of our operating results for a full year or any future period. The quarterly results for the three months ended September 30, 2016 and December 31, 2016 have not been reviewed by the Company's Independent Registered Public Accounting Firm.

	Three months ended					
(in thousands)	**March 31, 2016**	**June 30, 2016**	**Sept. 30, 2016**	**Dec. 31, 2016**	**March 31, 2017**	**June 30, 2017**
Revenue:						
Software	$52,132	$54,797	$55,804	$61,085	$54,097	$59,600
Software related services	9,134	8,656	8,676	9,304	8,971	8,204
Total software	61,266	63,453	64,480	70,389	63,068	67,804
Client engineering services	11,946	12,343	12,146	11,267	12,229	12,365
Other	1,617	1,715	1,426	1,192	1,585	1,477
Total revenue	74,829	77,511	78,052	82,848	76,882	81,646
Cost of revenue:						
Software	7,381	7,640	8,479	8,462	8,904	8,729
Software related services	6,958	6,880	6,527	7,288	6,659	7,114
Total software	14,339	14,520	15,006	15,750	15,563	15,843
Client engineering services	9,720	9,487	9,579	9,320	10,141	9,828
Other	1,359	1,333	1,036	1,151	1,050	1,247
Total cost of revenue	25,418	25,340	25,621	26,221	26,754	26,918
Gross profit	49,411	52,171	52,431	56,627	50,128	54,728
Operating expenses:						
Research and development	16,111	17,901	19,401	17,912	18,770	22,838
Sales and marketing	15,601	16,492	16,961	17,032	16,910	19,428

	Three months ended					
(in thousands)	**March 31, 2016**	**June 30, 2016**	**Sept. 30, 2016**	**Dec. 31, 2016**	**March 31, 2017**	**June 30, 2017**
General and administrative	13,737	14,145	15,793	13,527	16,089	21,201
Amortization of intangible assets	657	820	875	970	943	1,155
Other operating income	(327)	(802)	(823)	(790)	(594)	(2,736)
Total operating expenses	45,779	48,556	52,207	48,651	52,118	61,886

Operating income (loss)	3,632	3,615	224	7,976	(1,990)	(7,158)
Interest expense	690	557	507	511	611	548
Other expense (income), net	(260)	(392)	148	(16)	359	427
Income (loss) before income taxes	3,202	3,450	(431)	7,481	(2,960)	(8,133)
Income tax expense (benefit)	1,721	978	(745)	1,585	(772)	(887)
Net income (loss)	$1,481	$2,472	$314	$5,896	$(2,188)	$(7,246)

The following table sets forth the components of our unaudited quarterly consolidated statements of operations for each of the periods presented as a percentage of revenue:

	Three months ended					
(as a percentage of total revenue)	**March 31, 2016**	**June 30, 2016**	**Sept. 30, 2016**	**Dec. 31, 2016**	**March 31, 2017**	**June 30, 2017**
Revenue:						
Software	70%	71%	72%	74%	70%	73%
Software related services	12	11	11	11	12	10
Total software	82	82	83	85	82	83
Client engineering services	16	16	15	14	16	15
Other	2	2	2	1	2	2
Total revenue	100	100	100	100	100	100
Cost of revenue:						
Software	10	10	11	10	11	11
Software related services	9	9	8	9	9	8
Total software	19	19	19	19	20	19
Client engineering services	13	12	12	11	13	12
Other	2	2	2	2	2	2
Total cost of revenue	34	33	33	32	35	33
Gross profit	66	67	67	68	65	67
Operating expenses:						
Research and development	21	23	25	22	24	28
Sales and marketing	21	21	22	20	22	24
General and administrative	18	18	20	16	21	26
Amortization of intangible assets	1	1	1	1	1	1
Other operating income	—	(1)	(1)	(1)	—	(3)
Total operating expenses	61	62	67	58	68	76
Operating income (loss)	5	5	—	10	(3)	(9)
Interest expense	1	1	1	1	1	1
Other expense (income), net	—	—	—	—	—	—
Income (loss) before income taxes	4	4	(1)	9	(4)	(10)
Income tax expense (benefit)	2	1	(1)	2	(1)	(1)
Net income (loss)	2%	3%	—%	7%	(3)%	(9)%

The following tables provide reconciliations of revenue to Billings and net income (loss) to Adjusted EBITDA, for each of the periods presented:

Billings

	Three months ended					
(in thousands)	**March 31, 2016**	**June 30, 2016**	**Sept. 30, 2016**	**Dec. 31, 2016**	**March 31, 2017**	**June 30, 2017**
Revenue	$74,829	$77,511	$78,052	$82,848	$76,882	$81,646
Ending deferred revenue	123,525	119,625	114,417	113,929	132,466	136,780
Beginning deferred revenue	(106,516)	(123,525)	(119,625)	(114,417)	(113,929)	(132,466)

Billings	$91,838	$73,611	$72,844	$82,360	$95,419	$85,960

Adjusted EBITDA

	Three months ended					
(in thousands)	**March 31, 2016**	**June 30, 2016**	**Sept. 30, 2016**	**Dec. 31, 2016**	**March 31, 2017**	**June 30, 2017**
Net income (loss)	$1,481	$2,472	$314	$5,896	$(2,188)	$(7,246)
Income tax expense (benefit)	1,721	978	(745)	1,585	(772)	(887)
Stock-based compensation expense	59	116	4,875	82	2,869	11,168
Interest expense	690	557	507	511	611	548
Interest income and other[(1)]	37	(25)	(93)	(168)	(85)	(2,046)
Depreciation and amortization	2,272	2,575	2,453	2,680	2,474	2,610
Adjusted EBITDA	$6,260	$6,673	$7,311	$10,586	$2,909	$4,147

(1) Includes a non-recurring adjustment for a change in estimated legal expenses resulting in $2 million of income for the three months ended June 30, 2017.

Quarterly trends

The increase in total revenues in each of the periods presented was primarily due to an increase in the number of customers, an increase in the number of units added by existing customers, increases in price, and an increase in the number of products purchased by existing customers. Total revenue tends to increase each quarter within the calendar year due to timing of customer renewals.

Cost of revenues in each of the periods presented increased on an incremental basis to support the demand for our products and services. The improvement in gross margin, when compared to the corresponding prior year quarter, was primarily the result of the increased revenue within the Software segment which has historically higher margins.

Sales and marketing expenses have consistently increased for each of the periods presented due to the expansion in headcount and an increased focus on marketing. Sales and marketing expenses have also increased in most quarters as a result of stock-based compensation expenses, most notably in the two most recent quarters.

Research and development expenses increased steadily during 2015, 2016, and the first half of 2017 due to growth in headcount, including headcount from acquired companies, and annual employee cost adjustments. Research and development expenses have increased in most quarters as a result of stock-based compensation expenses, most notably in the two most recent quarters.

General and administrative expenses have increased during the quarterly periods primarily due to increases in our headcount and annual employee cost adjustments. General and administrative expenses have increased in most quarters as a result of stock-based compensation expenses, most notably in the two most recent quarters.

Amortization of intangible assets has trended up during quarterly periods due to amortization associated with acquisitions made in the past two years.

Liquidity and capital resources

Our principal sources of liquidity have been the net payments received from global customers using our software and services as well as our periodic draws on our credit facilities. We believe that funds generated from operations, with cash and cash equivalents and the amounts available to us to borrow under our credit facility will be sufficient to meet our anticipated cash needs for at least the next 12 months.

Credit facility

As of December 31, 2015, our credit facility, the 2013 Credit Agreement, consisted of a $67.1 million term loan, a $20.0 million revolving commitment and a $1.0 million ancillary facility. We were required to make quarterly principal payments on our term loan and any outstanding balance was to be paid in full on the maturity date of December 18, 2018.

On April 18, 2016, we entered into an amended and restated credit agreement, the 2016 Credit Agreement, with JPMorgan Chase Bank, N.A., as administrative agent, which restated the 2013 Credit Agreement in its entirety. The 2016 Credit Agreement originally consisted of a $65.0 million term loan, or Term Loan A, and a $35.0 million revolving commitment, or the Revolving Credit Facility. In October 2016, the 2016 Credit Agreement was amended to facilitate our purchase of certain real property adjacent to our corporate headquarters. In November 2016, the 2016 Credit Agreement was further amended pursuant to which the Royal Bank of Canada became a lender thereunder and the commitment under the Revolving Credit Facility was increased to $60.0 million. Included in the Revolving Credit Facility are a $5.0 million swingline subfacility, provisions for an additional $4.0 million ancillary facility, and a letter of credit subfacility. As of June 30, 2017 and December 31, 2016, respectively, we had $52.5 million and $57.5 million outstanding on Term Loan A and $18.0 million and $27.4 million outstanding on our Revolving Credit Facility.

On June 14, 2017, we entered into a second amended and restated credit agreement with JPMorgan Chase Bank, N.A., as administrative agent, which restated the 2016 Credit Agreement, as amended, in its entirety, the 2017 Credit Agreement or, along with the 2016 Credit Agreement, as the context so requires, and as amended from time to time, the Credit Agreement. This amendment was administrative in nature and did not change amounts, terms, or rates. On September 28, 2017, the Credit Agreement was amended to facilitate our acquisition of Runtime.

The Credit Agreement contains a number of covenants that, among other things, restrict, subject to certain exceptions, our ability to incur additional indebtedness; create liens on assets; make investments, loans, advances or acquisitions; pay dividends or other distributions; redeem or repurchase certain equity interests; guarantee the obligations of others; and change the business conducted by us. In addition, the Credit Agreement contains financial covenants relating to minimum liquidity of $20.0 million, maintaining a minimum debt service coverage ratio of 1.3 to 1.0 and maximum leverage ratio of 3.0 to 1.0, as defined in the Credit Agreement. At June 30, 2017 and December 31, 2016, we were in compliance with all financial covenants. For additional information about the Credit Agreement, see Note 7 in the notes to consolidated financial statements included elsewhere in this prospectus.

Cash flows

As of June 30, 2017, and December 31, 2016, respectively, we had an aggregate of cash and cash equivalents of $17.4 million and $16.9 million, which we held for working capital purposes and capital expenditures. As of June 30, 2017, and December 31, 2016, respectively, $0.1 million and $1.6 million of this aggregate amount was held in the United States and $15.5 million and $14.2 million was held in the APAC and EMEA regions with the remainder held in Canada, Mexico, and South America.

There are no significant restrictions on the ability of our subsidiaries to pay dividends or make other distributions to Altair. Based on our current liquidity needs and repatriation strategies, we expect that we can manage our global liquidity needs without material adverse cash tax implications.

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

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Net cash provided by operating activities	$10,838	$21,385	$22,006	$26,117
Net cash used in investing activities	(8,030)	(16,033)	(8,537)	(10,920)
Net cash used in financing activities	(4,697)	(1,864)	(6,675)	(15,609)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(1,639)	(362)	646	962
Net (decrease) increase in cash, cash equivalents and restricted cash	$(3,528)	$3,126	$7,440	$550

Net cash provided by operating activities Net cash provided by operating activities for the six months ended June 30, 2017 was $26.1 million which reflects an increase of $4.1 million compared to the six months ended June 30, 2016. This increase primarily reflects a $7.3 million increase in deferred revenue along with net changes to our working capital position, for the six months ended June 30, 2017 as compared to the six months ended June 30, 2016.

Net cash provided by operating activities for the year ended December 31, 2016 was $21.4 million which reflects an increase of $10.5 million compared to the year ended December 31, 2015. This increase primarily reflects a $4.5 million increase in non-cash stock-based compensation expense and a $3.1 million improvement in deferred taxes along with net changes to our working capital position, as compared to the prior year.

Net cash used in investing activities Net cash used in investing activities for the six months ended June 30, 2017 was $10.9 million which reflects an increase in cash used of $2.4 million compared to the six months ended June 30, 2016. This increase was the result of an increase in cash payments for business acquisitions and capital expenditures in the six months ended June 30, 2017 as compared to the six months ended June 30, 2016.

Net cash used in investing activities for the year ended December 31, 2016 was $16.0 million which reflects an increase in cash used of $8.0 million compared to the year ended December 31, 2015. This reflects a $4.0 million purchase of real property adjacent to our corporate headquarters. The remaining $4.0 million primarily relates to increased use of cash for acquisitions.

Net cash used in financing activities Net cash used in financing activities for the six months ended June 30, 2017 was $15.6 million which reflects an increase in cash used of $8.9 million compared to the six months ended June 30, 2016. This reflects a $9.6 million increase in net debt payments for the six months ended June 30, 2017 compared to the six months ended June 30, 2016.

Net cash used in financing activities for the year ended December 31, 2016 was $1.9 million which reflects a decrease in cash used of $2.8 million compared to the year ended December 31, 2015. This reflects a $4.8 million decrease in net debt payments compared to the prior year partially offset by a $1.3 million increase in redemptions of our common stock, and a $0.7 million return of capital in the year ended December 31, 2016.

Effect of exchange rate changes on cash, cash equivalents and restricted cash The effect of exchange rate changes on cash, cash equivalents and restricted cash for the six months ended June 30, 2017 was not significantly different from the six months ended June 30, 2016.

The adverse effect of exchange rate changes on cash, cash equivalents and restricted cash for the year ended December 31, 2016 decreased by $1.3 million as compared to the prior year due to the decreased effect from fluctuations in foreign currency exchange rates.

Commitments and contractual obligations

Our principal commitments and contractual obligations at December 31, 2016 consisted of obligations under operating leases for our office facilities and other debt obligations. There have been no significant changes to commitments and contractual obligations as of June 30, 2017. As of December 31, 2016, the future non-cancelable minimum lease payments under these obligations, and our future non-cancelable minimum payments under our other contractual obligations, were as follows:

	Payments due by period

(in thousands)	Total	Less than1 year	1-3 years	3-5 years	More than5 years
Long-term debt obligations (excluding interest)	$85,185	$10,304	$74,881	$—	$—
Capital lease obligations	196	131	65	—	—
Post-retirement benefits	2,829	356	454	484	1,535
Operating lease obligations	18,531	7,362	8,110	3,038	21
Royalties	902	399	503	—	—
Related parties	1,164	1,045	119	—	—
Other long-term liabilities	6,888	3,307	3,081	500	—
Total	$115,695	$22,904	$87,213	$4,022	$1,556

Contractual obligations identified in the table above do not include liabilities associated with uncertain tax positions due to the high degree of uncertainty regarding the future cash outflows associated with these amounts. For additional discussion of uncertain tax positions, see Note 13 in the notes to consolidated financial statements included elsewhere in this prospectus.

Off-balance sheet arrangements

Through June 30, 2017, we did not have any relationships with unconsolidated organizations or financial partnerships, such as structured finance or special purpose entities that would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Critical accounting policies and estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with GAAP. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported revenues generated and expenses incurred during the reporting periods. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments 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. We believe that the accounting policies discussed below are critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgments and estimates. For further discussion on our significant accounting policies, see Note 2 in the notes to the consolidated financial statements included elsewhere in this prospectus.

Revenue recognition

We generate revenue from our Software and CES segments and our other businesses. Revenue is recognized when persuasive evidence of an agreement exists, delivery has occurred or services have been rendered, the fee is fixed or determinable, and collection of the fee is probable or reasonably assured.

Software

Software revenue includes product revenue from software product licensing arrangements consisting of software and software maintenance and support in the form of post-contract customer support, or PCS.

Our software products are sold to customers primarily through our patented units-based subscription licensing model through a term-based software licensing and to a lesser degree, perpetual software licensing. This units-based subscription licensing model allows customers to license a pool of units for their organizations, providing individual users flexible access to our entire portfolio of software applications as well as to our growing portfolio of partner products. These arrangements are referred to as "unit" arrangements. Units are a fixed means of measuring usage. The amount of software usage is limited by the number of the units licensed by the customer. Revenue from these arrangements is fixed (based on the units licensed) and is not based on actual customer usage of each software product.

Software product license arrangements may include PCS and professional services, such as consulting, implementation services, training, and support, which represent multiple-element arrangements. We have analyzed the elements included in its multiple element arrangements and have determined that we do not have vendor-specific objective evidence, or VSOE of fair value to allocate revenue to our software products license, PCS, and professional services including consulting, implementation services, training and support. Revenue from the software products licenses, including perpetual licenses, PCS and professional services, if applicable, are considered to be one accounting unit and, once all services have commenced, are recognized ratably over the remaining period of the arrangement which consists of the longer of the contractual service term or PCS term. If the professional services are essential to the functionality of the software products, then revenue recognition does not commence until such services are completed.

Our term-based software license arrangements typically have a term of 12 months and include PCS, including the right to receive unspecified software upgrades, when and if available during the license term. We do not charge separately for PCS. Revenues for software licenses sold on a term-based model basis are recognized ratably over the term of the license arrangement, once all other revenue recognition criteria have been met.

We also sell perpetual licenses to certain of our customers. We do not have VSOE of fair value for the PCS, which is sold along with the perpetual licenses. As a result, revenue from these perpetual arrangements is recognized ratably over the initial PCS term.

Software related services Software related services revenue is derived from our consulting, implementation services and training for product design and development projects.

Software services are provided to customers on a time and materials or fixed-price basis. We recognize software services revenue for time and materials contracts based upon hours worked and contractually agreed-upon hourly rates. Revenue from fixed-price engagements is recognized using the proportional performance method based on the ratio of costs incurred, to the total estimated project costs. Project costs are based on standard rates, which vary by the consultant's professional level, plus all direct expenses incurred to complete the engagement that are not reimbursed by the client. Project costs are typically expensed as incurred. The use of the proportional performance method is dependent upon management's ability to reliably estimate the costs to complete a project. We use historical experience as a basis for future estimates to complete current projects. Additionally, we believe that costs are the best available measure of performance. If the costs to complete a project are not estimable or the completion is uncertain, the revenue is recognized upon completion of the services.

Client engineering services CES revenue is derived from our hiring of engineers for placement at a customer site for specific customer-directed assignments. These engineers are hired and paid only for the duration of the placement. We recognize client engineering services revenue based upon hours worked and contractually agreed-upon hourly rates.

Other

Other revenue is derived from the sale of LED products for the replacement of fluorescent tubes. Revenue from the sale of LED products for the replacement of fluorescent tubes is recognized when all revenue recognition criteria stated above are met, which is generally when the products are transferred to resellers or to end customers. We recognize revenues from royalties for licensing our technology when received.

Goodwill and indefinite-lived intangible assets

In accordance with ASC Topic 360, we conduct an assessment of the carrying value of goodwill each year, based on weighting estimates of future cash flows from the reporting units or estimates of the market value of the reporting units, based on comparable companies. We also perform impairment analyses whenever events or circumstances indicate that goodwill or certain intangibles may be impaired. These estimates of future discounted cash flows are based upon historical results, adjusted to reflect our best estimate of future market and operating conditions. Historically, actual results have occasionally differed from our estimated future cash flow estimates. In the future, actual results may differ materially from these estimates. In addition, the comparable companies used to establish market value for our reporting units is based on management's judgment.

The timing and size of any future impairment charges involves the application of our estimates and judgment and could result in the impairment of all, or substantially all, of our goodwill or intangible assets.

Stock-based compensation

Stock-based compensation expense, consisting of stock options expected to be settled by issuing shares of our common stock, are recorded as equity awards. The fair value of these awards on the date of grant is measured using the Black-Scholes option pricing model.

Our use of the Black-Scholes option-pricing model requires the input of highly subjective assumptions, including the fair value of our underlying common stock, expected term of the option, expected volatility of the price of our common stock, risk-free interest rates, and expected dividend yield. The assumptions used in our option-pricing model represent management's best estimates. These estimates involve inherent uncertainties and the application of management's judgment. If factors change and different assumptions are used, our stock-based compensation expense could be materially different in the future.

These assumptions and estimates are as follows:

- *Fair value of common stock.* Due to the absence of an active market for our common stock, our board of directors, with the assistance of a third-party valuation specialist, determines the fair value of our common stock. The valuation methodology includes estimates and assumptions including forecasts of future cash flows that require significant judgments. These valuations consider a number of objective and subjective factors, including our actual operating and financial performance, external market conditions, performance of comparable publicly traded companies, comparable transactions, business developments, likelihood of achieving a liquidity event, such as an initial public offering or sale, and common stock transactions, among other factors. We utilized methodologies in accordance with the framework of the American Institute of Certified Public Accountants' Technical Practice Aid, *Valuation of Privately-Held Company Equity Securities issued as Compensation*, to estimate the fair value of its common stock. Significant changes to the key assumptions used in the valuations could result in different fair values of our common stock at each valuation date.
- *Expected term.* The expected term of employee stock options represents the weighted-average period that the stock options are expected to remain outstanding. To determine the expected term, we generally apply the simplified approach in which the expected term of an award is presumed to be the mid-point between the vesting date and the expiration date of the award as we do not have sufficient historical exercise data to provide a reasonable basis for an estimate of expected term.
- *Risk-free interest rate.* We base the risk-free interest rate on the yields of United States Treasury securities with maturities approximately equal to the term of employee stock option awards.
- *Expected volatility.* As we do not have a trading history for our common stock, the expected volatility for our common stock was estimated by taking the average historic price volatility for industry peers based on daily price observations over a period equivalent to the expected term of the stock option awards. Industry peers consist of several public companies in our industry which are either similar in size, stage of life cycle or financial leverage.

We must also estimate a forfeiture rate to calculate the stock-based compensation expense for our awards. Our forfeiture rate is based on an analysis of our actual forfeitures. We will continue to evaluate the appropriateness of the forfeiture rate based on actual forfeiture experience, analysis of employee turnover and other factors. A higher revised forfeiture rate than previously estimated will result in an adjustment that will decrease the stock-based compensation expense recognized in the consolidated statement of operations. A lower revised forfeiture rate than previously estimated will result in an adjustment that will increase the stock-based compensation expense recognized in the consolidated statement of operations.

We will continue to use judgment in evaluating the assumptions related to our stock-based compensation on a prospective basis. As we continue to accumulate additional data related to our common stock, we may have refinements to our estimates, which could materially impact our future stock-based compensation expense.

Employee stock-based awards, consisting of stock options with repurchase features that allow them to be settled in cash at a purchase price that is less than the current fair value are considered liability-based awards. These awards are initially recorded at fair value and remeasured to fair value at the end of each reporting period until settled.

Our 2001 ISO and NQSO Plan was terminated in 2011. Options granted under the 2001 ISO and NQSO Plan are accounted for as liability awards as the terms of the awards could require or allow repurchase of the shares at amounts different than fair value. We made the accounting policy election to use the intrinsic value method of accounting to determine stock-based compensation liabilities for these awards. During the quarter ended June 30, 2017, in accordance with ASC 718 as we no longer meet the definition of a nonpublic entity, we changed our accounting policy to measure the fair value of our liability awards using the Black-Scholes option pricing model. The impact of the change in accounting policy was immaterial to the financial statements.

The 2001 ISO and NQSO Plan also includes stock-based compensation liability for our new Class A redeemable common shares outstanding resulting from our call feature with a purchase price that may be set at less than the fair market value at the redemption date. We utilized the fair value of the outstanding new Class A redeemable common shares to determine the stock-based compensation liabilities for these redeemable common shares. We expect a one-time significant decrease in our stock-based compensation liability in the period following this offering, as the call feature is terminated upon certain triggering events, including an initial public offering in which our capital stock is admitted to and begins trading on any United States securities exchange.

Accounting for income taxes We utilize the asset and liability method of accounting for income taxes in accordance with ASC Topic 740, *Accounting for Income Taxes*. Under this method, deferred tax assets and liabilities are determined based on differences between the financial reporting and tax bases of assets and liabilities. Deferred tax assets and liabilities are measured using the enacted tax rates and statutes that will be in effect when those differences are expected to reverse. Deferred tax assets can result from unused operating losses, research and development credits, foreign tax credit carryforwards, and deductions recorded for financial statement purposes prior to them being deductible on a tax return. Valuation allowances are provided against net deferred tax assets if, based upon the available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income and the reversal of taxable temporary differences. We consider, among other available information, scheduled reversals of deferred tax liabilities, projected future taxable income, limitations on the availability of tax credit carryforwards, and other evidence assessing the potential realization of deferred tax assets. Adjustments to the valuation allowance are included in the tax provision in our consolidated statements of operations in the period they become known or can be estimated.

Significant management judgment is required in determining any valuation allowance recorded against deferred tax assets and liabilities. The valuation allowance is based on our estimates of taxable income for jurisdictions in which we operate and the period over which our deferred tax assets may be recoverable. Historically, we have had substantial United States tax credit carryforwards which, if not utilized, will begin to expire in 2018. The ability to utilize these DTAs is highly dependent upon our ability to generate taxable income in the United States in the future.

We apply a more-likely-than-not recognition threshold to our accounting for tax uncertainties. We review all of our tax positions and make determinations as to whether our tax positions are more likely than not to be sustained upon examination by the relevant taxing authorities. Only those benefits that have a greater than fifty percent likelihood of being sustained upon examination by taxing authorities are recognized. Interest and penalties related to uncertain tax positions are recorded in income tax expense (benefit) in the consolidated statements of operations.

Quantitative and qualitative disclosures about market risk

We are exposed to certain global market risks, including foreign currency exchange risk and interest rate risk associated with our debt.

Foreign currency exchange risk

As a result of our substantial international operations, we are exposed to foreign currency risks that arise from our normal business operations, including in connection with our transactions that are denominated in foreign currencies, including Euro, British Pound Sterling, Indian Rupee, Japanese Yen, and Chinese Yuan. In addition, we translate sales and financial results denominated in foreign currencies into United States dollars for purposes of our consolidated financial statements. As a result, appreciation of the United States dollar against these foreign currencies generally will have a negative impact on our reported revenues and operating income while depreciation of the United States dollar against these foreign currencies will generally have a positive effect on reported revenues and operating income.

Interest rate sensitivity

We are exposed to market risks in the ordinary course of our business. These risks primarily include interest rate sensitivities. As of June 30, 2017, and December 31, 2016, we had cash, cash equivalents and restricted cash of $17.7 million and $17.1 million, respectively, consisting primarily of bank deposits. As of June 30, 2017, and December 31, 2016, respectively, we had $52.5 million and $57.5 million outstanding on Term Loan A and $18.0 million and $27.4 million outstanding on our Revolving Credit Facility. Such interest-bearing instruments carry a degree of interest rate risk; however, historical fluctuations of interest expense have not been significant.

Interest rate risk relates to the gain/increase or loss/decrease we could incur on our debt balances and interest expense associated with changes in interest rates. It is our policy not to enter into derivative instruments for speculative purposes, and therefore, we hold no derivative instruments for trading purposes.

Non-GAAP financial measures

In analyzing and planning for our business, we supplement our use of GAAP financial measures with non-GAAP financial measures, including Billings as a liquidity measure, Adjusted EBITDA as a performance measure and Free Cash Flow as a liquidity measure.

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Other Financial Data:				
Billings	$297,358	$320,653	$165,449	$181,379
Adjusted EBITDA	22,949	30,830	12,933	7,056
Free Cash Flow	5,605	11,941	18,307	21,782

Billings consists of our total revenue plus the change in our deferred revenue. Billings is a non-GAAP financial measure. Given that we generally bill our customers at the time of sale, but typically recognize a majority of the related revenue ratably over time, management believes that Billings is a meaningful way to measure and monitor our ability to provide our business with the working capital generated by upfront payments from our customers.

We define Adjusted EBITDA as net income (loss) adjusted for income tax expense (benefit), interest expense, interest income and other, depreciation and amortization, stock-based compensation expense, restructuring charges, asset impairment charges and other special items as determined by management. Adjusted EBITDA is a non-GAAP financial measure. Our management team believes that Adjusted EBITDA is a meaningful measure of performance as it is commonly utilized by management and the investment community to analyze operating performance in our industry.

We define Free Cash Flow as cash flow provided by operating activities less capital expenditures. Free Cash Flow is a non-GAAP financial measure. Management believes that Free Cash Flow is useful in analyzing our ability to service and repay debt and return value directly to stockholders.

These non-GAAP financial measures reflect an additional way of viewing aspects of our business that, when viewed with our GAAP results and the accompanying reconciliations to the corresponding GAAP financial measures included in the tables below, may provide a more complete understanding of factors and trends affecting our business. These non-GAAP financial measures should not be relied upon to the exclusion of GAAP financial measures and are by definition an incomplete understanding of the Company and must be considered in conjunction with GAAP measures.

We believe that the non-GAAP measures disclosed herein are only useful as an additional tool to help management and investors make informed decisions about our financial and operating performance and liquidity. By definition, non-GAAP measures do not give a full understanding of the Company. To be truly valuable, they must be used in conjunction with the comparable GAAP measures. In addition, non-GAAP financial measures are not standardized. It may not be possible to compare these financial measures with other companies' non-GAAP financial measures having the same or similar names. We strongly encourage investors to review our consolidated financial statements and the notes thereto in their entirety and not rely on any single financial measure.

The following tables provide reconciliations of revenue to Billings, income (loss) before income taxes to Adjusted EBITDA and net cash provided by operating activities to Free Cash Flow:

Billings

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Revenues	$294,129	$313,240	$152,340	$158,528
Ending deferred revenue	106,516	113,929	119,625	136,780
Beginning deferred revenue	(103,287)	(106,516)	(106,516)	(113,929)
Billings	$297,358	$320,653	$165,449	$181,379

Adjusted EBITDA

	Year Ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
Net income (loss)	$10,931	$10,163	$3,953	$(9,434)
Income tax expense (benefit)	818	3,539	2,699	(1,659)
Stock-based compensation	597	5,132	175	14,037
Interest expense	2,416	2,265	1,247	1,159
Interest income and other[(1)]	(191)	(249)	12	(2,131)
Depreciation and amortization	8,378	9,980	4,847	5,084
Adjusted EBITDA	$22,949	$30,830	$12,933	$7,056

(1) Includes a non-recurring adjustment for a change in estimated legal expenses resulting in $2 million of income for the six months ended June 30, 2017.

Free cash flow

	Year ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**

Net cash provided by operating activities	$10,838	$21,385		$22,006	$26,117
Capital expenditures	(5,233)	(9,444	)[1]	(3,699)	(4,335)
Free Cash Flow	$5,605	$11,941		$18,307	$21,782

(1) Includes $4.0 million purchase of real property adjacent to our corporate headquarters.

JOBS Act Accounting Election

We are an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We have elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

Recently issued accounting pronouncements

Accounting standards adopted

We adopted Accounting Standards Update, "ASU" No. 2014-15, *Presentation of Financial Statements—Going Concern,* effective for the year ended December 31, 2016. This update provides guidance regarding management's responsibility to evaluate whether there exists substantial doubt about an organization's ability to continue as a going concern and to provide related footnote disclosures in certain circumstances. The adoption did not have a material effect on our consolidated financial statements.

We adopted ASU No. 2015-03, *Simplifying the Presentation of Debt Issuance Costs, ASU 2015-03,* effective for the year ended December 31, 2016. This update amended existing guidance to require that debt issuance costs related to a recognized debt liability be presented in the balance sheet as a direct reduction from the carrying amount of that debt liability, consistent with debt discounts. ASU 2015-03 was applied retrospectively and did not have a material effect on the Company's consolidated financial statements.

We adopted ASU No. 2015-05, *Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Fees Paid in a Cloud Computing Arrangement, ASU 2015-05,* effective for the year ended December 31, 2016. The amendments in this update provided guidance to customers about whether a cloud computing arrangement includes a software license. If a cloud computing arrangement includes a software license, then the customer should account for the software license element of the arrangement consistent with the acquisition of other software licenses. If a cloud computing arrangement does not include a software license, the customer should account for the arrangement as a service contract. The guidance did not change United States GAAP for a customer's accounting for service contracts. ASU 2015-05 was applied retrospectively and did not have a material effect on the Company's consolidated financial statements.

We adopted ASU No. 2015-16, *Business Combinations: Simplifying the Accounting for Measurement-Period Adjustments*, ASU 2015-16, effective for the year ended December 31, 2016. The amendments in ASU 2015-16 eliminate the requirement to restate prior period financial statements for measurement period adjustments. The amendments also require that the cumulative impact of a measurement period adjustment (including the impact on prior periods) be recognized in the reporting period in which the adjustment is identified. The amendments for ASU-2015-16 were prospectively applied and did not have a material effect on our consolidated financial statements.

We adopted ASU No. 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash,* ASU 2016-18, effective as of December 15, 2017. ASU 2016-18 clarifies the presentation of restricted cash and restricted cash equivalents in the statements of cash flows. Under ASU 2016-18 restricted cash and restricted cash equivalents are included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statements of cash flows. We early adopted ASU No 2016-18 in 2016 on a retrospective basis, and the adoption did not have a material effect on our consolidated financial statements.

We adopted ASU No. 2015-11, *Inventory: Simplifying the Measurement of Inventory*, ASU 2015-11, effective for fiscal years and interim periods beginning after December 15, 2016. ASU 2015-11 requires an entity to measure inventory within the scope at the lower of cost and net realizable value. Net realizable value is the estimated selling prices in the ordinary course of business, less reasonable predictable costs of completion, disposal and transportation. We adopted ASU No 2015-11 on January 1, 2017, on a prospective basis, and the adoption did not have a material effect on our consolidated financial statements.

Accounting standards not yet adopted

Revenue Recognition—In May 2014, the Financial Accounting Standards Board, or "FASB", issued ASU No. 2014-09, *Revenue from Contracts with* Customers, ASU 2014-09. This standard outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes most existing revenue recognition guidance under GAAP. The core principle of the guidance is that an entity should recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. ASU 2014-09 also requires enhanced disclosures about the nature, amount, timing, and uncertainty of revenues and cash flows arising from contracts with customers. Entities have the option of using either a full retrospective or a modified retrospective approach for the adoption of the new standard. In August 2015, the FASB issued ASU 2015-14, *Revenue from Contracts with Customers: Deferral of the Effective Date* that defers the effective date of ASU 2014-09 for all entities by one year for public business entities. This ASU is effective for fiscal years beginning after December 15, 2017 including interim periods within that reporting period. For all other entities, including emerging growth companies, this ASU is effective for fiscal years beginning after December 15, 2018, and interim periods within annual periods beginning after December 15, 2019. Early adoption is permitted.

We are evaluating the use of either the retrospective or modified retrospective transition method. Under existing software industry GAAP, we do not have VSOE of fair value for PCS sold along with software products licenses; therefore, revenues for the software products licenses (including perpetual licenses), PCS and professional services, if applicable, are considered to be one accounting unit and, once all services have commenced, are recognized ratably over the remaining period of the arrangement (the longer of the contractual service term or PCS term). Under ASU 2014-09, the concept of assessing VSOE has been eliminated and the Company must estimate a fair value associated with each performance obligation within an arrangement. As a result, we expect the timing of revenue recognition to be accelerated because it anticipates that license revenue will be recognized at a point in time, rather than over time, which is its current practice. Generally, the license revenue component of an arrangement represents a significant portion of the overall fair value of a software arrangement. As a result, we expect the impact of adopting ASU 2014-09 to have a significant impact on the consolidated financial statements. We are currently evaluating the method of implementation and impact this standard will have on its consolidated financial statements.

Financial Instruments—In January 2016, the FASB issued ASU No. 2016-01, *Financial Instruments—Overall: Recognition and Measurement of Financial Assets and Financial* Liabilities, ASU 2016-01. This standard affects the accounting for equity instruments, financial liabilities under the fair value option and the presentation and disclosure requirements of financial instruments. ASU 2016-01 is effective in the first quarter of 2019. We are evaluating the impact of the adoption of ASU 2016-01 on its financial statements and related disclosures.

Leases—In February 2016, the FASB issued ASU No. 2016-02, Leases, ASU 2016-02. This standard amends various aspects of existing accounting guidance for leases, including the recognition of a right-of-use asset and a lease liability on the balance sheet for all leases with terms longer than 12 months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. This standard also introduces new disclosure requirements for leasing arrangements. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years for public business entities. For all other entities, including emerging growth companies, ASU 2016-02 is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years beginning after December 15, 2020. Early adoption is permitted. The new standard must be adopted using a modified retrospective approach, and provides for certain practical expedients. We are evaluating the impact of the adoption of ASU 2016-02 on its financial statements and related disclosures.

Employee Share-Based Payment Accounting—In March 2016, FASB issued ASU No. 2016-09, *Improvements to Employee Share-Based Payment* Accounting, ASU 2016-09. This standard involves several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities and classification on the statement of cash flows. ASU 2016-09 is effective for annual periods beginning after December 15, 2016 and interim periods within those annual periods for public business entities. For all other entities, including emerging growth companies, ASU 2016-09 is effective for annual periods beginning after December 15, 2017 and interim periods within fiscal years beginning after December 15, 2018. The method of adoption is dependent on the specific aspect of accounting addressed in this new guidance. Early adoption is permitted in any interim or annual period. We are evaluating the impact of the adoption of ASU 2016-09 on our financial statements and related disclosures.

Cash Classification—In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments*, ASU 2016-15, to improve financial reporting in regards to how certain transactions are classified in the statement of cash flows. ASU 2016-15 provides guidance for targeted changes with respect to how cash receipts and cash payments are classified in the statements of cash flows, with the objective of reducing diversity in practice. ASU 2016-15 is effective for interim and annual periods beginning after December 15, 2017. For all other entities, including emerging growth companies, ASU 2016-15 is effective for fiscal years beginning after December 15, 2018, and interim periods within fiscal years beginning after December 15, 2019. Early adoption is permitted. We are evaluating the impact of the adoption of ASU No. 2016-15 on our financial statements and related disclosures.

Business Combinations—In January 2017, the FASB issued ASU No. 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business*, or ASU_2017-01. This update narrows the definition of a business. If substantially all the fair value of the gross assets acquired is concentrated in a single identifiable asset or group of similar identifiable assets, the acquiree is not a business. The update also requires a business to include an input and a substantive process that significantly contributes to the ability to create outputs. This definition is expected to reduce the number of acquisitions accounted for as business combinations, which will impact the accounting treatment of certain items, including the accounting treatment of contingent consideration and transaction expenses. ASU 2017-01 is effective for annual periods beginning after December 15, 2017, including interim periods within that reporting period. For all other entities, including emerging growth companies, ASU 2017-01 is effective for annual periods beginning after December 15, 2018, and interim periods within annual periods beginning after December 15, 2019. Early adoption is permitted and the update will be applied prospectively. The effect of the implementation will depend upon the nature of our future acquisitions.

Business

Business

`Vision`

Our vision is to transform product design and organizational decision making by applying simulation, optimization and high performance computing throughout product lifecycles.

`Overview`

Altair exists to unleash the limitless potential of the creative mind.

We are a leading provider of enterprise-class engineering software enabling innovation across the entire product lifecycle from concept design to in-service operation. Our simulation-driven approach to innovation is powered by our broad portfolio of high-fidelity and high-performance physics solvers. Our integrated suite of software optimizes design performance across multiple disciplines encompassing structures, motion, fluids, thermal management, electromagnetics, system modeling and embedded systems, while also providing data analytics and true-to-life visualization and rendering.

The engineering software industry is challenged by increasingly sophisticated design requirements and enabled by the ever expanding availability of cost effective computing power. Rising expectations of end-market customers, new manufacturing methods such as 3D printing, and new materials such as composites, combined with more powerful math-based computational technologies, are expanding the application of simulation across many industry verticals. The Internet of Things, or IoT, is also changing engineering by broadening the scope of Product Lifecycle Management, or PLM, affording the opportunity to leverage simulation and analytics toward the development of "digital twins" to predict failure or to schedule maintenance operations for in-service equipment.

CIMdata, in the CIMdata Report, forecasts, "the PLM market to grow at a compound annual growth rate (CAGR) of 6.7% to $56.3 billion" in 2021. The CIMdata Report estimates the CAE market which they refer to as Simulation and Analysis, as a subset of the PLM market to be approximately $5.3 billion and $5.7 billion in 2016 and 2017, respectively. The CIMdata Report expects the CAE market, "will be one of the more rapidly growing segments within the tools sector of PLM over the next five years, and forecasts that this market sector will exceed $7.8 billion in 2021, with an 8.1% CAGR."

Altair's engineering and design platform offers a wide range of multi-disciplinary CAE solutions which we believe is one of the most innovative and comprehensive offerings available in the market. To ensure customer success and deepen our relationships with them, we engage with our customers to provide consulting, implementation services, training, and support, especially when applying optimization. Altair participates in five software categories related to CAE and HPC:

- ***Solvers & Optimization:*** Solvers are mathematical software "engines" that use advanced computational algorithms to predict physical performance. Optimization leverages solvers to derive the most efficient solutions to meet desired complex multi-objective requirements.
- ***Modeling & Visualization:*** Tools that allow advanced physics attributes to be modeled and rendered on top of object geometry in high fidelity. These tools are becoming more design-centric and relevant earlier in the development process.
- ***Industrial & Concept Design:*** Tools that generate early concepts to address requirements for ergonomics, aesthetics, performance, and manufacturing feasibility. These tools are simulation-driven and, we believe, emerging as a market force eclipsing traditional CAD.
- ***IoT:*** Tools to develop new IoT enabled products, including device and data management, system level and full 3D digital twin simulation, and exploration, predictive analysis, optimization, and visualization of in-service performance.
- ***HPC:*** Software applications that streamline the workflow management of compute-intensive tasks including solvers, optimization, modeling, visualization, and analytics in fields such as PLM, weather modeling, bio-informatics and electronic design analysis. The HPC middleware software market was forecasted by the former high performance analyst team which is now owned by Hyperion, and not IDC, to exceed $1.6 billion by 2019.

Our software enables customers to enhance product performance, compress development time, and reduce costs. Our thirty-year heritage is in solving some of the most challenging design problems faced by engineers and scientists. Altair is also a leading provider of high-performance computing workflow tools which empower our customers to explore designs in ways not possible in traditional computing environments. We believe we are unique in the industry for the depth and breadth of our engineering application software offerings combined with our domain expertise and proprietary technology for harnessing HPC and cloud infrastructures.

Our primary users are highly educated and technical engineers, commonly referred to as simulation specialists. We predominantly reach customers with simulation specialists through Altair's experienced, direct sales force, especially in industries requiring highly engineered products, such as automotive, aerospace, heavy machinery, rail and ship design. To enable concept engineering driven by simulation we make our physics solvers more accessible to designers, who may be less technical and not expert in simulation, by wrapping them in powerful, yet simple interfaces. We are increasing our use of indirect channels to more efficiently address a broader set of customers in consumer products, electronics, energy and other industries.

Altair pioneered a patented units-based subscription licensing model for software and other digital content. This units-based model allows flexible and shared access to all of our offerings, along with over 150 partner products. Our customers license a pool of units for their organizations giving individual users access to our entire portfolio of software applications as well as our growing portfolio of partner products. We believe our units-based subscription licensing model lowers barriers to adoption, creates broad engagement, encourages users to work within our ecosystem, and increases revenue. This, in turn, helps drive our recurring software license rate which has been on average approximately 88% over the past five years. Each year approximately 60% of new software revenue comes from expansion within existing customers.

Altair also provides CES to support our customers with long-term ongoing product design and development expertise. This has the benefit of embedding us within customers, deepening our understanding of their processes, and allowing us to more quickly perceive trends in the overall market. Our presence at our customers' sites helps us to better tailor our software products' R&D and sales initiatives.

We were founded in 1985 in Michigan and have a balanced global footprint, with 68 offices in 24 countries, and over 2,000 engineers, scientists and creative thinkers. For the six months ended June 30, 2017, we generated 34%, 33% and 33% of our total billings from customers in the Americas, the APAC region, and the EMEA region, respectively. In 2016, we generated 38%, 32% and 30% of our total billings from customers in the Americas, APAC, and EMEA, respectively. Billings by geographical region can significantly vary by quarter. As of June 30, 2017, we had tens of thousands of users across approximately 5,000 customers worldwide. See the section entitled "Selected historical consolidated financial and other data—Key metrics."

We believe a critical component of our success has been our company culture, based on our core values of innovation, envisioning the future, communicating honestly and broadly, seeking technology and business firsts, and embracing diversity. This culture is important because it helps attract and retain top people, encourages innovation and teamwork, and enhances our focus on achieving Altair's corporate objectives.

Industry background

CAE software is essential to innovation across a wide range of highly engineered products in industry verticals ranging from automotive, aerospace, heavy machinery, rail and ship design to consumer electronics and sporting goods. Physical prototypes and testing have been largely supplanted by CAE for design validation over the last twenty-five years. This process continues unabated. Manual drawing and drafting were also replaced by 3D CAD during the same time period. More recently, CAE is emerging in a conceptualization process called simulation-driven design where new design tools are beginning to replace traditional 3D CAD.

CAE software allows engineers to simulate, predict, and optimize how physical products will perform in the real world under a range of operating conditions. CAE applications can accurately solve complex physical interactions through mathematical methods such as finite element analysis, simulate an extensive set of material types, and generate high-fidelity outputs that are realistic virtual representations of physical system behaviors. Modern CAE software can rapidly solve a wide range of complex physics, including structural, fluid, thermal, electromagnetic, system modeling, and embedded system design.

Beyond just simulating physical behavior, CAE can now solve multi-disciplinary optimization problems to numerically optimize parameters and achieve design objectives such as to minimize weight or cost. Utilizing such advanced simulation and optimization methods, engineers and designers can shorten development cycles, virtually test product performance, explore alternatives, and synthesize designs that enhance product functionality, performance and reliability while reducing complexity and costs.

Principal drivers of growth in demand for simulation & analysis software include:

Improving sophistication and fidelity of CAE technologies The engineering software industry is challenged by increasingly sophisticated design requirements and enabled by the ever-expanding availability of cost effective computing power. Simulation models continue to grow in size, complexity, and range of physics, driving demand for additional computational power and parallelization algorithms, more powerful modeling and visualization tools and more advanced multi-physics solvers. Advances in computing infrastructure have kept pace over time, drastically reducing the time it takes to perform complex simulations and solve large-scale problems such as automotive crash simulation, fluid-structure interaction of subsea oil pipelines and detailed composite simulation of full aircraft structures. As these models continue to grow larger and solve faster, the knowledge and power of these methods to impact design decisions expands across a department, an industry, or from one industry to another, fueling consumption of CAE software.

Fundamental transformations in product engineering The nature of modern manufactured products is rapidly evolving toward intelligent, connected systems. Once composed solely of mechanical parts, products have become complex systems often combining mechanical hardware, electronics, sensors, controls, software, and communications in myriad ways to monitor and adjust behavior using embedded logic. Advanced driver-assistance systems, or ADAS, autonomous vehicles, or AVs, modern industrial robots and most new consumer products are examples of this new paradigm. This complex interplay across domains is forcing engineers to take a systems-level approach to design, and in turn to rely on advanced computer-aided systems simulation as a necessity in product design. Controls algorithm development, modeling of linked systems, and transfer of control logic into embedded systems can all be done using CAE software to achieve optimal performance and cost and ensure product integrity while minimizing physical prototype iterations.

Democratization of CAE CAE software access was historically limited to a small pool of specialist engineers in large organizations with a high level of domain expertise and knowledge of complex mathematical modeling and underlying physics. Exploring different product design ideas at the same time through simulation software required reliable, secure, and dedicated high-speed computing infrastructure, which was typically expensive to own and operate. The dramatic increase in computing performance, and an equally dramatic reduction in computing cost over the last twenty years coupled with the growth of cloud computing is making CAE, and especially optimization, cost effective. Coupled with user-friendly software applications which make multi-run design studies less expensive, businesses have the opportunity to expand their CAE user community and overall application of simulation.

We believe record numbers of engineers and designers involved in product development now have access to CAE tools, and any one engineer involved in product development has access to more CAE tools than ever, thus driving increased adoption of CAE solutions across large organizations and by small and medium businesses.

An emerging paradigm of simulation-driven design Simulation is now driving design innovation, rather than following design. The product development process of recent decades involved creation of a product concept followed by development of a detailed design using 3D CAD. The designs were then passed along to engineering teams to refine, test and optimize. CAE was often too late or too slow to effectively impact the rapid decisions required to correct flawed product designs. Design changes late in the product development process are costly, may delay product launches, and can adversely affect product quality and performance.

Democratization of CAE offers product designers easy access to a user-friendly subset of simulation tools to take into account product performance objectives and manufacturability early in the design process. Going forward, engineering specialists can focus more on detailed validations and complex simulations. This is driving a positive movement toward simulation-driven design processes and a corresponding growth in simulation software consumption.

Expanding scope of simulations to "Digital Twins" The evolution of products into intelligent, connected devices—which are increasingly embedded in broader systems—is reshaping how products are engineered, manufactured, operated and serviced. Smart, connected products underpin the IoT and generate vast amounts of actionable data. As consumers and industries begin to realize tangible benefits from connected products, IoT adoption is accelerating. Gartner estimates that the installed base of IoT units will grow to reach more than 20 billion units by 2020.* CAE software combined with advanced analytics and operating data from sensors make it possible for manufacturers to improve product performance through complete life-cycles. In-service measurements, combined with simulation models, or digital twins, provide information to predict and prescribe maintenance of components or systems. The IoT is changing engineering by broadening the scope of PLM to leverage simulation and analytics for better and more robust manufacturing and in-service operation.

Market opportunity

Rising expectations of end-market customers, new manufacturing methods such as 3D printing, the ability to design and process composites and new materials, combined with more powerful math-based computational technologies, are expanding the application of simulation across many industry verticals and throughout product life-cycles. CAE software offers companies opportunities to achieve better, lower cost products with fewer physical prototypes and tests, and reduces the time required to bring products to market.

The CIMdata Report, forecasts, "the PLM market to grow at a compound annual growth rate (CAGR) of 6.7% to $56.3 billion" in 2021. The CIMdata Report estimates the CAE market which they refer to as Simulation and Analysis, as a subset of the PLM market to be approximately $5.3 billion and $5.7 billion in 2016 and 2017, respectively. The CIMdata Report expects the CAE market, "will be one of the more rapidly growing segments within the tools sector of PLM over the next five years, and forecasts that this market sector will exceed $7.8 billion in 2021, with an 8.1% CAGR."

We believe our strategy of making CAE technologies more accessible through simplified user interfaces with easy access to a broad range of applications and new cloud offerings will help us expand to more designers, engineers and architects at larger companies as well as at small and medium enterprises, thus driving a growth rate that exceeds the overall S&A market. In addition, our recent offerings including software for math-based systems modeling, embedded systems design, and visual analytics present an opportunity to expand our customer base.

Our addressable opportunity also includes software to facilitate and optimize the use of HPC infrastructure critical for running complex simulation models in industries ranging from manufacturing to weather prediction, bio-informatics and financial risk-management. According to the former high performance analyst team which is now owned by Hyperion, and not IDC, the market for high-end HPC servers is estimated to reach $7 billion by 2020. We believe we are positioned attractively to capture spending related to workload management systems for these high-end servers.

We believe Altair's simulation and HPC expertise uniquely positions us to address a portion of spending in the massive and fast growing IoT and analytics market. IDC estimates that $36 billion was spent on IoT platforms in 2015, and estimates the market to grow at a CAGR of 15% through 2020. IDC believes $19.97 billion was spent on business intelligence and analytics software tools and will grow at a CAGR of 12% through 2021. We have decades of experience helping our customers aggregate, analyze and visualize vast datasets created by large scale simulations, laboratory tests and in-field sensors. Through our IoT and analytics product suite, we are expanding our market reach to a broader set of customers, enabling them to collect and analyze data from an increasing number of connected products to support key business decisions.

Competitive strengths

We believe the following strengths will allow us to maintain and build our position in the growing market for engineering and simulation solutions:

Experienced management and culture of innovation

As a technology and product driven company, we believe Altair's culture of innovation creates engagement and loyalty among our employees and customers.

Our founder and leadership team are deeply experienced with a strong track record of both business and product innovation. Our diversified and global workforce is highly experienced and energetic. Altair's culture affords many opportunities for people to take on new roles and assignments, including significant mobility between locations around the world. Approximately 50% of our employees have been with Altair more than five years and approximately 50% of our managers have a tenure exceeding ten years. Many of our key executives have worked at the company for over 20 years. All of this translates into a significant competitive advantage through deeply rooted institutional knowledge about our market, our competitors' strengths and weaknesses, and engineering technology.

Units-based subscription licensing model

Altair pioneered a patented units-based subscription licensing model for software and other digital content which has transformed the way our customers use software, delivering strong retention rates and revenue growth. Under a traditional software industry licensing model, customers license rights to use a particular application or a suite of applications, which are typically priced on a per CPU basis for a specified period of time. The Altair units-based subscription licensing model is different from the traditional licensing model because it allows customers to license a pool of units for their organizations, providing individual users flexible access to our entire portfolio of software applications along with over 150 partner products. Under the Altair units-based model, customers acquire rights to use a "unit" for a specified period of time. Units are held in a pool and drawn when a user runs any of the applications available under our licensing model, either Altair applications or third-party partner applications. When the user closes the application, the units are returned to the pool and become available for use by all users. In 2016, customers accessed an average of 14.6 applications from our overall portfolio. Altair's business model is particularly suited to CAE, as engineers and designers often require several different applications across multiple disciplines when developing products. This model lowers barriers to adoption, creates broad engagement, encourages users to work within our ecosystem and access applications they might otherwise have purchased from competitors, and increases revenue. This, in turn, helps drive our recurring software license rate which has been on average approximately 88% over the last five years. Each year approximately 60% of new revenue comes from expansion within existing customers.

License a pool of units for team use	*Use any time of day,* anywhere in the world	When finished, units return to the pool for someone else on the team to use

Broad simulation portfolio and open interfaces

Altair's broad portfolio of solutions as well as our open philosophy toward interfacing with other solutions, including competitors, positions us as a strong and strategic partner for customers.

We have assembled one of the broadest portfolios of simulation and optimization applications in the industry, spanning multiple domains and technology disciplines. Our software offers multidisciplinary capabilities in simulation, optimization and predictive analytics. We address the entire product lifecycle including concept design, engineering, manufacturing processes, and in-service operations.

Altair has historically offered broad and complete interfaces to most major third party CAD and CAE software on the market. Customers using a variety of platforms within their enterprises and throughout their supply chain have the ability to use Altair's software as a central method to share models across multiple formats and between different simulation disciplines.

Industry-leading simulation performance

Our simulation solutions including modeling, visualization and solvers are noted in the market for their ability to handle large and complex models.

Altair's software applications are highly industrialized and state-of-the-art and take thorough advantage of new compute architectures as they become available including new processors, storage systems, GPUs, and on-premise and public high-performance cloud computing. In addition, we are developing and experimenting with solutions for HPC workload management and remote visualization which will allow the delivery of our own as well as other software via a cloud model.

Our software applications deliver high-performance and high scalability, including massive parallelization, which is increasingly important in the CAE market. This allows our customers to run complex high-fidelity simulations quickly and cost-effectively. As the market moves to drive design with numerical optimization and stochastic studies to improve quality, this requires models to be run multiple times, often with hundreds or thousands of changes to input variables. Compute performance and the ability to run larger models are critical to delivering timely and accurate results, and best-in-class designs.

Altair is a leader in integrating optimization technology across all our products including multi-disciplinary applications. We believe our ability to leverage HPC as the industry transitions to cloud computing also provides an important differentiator.

Deep technical engagement with customers

Our services including consulting, implementation services, training and support enhance our ability to drive grassroots demand for our applications.

Altair's software related services team is comprised of approximately 700 highly technical people globally and is differentiated by its significant size and the breadth of their real world experience. We believe our approach differentiates us from our competitors, as we focus on establishing a strong working relationship with the user community allowing us to offer guidance and expertise throughout their product creation process.

Altair has a philosophy of significant engagement with strategic customers on key development projects in our software product roadmap to ensure we deliver solutions which are innovative and comprehensive in addressing customer requirements.

We believe our close technical engagement with users, along with senior engineering relationships developed by our sales personnel, helps our ability to sell future products and services.

Growth strategies

We believe the following represent opportunities for Altair's growth in the engineering simulation market:

- Grow market share for solvers;
- Grow indirect business through our OEM and reseller networks;
- Establish leadership position in the expanding Cloud HPC market;
- Expand client adoption for simulation-driven design offerings; and
- Target the emerging IoT market with platform, analytics and digital twin solutions.

We intend to pursue growth by leveraging these opportunities with the following growth strategies:

Increase software usage within our existing customer base

Our existing base of tens of thousands of users across approximately 5,000 customers provides a significant opportunity to increase revenues. Historically, we have derived 60% of our new software revenue from existing clients. The units-based subscription licensing model lowers barriers to usage, and provides customers the flexibility to initially deploy one or more of our products and later expand usage to more of our applications along with partner products. This land and expand strategy combined with our leadership position in modeling and visualization and our strong portfolio of solver products presents a clear path toward increased usage.

We believe Altair PBS Cloud, complemented by the newly acquired Runtime products, can revolutionize how customer organizations manage their on-premises HPC computing and off-premises cloud infrastructure. As companies transition more HPC workloads to the cloud, we believe Altair PBS Cloud along with Runtime will help them to easily provision, manage and optimize these resources to maximize return on investment.

Invest in our direct sales force

Our direct sales force is highly technical and experienced, and consistently delivers solid growth and customer loyalty. Our subscription business model sometimes results in smaller new and expansion deal sizes than traditional paid-up licensing approaches. However, our model drives recurring software licenses and consistent growth, creates broad engagement, encourages users to work within our ecosystem, and increases revenue. This drives our recurring

software license rate which has been on average approximately 88% over the past five years, and is powerful when competing for new business.

We plan to hire additional field and inside sales professionals in most major markets in which we operate, and to support these teams with continued brand and product marketing. We believe adding sales capacity in our direct sales force will grow revenue.

Expand through indirect sales channels

We believe there is growth and margin expansion opportunity through our OEM and reseller networks, and we plan to continue adding more partners across all product suites in the future.

solidThinking indirect channels are intended to deliver important new top line growth into middle-market companies not requiring the full suite of enterprise solutions. We plan to focus significant attention on growing our base of Carriots OEMs, implementation partners, and resellers by targeting specific vertical IoT markets. These relationships are important in creating opportunities for digital twin simulation related to the design of, and in-service predictive analytics of, connected products.

Continue investment in R&D

We organically developed over 15 products which came to market commercially in the last 25 years. These include HyperMesh, HyperView, HyperGraph, OptiStruct, Compose, Activate, Click2Form, HyperStudy, Inspire, MotionView, MotionSolve, Altair PBS Access, Altair PBS Cloud, and Carriots Analytics. We believe this level of organic product creation sustained over such a long period of time is unique in the PLM market.

Analytics from our units-based subscription licensing model gives us insight into our customers' workflows and usage patterns. This helps guide our product development and R&D efforts. We pay attention to how problems are being solved by currently available solutions and look for opportunities to create new products where we can make significant improvements in quality or performance and deliver future revenue streams for our company. We experiment with new methods and emerging technologies as they become available to learn and to find ways they can be relevant in advancing our products' technologies in the markets we serve.

We view our continued investment in R&D as essential to developing new products and technologies, as well as new features for existing products, to support the needs of our users.

Selectively pursue acquisitions and strategic investments

We may explore and pursue selective acquisitions and strategic investments to complement and strengthen our product offerings, expand the functionality of our solution, acquire technology or talent, or gain access to new customers and markets.

We acquired 19 companies or strategic technologies since 1996, including 11 in the last three years. These acquisitions brought strategic IP assets, and approximately 200 developers with expertise in disciplines ranging from electronics, material science, crash and safety to industrial design and rendering. Products which are commercially available as a result of these acquisitions include Click2Extrude, Altair PBS Professional, Radioss, Evolve, Acusolve, SimLab, Embed, Click2Cast, Multi-scale Designer, FEKO, FLUX, WinProp, Thea Render, Modeliis, Carriots, and ESAComp.

We believe our ability to integrate expert teams and new IP into our organization, and quickly bring acquired products to market with our business model, is unique in the PLM market.

Sales

We take our products to market in different combinations, through several packaged offerings, each having defined channels and pricing strategies. The product "suites" are HyperWorks, solidThinking, Altair PBS Works and Carriots.

Product suites

HyperWorks

HyperWorks is a suite of software products which primarily targets simulation specialists and some test engineers at large enterprises, and users with deep technical needs at small and medium sized companies. HyperWorks Units, or HWUs, are an embodiment of our patented units-based subscription licensing model, and provide access to all of Altair's more than 30 software products including those available in our solidThinking, Altair PBS Works, and Carriots suites, and all of the more than 150 APA products.

HyperWorks represents the majority of Altair's revenue. To sell HyperWorks we primarily engage with our customers through our direct global sales force. Our sales teams interact with key information technology, or IT, decision makers, engage deeply with users of our products by leveraging a team of Altair's technical specialists, and work with user-group managers and executives to ensure they are maximizing the utility of our HyperWorks suite. Resellers of HyperWorks are mainly in APAC and Eastern Europe. They are managed by our direct field offices.

solidThinking

solidThinking is a more recent suite offering, a subset of our HyperWorks products focused on industrial design, concept engineering, manufacturing feasibility, and model-based design. solidThinking primarily targets designers, engineers and architects at small and medium enterprises. Historically, solidThinking has been offered under a traditional licensing model. We are currently transitioning to a units-based subscription licensing model similar to HyperWorks.

solidThinking represented less than 1% of Altair's revenue in 2016, while it grew well over 50% from 2015 to 2016. solidThinking Inc. is a wholly owned subsidiary of Altair, created to market this suite through resellers who provide sales and first line support for these customers.

Altair PBS Works

Altair PBS Works is a suite of three products including, Altair PBS Professional, Altair PBS Access, and Altair PBS Cloud, targeting IT professionals, engineers, and scientists at commercial enterprises, universities and research institutes. Altair PBS Works optimizes the use of HPC to design products, predict weather, perform drug discovery research, calculate financial risk, and support other compute intensive work. Altair PBS Works licensing and support is generally on a per node and per user subscription basis.

Altair PBS Works is sold by Altair's global strategic sales force with sales overlay support from Altair HPC sales specialists and application engineers. Some major HPC hardware companies bundle Altair PBS Works on new HPC computer systems. We offer Altair PBS Professional as both an open source and a commercial solution. Commercial sites generally license the commercial version along with support. However, many universities, government agencies and small commercial sites prefer the open source version as their work often needs to be freely available for societal benefit. Large government and research installations generally still purchase support and often pay for specific development.

In September 2017, the Company acquired Runtime. Runtime complements Altair's PBS Works suite of products for comprehensive, secure workload management for HPC and cloud environments and has solutions to manage highly complex workflows. We believe both Runtime and PBS Works deliver innovative and mission critical technology to optimize the use of HPC for compute-intensive applications. PBS Works targets product design, weather prediction, oil exploration and bio-informatics, and Runtime primarily serves customers in EDA.

Carriots

Carriots helps customers enable their products to communicate via numerous standard protocols, perform device and data management, visualize and analyze big data, develop applications, and perform digital twin simulations. Carriots is an end-to-end and open architecture IoT platform. It complements Altair's other product suites to provide a comprehensive solution for customers to design and implement IoT enabled products. The solution is designed with Altair's open philosophy to facilitate seamless integration of its platform elements within customer enterprises to share data and communicate with multiple Enterprise Resource Planning, or ERP, simulation and communication systems.

Carriots is sold by our direct sales force, supported by an overlay team, to customers where we have longstanding relationships as well as to customers in some markets new to Altair. We also sell through resellers and implementation consultants who sell and support Carriots in markets where they are strong.

Carriots Analytics is designed to easily embed in other software products to provide analytics capabilities. We work with other software companies to implement Carriots Analytics in their applications focused on vertical domains where these companies have deep experience and customer relationships.

Direct and indirect sales channels

Direct sales channels More than 90% of our 2016 software revenue was generated through our direct global sales force. Our direct sales force is responsible for developing new customers, ensuring high recurring rates from our existing customers, and expanding the use of Altair and partner products within customers' environments through continuous training, support, and consulting engagements. Each of our field sales professionals are supported by technical specialists with deep knowledge of our products and the broader product development domain. We believe this approach differentiates Altair from our competitors, as our focus on establishing a strong working relationship with the user community has led to expanded usage of Altair and partner products.

Our direct sales force is organized by geographic regions, consisting of Americas, EMEA, and APAC. As of June 30, 2017, we had over 900 field employees consisting of over 135 account managers, approximately 80 administrative support people, and over 700 application engineers and technical consultants in 68 offices in 24 countries.

Indirect sales channels More than 9% of our 2016 software revenue was generated through our growing network of indirect channel partners and resellers. These companies are central to Altair's software sales growth strategy by expanding our market reach to small and medium-sized customers. We ended 2016 with approximately 300 reseller and OEM relationships, including over 180 solidThinking resellers, primarily added in the last three years, and over 120 HyperWorks and Altair PBS resellers and OEMs. We are increasing our use of indirect channels in an effort to address a broader set of customers in consumer products, electronics, energy and other industries and expect the share of indirect channel sales to increase in the coming years.

To enable concept engineering driven by simulation we make our physics solvers more accessible to designers, who may be technical and not expert in simulation, by wrapping them in powerful, yet simple interfaces. In addition to being available under the HyperWorks suite, these products are sold through resellers worldwide under the solidThinking brand.

solidThinking is sold by over 180 resellers worldwide. The solidThinking resellers in the Americas and EMEA are managed by the solidThinking corporate team, while in APAC these resellers are managed by Altair field offices. This channel is relatively new and beginning to produce meaningful results.

We have OEM arrangements for Altair PBS Works with most of the major HPC hardware companies when they sell new computer systems. We believe these arrangements reduce competition, grow our market share and improve sales efficiency.

Carriots is sold and supported by resellers and implementation consultants in markets where they are strong and have vertical domain expertise outside of Altair's traditional manufacturing base. In addition to being available under HyperWorks, Carriots Analytics goes to market through OEM and strategic relationships worldwide including third party software companies seeking to embed analytics capabilities into their applications. We have established several key alliances in the utility and smart building controls markets.

Marketing

Altair's global marketing team of approximately 65 people is focused on generating new business opportunities by driving awareness, deepening customer engagement, and developing content specific to technical fields and industry verticals. Our corporate marketing programs include social media, earned media, and publications including Concept to Reality magazine, blogs, white papers and case studies. Our regional marketing program supports working relationships with our user community through education, participation in local industry events, Altair technical conferences, and webinars.

We provide marketing support to our ecosystem of resellers and third party technology partners on both a corporate and regional level.

In 2016 our online activities included:

- 230,000 resource library video views;
- 25,000 self-service training sessions;
- 18,500 webinar registrations;
- 30,000 software downloads;
- 1.9 million website visitors; and
- 63,000 social media followers.

Approximately 6,500 customers and prospects attended Altair's user conferences in 2016.

In order to continue to drive growth and extend our market position, we intend to continue to invest significant resources into our marketing initiatives.

Software products

Altair's software products, available under our HyperWorks, solidThinking, Altair PBS, and Carriots suites, represent a comprehensive, open architecture CAE simulation platform. We believe our products offer the industry's broadest set of technologies to design and optimize high performance, efficient, and innovative products. Our products are categorized by:

- Solvers & Optimization;
- Modeling & Visualization;
- Industrial & Concept Design;
- IoT; and
- HPC.

Solvers & optimization

Solvers are mathematical software "engines" that use advanced computational algorithms to predict physical performance. Optimization leverages solvers to derive the most efficient solutions to meet desired complex multi-objective requirements.

Altair's solvers are a comprehensive set of fast, scalable and reliable physics solvers that can solve complex problems in linear and non-linear mechanics, fluid dynamics, electromagnetics, motion, systems and manufacturing simulation.

Altair's optimization technology is a key differentiator and spans our product offering. Our focus on optimization combined with multiphysics and multi-domain simulation has changed product development, and we believe customers using our technologies can gain a sustainable competitive advantage by developing better products in less time.

OptiStruct® Our flagship solver for structural analysis simulation and optimization for linear and nonlinear events under static and dynamic loadings. Winner of Industry Week's Technology of the Year award in 1994, OptiStruct is widely used in industry for topology, shape, size, and composite material optimization.

Car frame designed with topology optimization to maximize performance and minimize weight

Nonlinear analysis of rubber shift boot to ensure durability

RADIOSS® Crashworthiness, safety, and impact solver for non-linear problems under transient, dynamic loadings. RADIOSS is highly scalable, and contains multi-physics solution capabilities for the most complex mechanical events, including fluid-structure interaction, composite failure and crack propagation.

Airplane ditching simulation demonstrating structural integrity through a water landing

Crash, safety, and impact simulation

AcuSolve® Computational Fluid Dynamics (CFD) solver with a full range of simulations including flow, heat transfer, turbulence, and non-Newtonian materials. Highly accurate and scalable solutions, even on fully unstructured meshes, provide fast and accurate solutions for both transient and steady-state solutions.

Rail car pressure field and streamlines from drag-reduction simulation

Architectural aerodynamics

FEKO® Comprehensive electromagnetics, or EM, solver used widely in telecommunications, automobile, space and defense industries. With a particular strength in the high frequency domain, FEKO uses multiple frequency and time domain techniques for efficient analysis of a broad spectrum of EM problems, and designed to solve problems such as antenna placement and investigation of electromagnetic compatibility.

EM simulation of corrugated horn antenna to ensure total system performance

Simulation to assist in the design of integrated vehicle radar

Quantification of radiation emission patterns from mobile device in proximity to a user

Flux™ Finite element solver for low-frequency EM and thermal simulations, including those required for electric motor design. Flux features extended multiparametric analysis capabilities, and electrical circuit and kinematic couplings, with applications ranging from rotating machinery and linear actuators to induction heating processes.

Flux density simulation of an induction machine to optimize electric motor performance

Rotating machine model

Electric field lines on a conductor to analyze performance

WinProp™ Wave propagation and radio network planning suite, with applications ranging from satellite to terrestrial. Accurate with short computation times, WinProp's broad capabilities provide wireless planning guidance in rural/urban, indoor/outdoor, underground, moving vehicle and many other environments.

Radio network propagation analysis for interconnected vehicles

Urban area multi-floor building wave propagation analysis

Network coverage analysis based on urban buildings and topography

ESAComp™ Software for design and analysis of composites, ranging from conceptual and preliminary design of layered composite structures to advanced analyses for final design verification. The comprehensive material database in ESAComp underpins its capabilities for micromechanical and solid/sandwich laminate analyses. It also includes analysis tools for structural elements including flat and curved panels, stiffened panels, beams and columns, and bonded and mechanical joints. ESAComp's capabilities for early design of composites are complementary to the composite capabilities of OptiStruct and Multiscale Designer.

Multiscale Designer™ Design tool for simulating composite and other multi-scale materials. Applications include the modeling of continuous, woven, or chopped fiber composites, honeycomb cores, reinforced concrete, soil, bones, and various other heterogeneous materials.

Multiscale modeling of carbon fiber composites

Low velocity impact simulation of composite material

HyperStudy® Design exploration and multi-disciplinary optimization software for improving product performance, quality and robustness. HyperStudy's simple interface and powerful tools for design of experiments, approximation and optimization methods allow creation of intelligent design variants, manage simulation runs, and collect the data necessary to gain design insight and make product improvement decisions.

Power tool cooling fan optimization

Bottle optimization for increased performance and reduced mass

MotionSolve® Multi-body systems solver for analyzing and optimizing mechanical system performance. MotionSolve solves the equations of motion using kinematic, dynamic, static, quasi-static, and other analysis methods for applications including vehicle suspension systems, aerial vehicle dynamics, robotics and general machinery mechanisms.

Vehicle durability simulation

Unmanned Aerial Vehicle (UAV) performance analysis

Modeling & visualization

Modeling & visualization tools allow for advanced physics attributes to be modeled and rendered on top of object geometry in high fidelity. These tools are becoming more design-centric and relevant earlier in the development process.

HyperMesh ® A market leader in high-fidelity CAE modeling, able to handle large and complex models and manage the modeling process from import of CAD geometry to exporting a ready-to-run solver input file. HyperMesh provides engineers a highly interactive and visual environment, a complete set of meshing, assembly, and model setup tools, and a broad set of direct interfaces to third party commercial CAD and CAE systems.

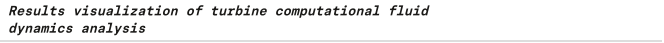
Bottom view of a full car finite element mesh

Aerospace engine meshing

Highly complex finite element model for a nuclear reactor

HyperView ® High-performance post-processing and visualization environment for CAE and test data. HyperView is a solution for visualizing, correlating and interrogating large models and sets of data from finite element analysis, multi-body system simulations, digital video, and engineering test data.

Cross section cuts for crash simulation animation



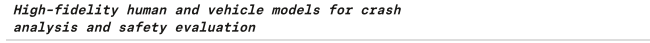
Results visualization of turbine computational fluid dynamics analysis

SimLab ® Process oriented finite element modeling software especially suited for complex solid element modeling. SimLab uses process automation of simulation modeling tasks to reduce time spent and human errors in creating finite element models of complicated 3D assemblies such as automotive engines and braking systems.

Full system vehicle suspension finite element mesh

Meshed vehicle transmission housing

HyperCrash® Pre-processing technology for automotive crash analysis and safety simulation. HyperCrash provides safety engineers a dedicated virtual workflow to automate the creation of high-fidelity crash simulation models, including tools for dummy modeling and positioning, airbag folding and seat belt routing.



High-fidelity human and vehicle models for crash analysis and safety evaluation

Dummy positioning and airbag folding performance

MotionView® A multi-body systems modeling environment with parametric capabilities to build, analyze, and improve mechanical system designs. MotionView is designed as an end-to-end solution with an intuitive user interface, hierarchical, parametric and flexible-body modeling capabilities, and an open architecture for interfacing with MotionSolve or other third party motion and finite element simulation products.

Excavator arm flexbody simulation

Automotive front suspension simulation

HyperGraph® A data analysis and plotting tool with interfaces to many file formats. Plotting and analyzing data in an environment made for demanding scenarios, HyperGraph allows users to graph, visualize, and study massive data sets and process even the most complex mathematical expressions.

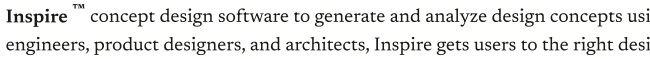
Visualization of mathematical "raindrop" plot

Colormap plot for modal participation analysis

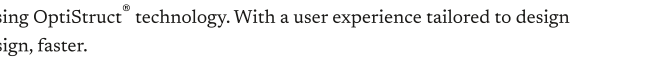
Industrial & concept design

Industrial & concept design tools that generate early concepts to address requirements for ergonomics, aesthetics, performance, and manufacturing feasibility. These tools are simulation-driven and, we believe, emerging as a market force eclipsing traditional CAD.

Inspire ™ concept design software to generate and analyze design concepts using OptiStruct® technology. With a user experience tailored to design engineers, product designers, and architects, Inspire gets users to the right design, faster.

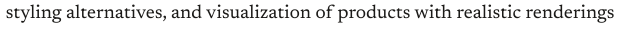


Robot arm designed and optimized using Inspire



Optimized and 3D printed metal aerospace bracket

Evolve ™ An Industrial Design tool for fast form generation, manipulation and rendering. Evolve enables the capture of an initial sketch, exploration of styling alternatives, and visualization of products with realistic renderings generated in real time.



Goggles concept design



Mars rover concept design

Thea Render™ A fast and versatile rendering software with unbiased, biased and GPU engines and its own advanced studio. Thea Render offers light simulation and a powerful material system using physically-based models for outstanding image quality.



Digitally rendered conservatory

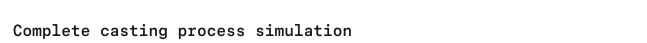
by Massimo Siracusa



Digitally rendered watch

by Patrick Nieborg

Click2Cast® Casting process simulation software for efficient mold design and process development. The five step interface in Click2Cast lets users identify and correct any filling and solidification issues early in the manufacturing process to avoid typical defects of air entrapment, shrinkage porosity and cold shuts.



Complete casting process simulation

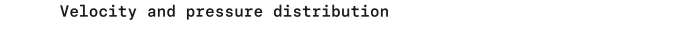
in five steps

Fast and accurate casting defect prediction

Click2Extrude™ A metal and polymer extrusion simulation environment to validate and optimize extrusion die designs and processes. Click2Extrude helps extrusion companies produce complex profiles with tight tolerances, quality surface finishes, and high strength at reduced cost.

Extrusion simulation to visualize, predict,

and prevent defects



Velocity and pressure distribution

in a spiral extrusion die

Click2Form™ An industry-proven sheet metal forming simulation tool to optimize development of stamped products. Click2Form offers a solution for managing the entire stamping simulation process, including robust modules for cost and feasibility, parametric die design, process validation, results visualization and die structure optimization.

Early stamping process feasibility

Stamping analysis visualization

IoT

Tools to develop new IoT enabled products, including device and data management, system level and full 3D digital twin simulation, and exploration, predictive analysis, optimization, and visualization of in-service performance. We expect our tools for multidisciplinary simulation and development to become increasingly important for product design. Our software is used to design and optimize IoT devices and connectivity, and for modeling in-service product performance.

We believe Altair's math and systems solutions are unique for their openness, usability, and ability to provide signal-based and physical modeling from "0D" to "3D" all within our units-based subscription licensing model. A truly simulation-driven design process means that simulation models support decision making in each stage of the product development process. To support this, models need to be multidisciplinary and may include mechanics, electrical and electronics, and software among other technical elements, and must encompass a scope of products ranging from components to IoT-enabled "systems of systems". Varying degrees of fidelity aid the process where computational requirements or data availability might otherwise prove to be obstacles.

We believe a key strength to Altair's math and systems solutions is allowing development organizations to move seamlessly in this multi-discipline, multi-component, multi-detail space while integrating models from various authoring tools. With a broad range of multi-physics solvers based on an open-system approach, a strong set of model reduction techniques can be employed toward IoT-enabled product development which can then be carried forward into device management and application development on the Carriots platform.

Carriots™ is an end-to-end and open architecture IoT platform that helps customers enable their products to communicate via numerous standard protocols, perform device and data management, visualize and analyze big data, develop applications, and perform digital twin simulations. It complements Altair's other product suites to provide a comprehensive solution for customers to design and implement IoT enabled products, optimize product performance and manufacturing throughput, predict failure, and schedule maintenance operations for in-service equipment. The solution is designed with Altair's open philosophy to facilitate seamless integration of its platform elements within customer enterprises to share data and communicate with multiple ERP, simulation and communication systems.

Carriots IoT Platform

Carriots Analytics™ Cloud-based analytics platform focused on IoT and big data for hosted and on-premises environments to simplify data visualization, exploration, and analysis. Architected for an optimized self-service user experience, Carriots Analytics speeds up data visualization, exploration and discovery.

Interactive reports and dashboards



Interactive maps with drill down capability

Modeliis™ Electronic Design Automation, or EDA, software for circuit modeling, system design and simulation geared towards the Internet of Things, or IoT, autonomous vehicles, and complex hybrid systems. The software simulates C-code behavior for various chips and include a very high-performance SPICE circuit simulator.

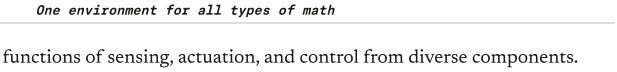
Modeliis Simulation Environment

Compose™ A numerical computing environment for science and engineering, including a high level matrix-based numerical computing language and an interactive and unified programming environment for all types of math operations. Engineers, scientists, and product creators can perform numerical computations, develop algorithms, perform signal analysis, design control systems, and analyze and visualize data in Compose.

A numerical computing environment for

science and engineering

One environment for all types of math



Activate™ Model-based development of multidisciplinary systems incorporating functions of sensing, actuation, and control from diverse components. Activate's block diagram modeling environment empowers users to build demonstrations of how real world systems function and quickly explore new concepts without the need to build prototypes.

Modeling, design, and optimization

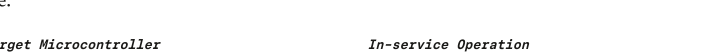
of multi-disciplinary systems

Block diagram for virtual and physical

electromechanical system development

Embed™ A visual environment for model-based development of embedded control systems. Embed allows users to quickly develop virtual prototypes of dynamic systems. Embed features Software-in-the-Loop, Processor-in-the-Loop, and Hardware-in-the-Loop simulations, and automatically converts the control diagrams into C-code to be downloaded to the target hardware.

solidThinking Embed on PC (Host)



Target Microcontroller

In-service Operation

High-performance computing

HPC software applications designed to streamline the workflow management of compute-intensive tasks including solvers, optimization, modeling, visualization and analytics in fields such as PLM, weather modeling, bio-informatics and electronic design analysis.

Altair's HPC offerings support engineers and scientists across a wide range of industries including automotive, aerospace, academia, energy, electronic design automation, defense, and weather. Altair PBS Works is our secure workload management suite to improve HPC performance and reliability in on-premise, cloud, and hybrid environments.

Our simulation technology users are moving to ever-larger models to achieve higher-fidelity results for more realistic simulations. As these models are computationally intensive, they require special equipment and cloud access for deeper design exploration and optimization. We believe HPC addresses the performance needs of our users and is critical to companies and research organizations working on complex, simulation-intensive design problems.

Altair PBS Works™ HPC workload management suite designed to improve resource utilization and ROI with policy-based job scheduling, user-friendly portals for job submission and remote visualization, and deep analytics and reporting with the following suite highlights:

- **Altair® PBS Professional®** Workload management and job scheduling systems software available in both open source and commercial licensing.

Compute Manager simplifies HPC for end users' job interactions

Workload management to optimize resource usage

- **Altair PBS Cloud™** A platform to create, provision, manage, monitor, simulate and analyze HPC appliances on any cloud infrastructure (private, hybrid and public). It allows real-time monitoring for preventive maintenance in a single command center interface.

Altair PBS Cloud interface ***Crash simulation enabled by Altair PBS Cloud***

- **Altair PBS Access™** A portal for engineers and researchers to access, monitor and manage batch and interactive jobs, including remote 3D visualization on HPC resources.

Altair PBS Access user interface

- **Runtime** Runtime complements Altair's PBS Works suite of products for comprehensive, secure workload management for HPC and cloud environments and has solutions to manage highly complex workflows. We believe both Runtime and PBS Works deliver innovative and mission critical technology to optimize the use of HPC for compute-intensive applications. PBS Works targets product design, weather prediction, oil exploration and bio-informatics, and Runtime primarily serves customers in EDA.

- **NetworkComputer™** An enterprise grade job scheduler designed for distributed HPC environments. A highly adaptable solution, it is capable of managing compute infrastructures from small dedicated server farms to complex distributed HPC environments.

- **WorkloadXelerator™** A high-performance workload specific scheduler, WorkloadXelerator is architected to off-load the base scheduler, enabling greater throughput, better license and resource utilization, and more flexible scheduler usage models. WorkloadXelerator is designed to work with multiple third party schedulers.

- **FlowTracer™** An advanced platform for developing and executing flows. FlowTracer's "Runtime Tracing" technique analyzes flows, identifies dependencies and inherent parallelism built into today's complex flows optimizing use of compute resources. FlowTracer's powerful user interface provides users with flow visualization and troubleshooting capabilities for greater productivity.

- **LicenseAllocator™** Enables the sharing of software licenses among multiple job scheduling servers spread across multiple geographical sites and/or business units enabling increased software license utilization. We believe LicenseAllocator achieves maximized license utilization by following the fundamental rules of "following the demand", "gradual license migration", and "license sharing according to policies".

- **LicenseMonitor™** A software license-tracking tool providing current and historical software license utilization for multi-site environments. Software license availability and usage statistics are gathered and displayed in real-time via a rich graphical user interface. Current and historical usage data provides information for accurate planning and license cost optimization.

- **HERO™** Hardware Emulation Resource Optimizer Designed specifically for hardware emulation environments, HERO is an end-to-end solution. HERO seeks to address addresses all aspects of emulation flow including: design compilation, emulator selection, and software and regressions tests. A vendor independent solution, HERO is capable of managing job-scheduling requirements of multiple EDA product families.

Altair Partner Alliance

The Altair Partner Alliance provides access to a broad spectrum of complementary software products using customers' existing HyperWorks Units. They can download and use partner product applications on-demand. This constantly growing portfolio extends their simulation and design capabilities to help create better products faster.

Software products in the APA include technologies ranging from computational fluid dynamics and fatigue to manufacturing process simulation and cost estimation, with applications specific to industry-verticals including marine, motorcycles, aerospace, chemicals, and architecture. Altair plans to continue to add valuable third party software solutions to the HyperWorks platform to empower innovation with comprehensive enterprise analytic tools.

We believe the Altair Partner Alliance is unique, because it:

- Allows customers access to non-Altair software with their existing HyperWorks Units;

- Provides customers an opportunity to reduce infrastructure and administrative costs;

- Gives customers the ability to quickly evaluate and deploy software on-demand;
- Provides partners who participate with a new channel for software distribution with shorter sales cycles due to established relationships and infrastructures; and
- Incorporates a new paradigm, where Altair shares software royalties with our partners based on actual customer usage reports.

Example of Altair Partner Alliance products

Software related services

To ensure customer success and deepen our relationships with them, we engage with our customers to provide services related to our software including consulting, training, and implementation services, especially when applying optimization. We provide clients with technical services throughout their entire product development lifecycle including design, engineering, and development. Altair's headquarters includes an industrial design studio, a prototype shop, and test facilities. We have expertise designing and working with controls, power electronics, traditional and composite structures, and total system level development in the automotive, aerospace, consumer products and other markets.

Implementation and custom software services are available to help customers leverage their investment in Altair's software to streamline CAE workflows and solve specialized industry vertical engineering problems. We work closely with our clients to increase organizational efficiency and decision making by tailoring these solutions to a client's own environment and processes.

We believe the unique combination of our broad industry domain knowledge and software expertise has enabled Altair to enhance and replace customers' legacy applications, integrate our software applications with client business systems, develop clean-sheet designs or custom software solutions, and transform their product development processes.

Client engineering services

Altair provides Client Engineering Services, to support our customers with long-term ongoing product design and development expertise. This has the benefit of embedding us within customers, deepening our understanding of their processes, and allowing us to more quickly perceive trends in the overall market. Our presence at our customers' sites helps us to better tailor our software products' R&D and sales initiatives.

We operate our CES business by hiring engineers for placement at a customer site for specific customer-directed assignments. We employ and pay the engineers only for the duration of the placement.

We concentrate on placing simulation specialists, industrial designers, design engineers, materials experts, development and test engineers, manufacturing engineers and information technology specialists. As a leader in the simulation market, Altair attracts high caliber talent from around the world. CES is focused on placements that align strategically with customer usage of our software. We have a strong recruiting operation with over ten sourcing specialists who identify, attract, vet, and hire technical professionals for our in-house and customer needs. We maintain a candidate database of over 80,000 highly qualified engineers and designers. Our CES candidates and placed employees are valuable sources of talent acquisition for Altair's other business segments.

The average CES assignment was 1.8 years during the period from 2011-2016, with current average length of service for all CES employees at 2.4 years. As of December 31, 2016 44% of CES employees were in their assignments for over two years.

Research and development

Our research and development efforts are focused on enhancing the functionality, breadth and scalability of our software, addressing new use cases, and developing additional innovative simulation technologies. Timely development of new products is essential to maintaining our competitive position, and we release new versions of our software on a regular basis.

Customer feedback, combined with our roadmap, enables us to deliver long-term value and stay ahead of market trends. The majority of product enhancements and new capabilities added to our platform over the years have been developed internally, with acquisitions used to augment our capabilities with strategic technology.

Our research and development initiatives foster a culture of innovation within the organization, helping us attract and retain a highly motivated team. Altair's research and development team consists of approximately 840 people worldwide. Most of our research and development team is based in Michigan and India; however, we also maintain research and development centers with specific technical expertise (for example, Stellenbosch, South Africa for electromagnetics).

Since Altair's first commercial software release in 1990, there have been over 35 new software products brought to market under the HyperWorks, solidThinking, and Altair PBS Works brands.

From time-to-time, we incubate related technologies developed by our employees. For example, as a result of an internal initiative, we developed and patented next-generation solid-state lighting technology. We commercialized this technology under our toggled subsidiary, which generated $6.0 million in revenue in the twelve-month period ending December 31, 2016. WEYV, a mobile application that brings our patented units-based business model to digital content distribution and delivery, is expected to be released commercially.

Our research and development efforts relating to our software focus on five areas:

- ***Solvers & Optimization:*** Solvers are mathematical software "engines" that use advanced computational algorithms to simulate physics. Altair initially specialized in structural simulation, and now continuously develops our portfolio of solvers to simulate fluid dynamics, high and low frequency electromagnetics, mechanical systems, electronic controls and more. Altair also invests to "couple" our solvers to simulate multiple physics domains simultaneously, and is considered a world leader in the development of optimization technology, which drives solvers to find solutions to complex multi-objective design problems. R&D is also conducted to leverage high-performance computing technology for these compute intensive applications. Solver and optimization development is conducted by researchers with advanced degrees in engineering, physics, computer science and mathematics.

- ***Modeling & Visualization:*** The graphical applications used to construct and visualize simulation models require continuous R&D in the areas of data structures, computational methods, graphics, geometric modeling, mesh generation, and user interface design. Altair's modeling tools are becoming more design-centric and are adopting some of the capabilities of traditional CAD while leveraging simulation and optimization technology to drive design decisions rather than just simulate designs. Specific areas of R&D include handling large scale models of highly detailed and complex products, developing new methods to derive design geometry from optimizations, and unifying the modeling environment for multi-physics simulation. Adapting modeling and visualization technology for cloud deployment is also an area of active development as is supporting virtual and augmented reality hardware.

- ***Industrial & Concept Design:*** Simulation-driven design requires tools to generate early concepts addressing requirements for ergonomics, aesthetics, performance, and manufacturing feasibility. These tools are simulation-driven, and we believe, emerging as a market force eclipsing traditional CAD. We believe Inspire is key to the democratization of simulation capabilities across large groups of designers and engineers who are not simulation specialists. Significant investment continues toward making the Inspire environment capable of providing most early design stage simulation needs. We expect to further integrate the visualization capabilities of Evolve and Thea Render across Altair's product suites. The development teams for Industrial & Concept Design products include deep experience with industrial design processes and manufacturing methods.

- ***IoT:*** The Internet of Things requires tools to enable development of products that sense, collect, and communicate information. Our IoT toolsets perform device and data management, system level and full 3D digital twin simulation, and allow exploration, predictive analysis, optimization, and visualization of in-service performance. Carriots, including our cloud data analytics technology, makes our tools for multidisciplinary simulation and development increasingly important for product design and in-service operating data. Designed for visualizing and exploring large data sets, we are currently enhancing Carriots to facilitate deployment of analytics apps by third party developers and linked to IoT stacks.

Compose, Activate, and Embed support product development for the IoT through a math-based programming environment, multidisciplinary system modeling, and control system development and are an important ongoing research and development effort. We support our own high level matrix-based numerical computing language, as well as Python and Tcl, in an interactive programming environment for all types of math operations. We expect to add more language and library support, broaden the math libraries, and integrate these products more deeply with Altair's other software.

- ***HPC:*** Altair's acquisition and development of HPC software complements our compute intensive simulation and optimization technology. While investments continue in the core workload management technology, new areas of R&D include innovative workload simulation and resource optimization, a cloud-based user interface

to facilitate the deployment and administration of HPC clusters, and the development of new web-based job submission, monitoring and management tools. The HPC development teams work closely with the modeling and visualization teams and IoT Analytics teams to ensure that Altair's overall technology portfolio interoperates effectively and shares a common infrastructure and user experience.

In order to maintain and extend our technology leadership and competitive position, we intend to continue devoting significant effort to our research and development activities.

Customers

As of December 31, 2016, we had tens of thousands of users across approximately 5,000 customers worldwide. Our customers are primarily large manufacturing enterprises. We have a growing presence in small and mid-size companies and compete in markets beyond manufacturing including Architecture/Engineering/Construction, or AEC, energy, life and earth sciences, and government entities. In 2016, we generated 38%, 32% and 30% of our total billings from customers in the Americas, APAC, and EMEA, respectively. None of our customers accounted for more than 10% of our 2016 billings. See the section entitled "Selected historical consolidated financial and other data—Key metrics."

Automotive and aerospace combined account for over 50% of our 2016 software billings, including 15 out of 15 of the world's leading automotive manufacturers and 10 out of 10 of the world's leading aerospace manufacturers. Other important industry segments include heavy machinery, rail and ship design, energy, government, life and earth sciences, and consumer electronics. No single customer, nor any of our approximately 300 resellers and OEMS, accounted for more than 3% of our 2016 software billings.

Customer Case Studies

Robot Bike Company: *Developing a Fully Customizable, Additively Manufactured Mountain Bike* Robot Bike Company is a new startup established in the United Kingdom by aerospace engineers and mountain biking enthusiasts who identified the potential of combining additive manufacturing technologies with carbon fiber to, in their own words, "create the best bike frames possible." Robot Bike Company wanted to use additive manufacturing technologies to create a very high end mountain bike that could be built to order and tailored to an individual's weight, height and riding style, all within acceptable delivery timescales and manufacturing costs.

Weight is a concern for bike manufacturers as heavier bikes take more energy to move, a fact that is particularly notable for off-road bikes where the rider must power the bike over a wide variety of terrain, including steep inclines. When developing a bike however, the reduction of weight must not negatively impact the strength of the frame as this will have an obvious detrimental effect on the 'feel' of the bike, a difficult attribute to design for in engineering terms but a crucial one when riders come to a buying decision.

"Altair has assisted Robot Bike Co. to further reduce the weight of our frame whilst also ensuring that stresses are kept below a pre-determined maximum. This has allowed us to provide a life-time warranty and give our customers confidence that the product will be enduring", said a representative of Robot Bike Co.

Boeing: *Altair PBS Professional at The Boeing Company: Workflow Management for R&D* The Boeing Information Technology group provides a wide range of computing services to the entire corporation from its Bellevue, Washington computing campus. For the engineers who design Boeing commercial aircraft, the heartbeat of this campus is the Data Center, which houses the HPC systems that they access to run engineering simulations and analyses.

The HPC systems of the enterprise servers subgroup are accessed by all Boeing engineering departments, but the heaviest demand is from engineers running aerodynamics and structural models, particularly during the early stages of aircraft design. Most users log on from Boeing's four engineering and development locations around Puget Sound, but the servers are accessed by Boeing engineers in Philadelphia and other sites around the world.

"We rely on our batch scheduling system for adopting and managing queuing policies, and that's what Altair PBS Professional is all about. When we add clusters, we will continue to use more Altair PBS Professional", said a representative of Boeing.

University of Stellenbosch: *The SKA Radio Telescope: a Global Project for a Better Understanding of the Universe* Challenging Einstein's seminal theory of relativity to the limits, how the very first stars and galaxies formed just after the Big Bang, the study of dark energy and the vast magnetic fields in the cosmos, and the age old question "Are we alone in the Universe?" These are some of the key scientific goals of the Square Kilometer Array, or SKA, project, led by the SKA Organization from Jodrell Bank Observatory in the United Kingdom, supported by 11 member countries—South Africa, Australia, Canada, China, Germany, India, Italy, New Zealand, Sweden, The Netherlands and the United Kingdom.

The SKA will be a collection of various types of antennas, ranging from large dish reflectors to aperture antennas. Spread over large distances, they work together as an interferometric array to provide higher resolution images of astronomical objects. When completed, the SKA will be 10,000 times faster and 50 times more sensitive than any existing radio telescope. It will be constructed in two phases: Phase 1 (SKA1) is estimated to be completed in 2023 and is being built in South Africa and Australia; Phase 2 (SKA2) will be started after SKA1 and will take the project into other African countries, with the Australian component also being expanded. For Phase 1 the 64-dish MeerKAT precursor array, which is currently under construction and expected to come online in a few years' time, will be integrated into SKA1 MID, with the construction of another 190 dishes.

"FEKO modelling on the Cape Town CHPC has been pivotal in our RFI mitigation research. We have successfully validated dish scale models with measurement and continue to use FEKO to study EM induced current paths and provide RFI mitigation recommendations to SKA South Africa." said a representative of University of Stellenbosch, South Africa.

Philips: *Personal Care / Personal Health* Royal Philips, Founded in 1891 in The Netherlands, is one of the largest electronics companies in the world employing over 105,000 individuals in over 100 countries. It is a leading health technology company with a keen focus on improving people's health. This spans from healthy living, to diagnosis, treatment, and home care. Philips puts strong emphasis on leveraging the latest in technology, design, and deep consumer insights when developing each of the products in its broad portfolio. The company is a leader in diagnostic imaging, image-guided therapy, patient monitoring and health informatics, as well as consumer health and home care.

"As a designer, we are always under pressure to deliver results in a short period of time. Evolve has been a big advantage for me over other conceptual CAD packages," said a Philips representative.

Competition

The market for CAE software is highly fragmented but has been undergoing significant consolidation. Our primary competitors include Dassault Systèmes, Siemens, Ansys and MSC Software. Dassault and Siemens are large public companies, with significant financial resources, which have historically focused on CAD and product data management. More recently, these two companies have been investing in simulation software via acquisitions. Ansys and MSC are focused on CAE. In addition to these competitors, we compete with many smaller companies offering CAE software applications.

We believe the breadth and depth of Altair's software offering is unique in the PLM industry. We also believe no single competitor addresses our entire solution set. Our integrated suite of software optimizes design performance across multiple disciplines encompassing structures (including crashworthiness and safety), motion, fluids, thermal management, electromagnetics, system modeling and embedded systems, while also providing data analytics and true-to-life visualization and rendering. The HyperWorks Units model further extends this advantage with a growing APA marketplace of third party software.

Our simulation solutions including modeling, visualization and solvers are noted in the market for their ability to handle large and complex models. Our software applications deliver high-performance and high scalability, including massive parallelization, which is extremely important in the CAE market. Altair is a leader in integrating optimization technology across all our products including multi-disciplinary applications.

To ensure customer success and deepen our relationships with them, we engage with our customers to provide consulting, implementation services, training, and support, especially when applying optimization. We believe these services, combined with our ability to leverage HPC as the industry transitions to cloud computing, positions us for future success.

We compete on a variety of factors including the breadth, depth, performance, and quality of our technical solutions. We believe our patented units-based subscription licensing model provides us with a competitive advantage by lowering barriers to adoption, creating broad engagement, and encouraging users to work within our ecosystem.

Intellectual property

We believe that our intellectual property rights are valuable and important to our business. We actively protect our investment in technology through establishment and enforcement of intellectual property rights. We protect our intellectual property through a combination of patent, copyright, trademark and trade secret protections, confidentiality procedures, and contractual provisions. The nature and extent of legal protection associated with each such intellectual property right depends on, among other things, the type of intellectual property right and the given jurisdiction in which such right arises.

As of December 31, 2016, we, inclusive of our wholly-owned subsidiaries, have 136 issued patents and more than 20 published patent applications worldwide. These patents and patent applications seek to protect proprietary inventions relevant to our business. We intend to pursue additional patent protection to the extent we believe it would be beneficial and cost effective. Additionally we are the registered holder of a variety of trademarks and domain

names that include “Altair” and similar variations.

Nonetheless, our intellectual property rights may not be successfully asserted in the future or may be invalidated, circumvented or challenged. In addition, the laws and enforcement of the laws of various countries where our products are distributed do not protect our intellectual property rights to the same extent as United States laws. Our inability to assert or enforce our intellectual property rights could harm our business.

From time to time, we receive claims alleging infringement of a third party’s intellectual property rights, including patents. Disputes involving our intellectual property rights or those of another party have in the past and may in the future lead to, among other things, costly litigation, diversion of time, money and resources to develop or obtain non-infringing products, or delay product distribution. Any significant impairment of our core intellectual property rights could harm our business or our ability to compete.

Our products are licensed to users pursuant to signed license agreements or ‘click through’ agreements containing restrictions on use, duplication, disclosure, and transfer. Cloud based products and associated services are provided to users pursuant to online or signed terms of service agreements containing appropriate restrictions on access and use.

We are unable to measure the full extent to which piracy of our software products exists. We believe, however, that software piracy is and can be expected to be a persistent problem that negatively impacts our revenue and financial results. We believe that our predominant subscription based business model combined with the change from desktop to cloud based computing will shift the incentives and means by which software is pirated.

In addition, through various licensing arrangements, we receive certain rights to intellectual property of others. We expect to maintain current licensing arrangements and to secure additional licensing arrangements in the future, as needed and to the extent available on reasonable terms and conditions, to support continued development and sales of our products and services. Some of these licensing arrangements require or may require royalty payments and other licensing fees. The amount of these payments and fees may depend on various factors, including but not limited to: the structure of royalty payments, offsetting considerations, if any, and the degree of use of the licensed technology.

Employees

We have over 2,000 in-house employees and over 400 on-site Client Engineering Service employees globally. Over two-thirds of our employees are located in the United States, India, France, Germany and China. None of our employees in the United States are represented by a labor organization or are party to any collective bargaining arrangement. In certain of the European countries in which we operate, we are subject to, and comply with, local labor law requirements in relation to the establishment of works councils. We are often required to consult and seek the consent or advice of these works councils. We have never experienced a work stoppage and we believe our employee relations are good.

Facilities

Our corporate headquarters are located in Troy, Michigan. We own our corporate headquarters facility consisting of 132,900 square feet of office space. In addition, we maintain 16 domestic offices some of which are subject to master leases or subleases with multiyear lease terms in Alabama, California, Massachusetts, New York, Texas, Virginia, Washington, and Wisconsin. We maintain offices in Arizona and North Carolina which are leased under annual lease terms.

In 2016, we acquired an undeveloped parcel of land adjacent to our headquarters, which we expect to develop over the next few years. In 2010, we acquired 136,000 square feet of industrial space in Troy, Michigan that is now used as the headquarters of our wholly-owned subsidiary toggled.

We maintain 52 international offices in Australia, Austria, Brazil, Canada, China, Finland, France, Germany, Greece, India, Israel, Italy, Japan, Malaysia, Mexico, South Africa, South Korea, Spain, Sweden, Taiwan, the United Kingdom and Vietnam. We lease all of our international facilities and do not own any real property outside of the United States. We expect to add facilities as we grow our employee base and expand geographically. We believe that our facilities are adequate to meet our needs for the immediate future, and that, should it be needed, suitable additional space will be available to accommodate expansion of our operations.

Legal and regulatory

Legal proceedings

From time to time, we may be subject to legal proceedings and claims in the ordinary course of business. We have received, and may in the future continue to receive, claims from third parties asserting, among other things, infringement of their intellectual property rights. Future litigation may be necessary to defend ourselves, our partners and our customers by determining the scope, enforceability and validity of third party proprietary rights, or to establish and enforce our proprietary rights. The results of any current or future litigation cannot be predicted with certainty and regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

Litigation

On July 5, 2007, MSC Software Corporation, or MSC, filed a lawsuit against us and certain of our named employees in the United States District Court for the Eastern District of Michigan, asserting, among other things, that we and certain of our employees misappropriated alleged trade secrets that certain of our employees breached contractual non-solicitation and confidentiality obligations owed to MSC and that we tortiously interfered with MSC’s contractual relations with these employees. In April 2014, a jury returned a $26.1 million verdict against us on three trade secrets claims and a tortious interference claim as well as against certain of our employees for breach of contractual obligations to MSC. In November 2014, this verdict was partially vacated except for damages of $425,000 related to the employment matters, and the Court ordered a new trial on damages for the trade secrets claims. No trial date is scheduled. On August 21, 2017, the court granted Altair’s motion to strike the testimony of MSC’s damage expert. The court has not provided guidance on how the case will proceed. We cannot be certain of the outcome of this matter.

We can express no opinion regarding the ultimate resolution of this matter. Litigation is inherently uncertain, and any judgment or injunctive relief entered against us or any adverse settlement could negatively affect our business, results of operations and financial condition.

Management

Management

Executive officers and directors

The following table sets forth information regarding our executive officers and directors as of September 25, 2017.

Name	Age	Position
Executive Officers and Directors:		
James R. Scapa	60	Chairman, Chief Executive Officer and Director
Brett Chouinard	52	President
Howard N. Morof	57	Chief Financial Officer
Massimo Fariello	55	Chief Strategy Officer
James P. Dagg		Chief Technical Officer, Modeling/Visualization
Dr. Uwe Schramm	59	Chief Technical Officer, Solvers/Optimization
Srikanth Mahalingam	46	Chief Technical Officer, HPC/Cloud Solutions
Jeffrey M. Brennan		Chief Marketing Officer
Martin Nichols	54	Chief Information Officer
Tom M. Perring	68	Chief Administrative Officer
Nelson Dias	50	Chief Revenue Officer
James E. Brancheau	66	Director
Non-Employee Directors		
Steve Earhart[(1)(2)]	69	Director
Jan Kowal[(1)(2)(3)]	64	Director
Trace Harris[(2)(3)]	52	Director
Richard Hart[(1)(3)]	53	Director

(1) Member of our audit committee

(2) Member of our compensation committee

(3) Member of our nominating and corporate governance committee

Executive officers and directors

James R. Scapa co-founded our company and has served as Chairman of our board of directors and our chief executive officer since 1992. Prior to his role as our chief executive officer, Mr. Scapa served as secretary and treasurer since our inception in 1985. Mr. Scapa holds a bachelor's degree in mechanical engineering from Columbia University and a masters of business administration from the University of Michigan. We believe that the perspective and experience that Mr. Scapa brings as our chief executive officer and founder uniquely qualifies him to serve as the Chairman of our board of directors.

Brett Chouinard was recently named President, effective January 1, 2018, after serving as our chief operating officer since January 2010. Prior to his role as our chief operating officer, Mr. Chouinard served in various roles with us since 1994. Prior to joining us, Mr. Chouinard worked as an engineer at GE Aircraft, a subsidiary of General Electric, Inc. specializing in aircraft engines.

Mr. Chouinard holds a bachelor's degree in mechanical engineering from Michigan Technological University and a master's degree in mechanical engineering from the University of Cincinnati.

Howard N. Morof has served as our chief financial officer since February 2013. Mr. Morof also served as a member of our board of directors from February 2011 to February 2013. Prior to joining us, Mr. Morof served as chief financial officer of North American Bancard, LLC, an independent merchant and credit card processing company, from February 2008 to February 2013. Mr. Morof is a certified public accountant and holds a master's degree in taxation from Walsh College and a bachelor's degree in business administration from the University of Michigan.

Massimo Fariello has served as our chief strategy officer since January 2015. Prior to this role, Mr. Fariello served as our senior vice president of corporate development from April 2013 to December 2014 and prior to that, as our senior vice president of software technology alliances and strategies from July 2011 to March 2013. Mr. Fariello received his master's degree in automotive engineering from the Polytechnic University of Turin, Italy.

James P. Dagg has served as our chief technical officer of modeling and visualization since January 2014. Prior to this role, Mr. Dagg served as the vice president from May 2008 to December 2013 of our wholly-owned subsidiary solidThinking, Inc. Mr. Dagg holds a bachelor's degree in mechanical engineering and a master's degree in applied mechanics from the University of Michigan.

Dr. Uwe Schramm has served as our chief technical officer of solvers and optimization since January 2014. Prior to this role, Dr. Schramm served as managing director of Altair GmbH, our wholly-owned German subsidiary, from September 2011 to December 2013. Dr. Schramm holds a master's degree and a doctorate degree in solid mechanics from the University of Rostock in Rostock, Germany.

Srikanth Mahalingam has served as our chief technical officer for HPC and cloud solutions since January 2014. Prior to this role, Mr. Mahalingam was a senior vice president at Altair from July 2011 to November 2013 and a vice president from January 2008 to June 2011 at Altair. Mr. Mahalingam holds a bachelor's degree in computer science and engineering from Gulbarga University in Gulbarga, India and an executive masters of business administration from the Indian School of Business in Hyderabad, India.

Jeffrey M. Brennan has served as our chief marketing officer since January 2010. Prior to this role, Mr. Brennan served as vice president of the HyperWorks business unit from January 2002 to January 2010. Mr. Brennan joined the Company in June 1, 1992 as an engineering consultant. Mr. Brennan holds a bachelor's degree in mechanical engineering from the University of Notre Dame and a master's degree in mechanical engineering from the University of Michigan.

Martin Nichols has served as our chief information officer since July 2011. Prior to this role, Mr. Nichols served as our executive vice president of global alliances and operations from January 2010 to June 2011. Mr. Nichols joined the Company in July 1992 as a technical support engineer. Mr. Nichols holds a bachelor's degree in mechanical engineering from the University of Michigan.

Tom M. Perring has served as our chief administrative officer since July 2011. Prior to this role, Mr. Perring served as our chief financial officer from January 2000 to April 2007 and January 2010 to July 2011. Mr. Perring joined Altair in 1993 as an account manager. Mr. Perring holds a bachelor's degree and master's degree in physics from Oakland University in Rochester, Michigan and a master of business administration degree from the University of Michigan.

Nelson Dias was recently named Chief Revenue Officer, effective January 1, 2018, after serving as our Senior VP–Asia Pacific since 2006. Prior to running Altair's APAC region, Mr. Dias was Managing Director of Altair India from 2002-2005. He has over 28 years of technical sales and management experience. Mr. Dias holds a Bachelor of Engineering in Computer Science from the University of Mumbai.

James E. Brancheau has served as a member of our board of directors since October 2004 and was a member of our compensation committee from January to December 2016. Mr. Brancheau also serves as a member of the board of our wholly-owned subsidiary, Altair Engineering Ltd. (Japan), since February 2010. Mr. Brancheau has been providing engineering services to us on a part-time basis since January 2014. Mr. Brancheau previously served as our chief technical officer from January 2005 to December 2013, when he assumed a consulting role for the Company. Mr. Brancheau joined us in 1988 as a consultant. Mr. Brancheau holds a bachelor's degree in mechanical engineering from the University of Detroit. We believe Mr. Brancheau is qualified to serve as a member of our board of directors because of his more than 40 years of experience in engineering, software development and technical management. Mr. Brancheau has a deep understanding of the technology, culture and operations of the Company.

`Non-employee directors`

Steve Earhart has served as a member of our board of directors since May 2011. Mr. Earhart is the chair of our audit committee, a position he has held since January 2016, and a member of our compensation committee, a position he has held since January 2015. Mr. Earhart served as chief financial officer of World Kitchen, LLC, a branded consumer products company, from April 2012 to January 2017. From December 2007 to June 2010, Mr. Earhart served as executive vice president and chief financial officer of Torex Retail Holdings, Ltd., a retail software provider based in the United Kingdom. Mr. Earhart is a certified public accountant and holds a bachelor's degree in business and accounting from the University of Illinois and master's degree in business administration from the University of Wisconsin. We believe Mr. Earhart is qualified to serve on our board of directors because of his significant corporate finance, operational and business experience gained from holding senior executive positions at both publicly-traded and private technology and consumer companies.

Jan Kowal has served as a member of our board of directors since July 2013. Mr. Kowal is a member of our compensation committee, a role he has held since January 2016, our audit committee, a role he has held since January 2017 and a member of our nominating and corporate governance committee, a position he has held since April, 2017. Mr. Kowal served as a consultant to Brose Fahrzeugteile GmbH & Co., an international automotive parts supplier based in Germany, and its affiliates in the United States and Europe from May 2015 to May 2017. Mr. Kowal served as the chairman of Brose Fahrzeugteile's American subsidiary Brose North America, Inc. from August 2012 to May 2015 and as its president and chief executive officer prior to that. Mr. Kowal served on the board of directors of Original Equipment Supplier Association from 2008 to 2013 and served as the chairman of the board in 2012. Mr. Kowal holds a master's degree in mechanical engineering from Charmers University of Technology in Goteborg, Sweden. We believe Mr. Kowal is qualified to serve on our board of directors because of his substantial international business experience and deep familiarity with the automotive industry.

Trace Harris has served as a member of our board of directors since August 2016. Ms. Harris is the chair of our compensation committee a role she has held since January 2017 and a member of our nominating and corporate governance committee, a role she has held since April 2017. Ms. Harris currently serves as the chief financial officer of A-List Services, LLC, an educational services provider, a position she has held since January 2017. From December 2014 to December 2016, Ms. Harris was a principal at T-Harris LLC, a media and education consulting firm. Prior to that, Ms. Harris spent 13 years, from September 2001 to November 2014, working in various roles at Vivendi S.A., most recently serving as senior vice president, strategy, finance and business innovation. Ms. Harris holds a bachelor's degree in economics from Stanford University and a master's degree in business administration with a concentration in finance from the Yale School of Management. We believe Ms. Harris is qualified to serve on our board of directors because of her significant corporate finance, operational and business experience.

Richard Hart has served as a member of our board of directors since April 2017. Mr. Hart is the chair of our corporate governance committee, and a member of our audit committee, roles he has held since April 2017.

Mr. Hart currently serves as the chief financial officer of Guidewire Software, Inc., a publicly-traded software publishing company, a position he has held since March 2015. Mr. Hart also serves as a member of the board of directors of Wonolo, Inc., a private on-demand labor and workforce staffing platform business, a position he has held since February 2016. Mr. Hart was a managing director at Deutsche Bank from May 2004 through November 2013. Mr. Hart holds a bachelor's degree in physics from the University of Pennsylvania and a juris doctorate degree from the New York University School of Law. We believe Mr. Hart is qualified to serve on our board of directors because of his significant corporate finance, legal and business experience.

Selection of officers

Our executive officers serve at the discretion of our board of directors. There are no familial relationships among our directors and executive officers.

Board composition

Our board of directors currently consists of six members. Following the completion of this offering, our Delaware certificate of incorporation and Delaware bylaws will provide for a classified board of directors, with each director serving a staggered, three-year term. As a result, only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. The terms of the directors will expire upon the election and qualification of successor directors at the annual meeting of stockholders to be held during 2018 for the Class I directors, 2019 for the Class II directors and 2020 for the Class III directors. Our directors will be divided among the three classes as follows:

- the Class I directors will be James Brancheau and Jan Kowal and their terms will expire at the annual meeting of stockholders to be held in 2018;
- the Class II directors will be Richard Hart and Trace Harris and their terms will expire at the annual meeting of stockholders to be held in 2019; and
- the Class III directors will be James R. Scapa and Steve Earhart and their term will expire at the annual meeting of stockholders to be held in 2020.

Upon expiration of the term of a class of directors, directors for that class will be elected for three-year terms at the annual meeting of stockholders in the year in which that term expires. Each director's term shall continue until the election and qualification of his or her successor, or the director's earlier death, resignation or removal. Any additional directorships resulting from an increase in the number of authorized directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors.

The division of our board of directors into three classes with staggered three-year terms may delay or prevent a change of our management or a change of control. Under Delaware law and our Delaware certificate of incorporation, for so long as our board of directors is divided into classes, our directors may be removed for cause by the affirmative vote of the holders of at least 66 $^{2}/_{3}$% of our voting stock.

Director independence

Under the rules of the Nasdaq Global Select Market, independent directors must comprise a majority of a listed company's board of directors within a specified period of the completion of an initial public offering. In addition, the rules of the Nasdaq Global Select Market require that, subject to specified exceptions, each member of a listed company's audit, compensation and nominating and corporate governance committees be independent. Under the rules of the Nasdaq Global Select Market, a director will only qualify as an "independent director" if, in the opinion of that company's board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. Compensation committee members must not have a relationship with us that is material to the director's ability to be independent from management in connection with the duties of a compensation committee member. Additionally, audit committee members must also satisfy the independence criteria set forth in Rule 10A-3 under the Exchange Act.

In order to be considered independent for purposes of Rule 10A-3, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors or any other board committee accept, directly or indirectly, any consulting, advisory or other compensatory fee from the listed company or any of its subsidiaries or be an affiliated person of the listed company or any of its subsidiaries.

Our board of directors has undertaken a review of the independence of each director. Based on information provided by each director concerning his background, employment and affiliations, our board of directors determined that Messrs. Earhart, Hart and Kowal and Ms. Harris do not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that each of these directors is "independent" as that term is defined under the applicable rules and regulations of the SEC and the listing requirements and rules of the Nasdaq Global Select Market. In making these determinations, our board of directors considered the current and prior relationships that each non-employee director has with our company and all other facts and circumstances our board of directors deemed relevant in determining their independence, including the beneficial ownership of our capital stock by each non-employee director, and the transactions involving them described in the section titled "Certain relationships and related party transactions."

Committees of the board of directors

Upon completion of this offering our board of directors will have an audit committee, a compensation committee and a nominating and corporate governance committee, each of which will have the composition and responsibilities described below upon completion of this offering. Each committee operates under a written charter that satisfies the applicable rules of the SEC and the listing standards of the Nasdaq Global Select Market. Members serve on these committees until their resignation or until otherwise determined by our board of directors.

Audit committee

Our audit committee is comprised of Messrs. Earhart, Kowal and Hart, each of whom is a non-employee member of our board of directors. Mr. Earhart is the chair of our audit committee. Our board of directors has determined that each of the members of our audit committee satisfies the requirements for independence and financial literacy under the rules and regulations of the Nasdaq Global Select Market and the SEC. Our board of directors has also determined that Mr. Earhart qualifies as an "audit committee financial expert" as defined in the SEC rules and satisfies the financial sophistication requirements of the Nasdaq Global Select Market. The audit committee is responsible for, among other things:

- selecting and hiring our independent registered public accounting firm;
- evaluating the performance and independence of our independent registered public accounting firm;
- approving the audit and pre-approving any non-audit services to be performed by our independent registered public accounting firm;
- reviewing our financial statements and related disclosures and reviewing our critical accounting policies and practices;
- reviewing the adequacy and effectiveness of our internal control policies and procedures and our disclosure controls and procedures;
- overseeing procedures for the treatment of complaints on accounting, internal accounting controls or audit matters;
- reviewing and discussing with management and the independent registered public accounting firm the results of our annual audit, our quarterly financial statements and our publicly filed reports;
- reviewing and approving in advance any proposed related-person transactions; and
- preparing the audit committee report that the SEC requires in our annual proxy statement.

Compensation committee

Our compensation committee is comprised of Ms. Harris and Messrs. Earhart and Kowal, each of whom is a non-employee member of our board of directors. Ms. Harris is the chair of our compensation committee. Our board of directors has determined that each member of our compensation committee meets the requirements for independence under the rules of the Nasdaq Global Select Market and the SEC, is a "non-employee director" within the meaning of Rule 16b-3 under the Exchange Act, and is an "outside director" within the meaning of Section 162(m) of the Code. The compensation committee is responsible for, among other things.

- reviewing and approving our president and chief executive officer's and other executive officers' annual base salaries, incentive compensation plans, including the specific goals and amounts, equity compensation, employment agreements, severance arrangements and change in control agreements and any other benefits, compensation or arrangements;
- administering our equity compensation plans;
- overseeing our overall compensation philosophy, compensation plans and benefits programs; and
- preparing the compensation committee report that the SEC will require in our annual proxy statement.

Nominating and corporate governance committee

Our nominating and corporate governance committee is comprised of Ms. Harris, Messrs Hart and Kowal each of whom is a non-employee member of our board of directors. Mr. Hart is the chair of our nominating and corporate governance committee. Our board of directors has determined that each member of our nominating and corporate governance committee meets the requirements for independence under the rules of the Nasdaq Global Select Market. The nominating and corporate governance committee will be responsible for, among other things:

- evaluating and making recommendations regarding the composition, organization and governance of our board of directors and its committees;
- evaluating and making recommendations regarding the creation of additional committees or the change in mandate or dissolution of committees;
- developing and monitoring a set of corporate governance guidelines and compliance with laws and regulations; and
- reviewing and approving conflicts of interest of our directors and officers, other than related-person transactions reviewed by the audit committee.

We intend to post the charters of our audit, compensation and nominating and corporate governance committees, and any amendments thereto that may be adopted from time to time, on our website. Information on or that can be accessed through our website is not part of this prospectus. Our board of directors may from time to time establish other committees.

Code of business conduct and ethics

Prior to the completion of this offering, we will adopt a code of business conduct and ethics that is applicable to all of our employees, officers and directors. The full text of our code of business conduct and ethics will be available on our website at www.altair.com. We intend to post any amendment to our code of business conduct and ethics, and any waivers of such code for executive officers and directors, on our website. Information on or that can be accessed through our website is not part of this prospectus.

Compensation committee interlocks and insider participation

No member of our compensation committee is or has been an officer or employee of our company. None of our executive officers currently serves, or during fiscal 2016 has served, as a member of the compensation committee or director (or other board committee performing equivalent functions or, in the absence of any such committee, the entire board of directors) of any entity that has one or more executive officers serving on our compensation committee or our board of directors.

Mr. Scapa, the chairman of our board of directors and our founder and chief executive officer owns more than 5% of our capital stock. Please see the section entitled "Certain relationships and related-party transactions."

Director compensation

The table below shows the total compensation paid to or earned by each of our directors who are not executive officers during fiscal 2016 for service on our board of directors. Directors who are not executive officers receive a fee of $20,000 for attending meetings of our board of directors and performing any related service as a director. No director has another arrangement with respect to cash fees. Directors are also eligible for awards under our 2012 Plan. Directors who are executive officers do not receive any additional compensation for their service on our board of directors. We reimburse our directors who are not executive officers for their reasonable out-of-pocket costs and travel expenses in connection with their attendance at board of directors and committee meetings.

Name	Fees earned or paid in cash($)	Option awards ($)(1)(2)	All other compensation ($)	Total ($)
James E. Brancheau	20,000	–	23,025 [3]	43,025
Stephen Earhart	20,000	–	–	20,000
Trace Harris[4]	10,000	33,050	–	43,050
Jan Kowal	20,000	–	–	20,000
Richard Hart[5]	–	–	–	–
Marc. F. McMorris[6]	20,000	–	–	20,000
Oren Michels[7]	10,000	33,050	–	43,050

(1) The amounts in this column represent the aggregate grant date fair value of option awards granted to the directors in 2016, computed in accordance with FASB ASC Topic 718. For a discussion of the assumptions made in determining the grant date fair value of our equity awards, see Note 11 to our audited financial statements included elsewhere in this prospectus.

(2) Giving effect to the Recapitalization as if it had occurred on December 31, 2016, as of that date Mr. Brancheau held unexercised options to purchase 792 shares of our Class A common stock, Ms. Harris held unexercised options to purchase 5,000 shares of our Class A common stock, Mr. Kowal held unexercised options to purchase 5,000 shares of our Class A common stock, Mr. McMorris held unexercised options to purchase 5,000 shares of our Class A common stock, and Mr. Michels held unexercised options to purchase 5,000 shares of our Class A common stock.

(3) Reflects consulting fees paid to Mr. Brancheau for engineering services provided to us. Mr. Brancheau provides these engineering consulting services at a rate of $150 per hour.

(4) Ms. Harris joined our board of directors on August 16, 2016.

(5) Mr. Hart joined our board of directors on April 1, 2017.

(6) Mr. McMorris resigned from our board of directors on December 31, 2016.

(7) Mr. Michels resigned from our board of directors on January 5, 2017.

Executive compensation

Executive compensation Our named executive officers, for the fiscal year ended December 31, 2016, who consisted of our chief executive officer and our two most highly compensated executive officers for such year other than our chief executive officer, were:

- James R. Scapa, our Chief Executive Officer and Chairman;
- Howard N. Morof, our Chief Financial Officer; and

- Massimo Fariello, our Chief Strategy Officer.

2016 Summary compensation table

The following table provides information regarding the total compensation for services rendered in all capacities earned by our named executive officers for the fiscal year ended December 31, 2016.

Name and principal position	Year	Salary ($)	Option awards($)[1]	Bonus ($)	Nonequity incentive plancompensation($)	All other compensation($)	Total ($)
James R. Scapa,	2016	809,000	—	310,000	—	11,330 [2][3]	1,130,330
Chief Executive Officer and Chairman							
Howard N. Morof,	2016	335,000	5,489	—	125,901 [4]	9,200 [2][5]	475,590
Chief Financial Officer							
Massimo Fariello,	2016	—	5,392	—	—	459,694 [7]	465,086
Chief Strategy Officer[6]							

(1) The amounts in this column represent the aggregate grant date fair value of option awards granted to the named executive officer computed in accordance with FASB ASC Topic 718. For a discussion of the assumptions made in determining the grant date fair value of our equity awards, see Note 11 to our audited financial statements included elsewhere in this prospectus.

(2) Includes a 401(k) matching contribution made by us under a matching program available to all participating employees.

(3) Includes an annual automobile allowance of $9,330.

(4) Amounts for Mr. Morof were paid pursuant to our Executive Bonus Pool, described under the heading "Executive compensation—Employee benefit and equity compensation plans—Executive bonus pool." Payments under our Executive Bonus Pool are based on achievement of company financial targets and individual performance targets. Fifty percent (50%) of Mr. Morof's target bonus was paid in equal monthly installments during the year, and the remainder was paid after final bonus amounts were determined in March 2017.

(5) Includes an automobile allowance of $600 per month.

(6) Mr. Fariello provides consulting services to us through Advanced Studies Holding Future, Srl, an Italian entity controlled by Mr. Fariello which we refer to as AShF. Fiscal year 2016 compensation was payable pursuant to an unwritten arrangement, which was subsequently memorialized by a written agreement effective as of January 1, 2017, as subsequently amended effective as of January 1, 2017, described below under the heading "Executive compensation—Executive employment and service agreements and change in control arrangements—AShF, Srl consulting agreement." His compensation is payable to AShF in euros.

(7) Compensation includes (i) base consulting fees, (ii) participation in our Executive Bonus Pool, described under the heading "Executive compensation—Employee benefit and equity compensation plans—Executive bonus pool," and (iii) special payments equal to fifty percent (50%) of the sum of each base consulting fee and each bonus payment. For 2016, compensation included (i) base consulting fees of $221,380, (ii) target bonus payments of $85,083, and (iii) special payments of $153,231. Sixty percent (60%) of the bonus payments were paid in monthly installments during the year, and the remainder was paid after final bonus amounts were determined in March 2017. Special payments are made at the time of payment of the base consulting and bonus payments. The average exchange rate we used for fiscal year 2016 was €1.00 to $1.1069 based on a publicly published exchange rate by an independent third party.

Executive employment and service agreements and change in control arrangements

James Scapa

Mr. Scapa is not party to an employment agreement or offer letter with the Company. Mr. Scapa's employment with the Company is at-will. His current base salary is $830,000, and he is eligible for a target bonus of $350,000 for fiscal 2017 in the discretion of our compensation committee. In addition, he receives an annual automobile allowance in the amount of $9,330. He is also eligible to earn a matching contribution to our 401(k) Plan as determined annually by us.

Howard N. Morof employment letter

We entered into an employment letter with Howard N. Morof, our chief financial officer, on January 10, 2013, which was subsequently amended and restated on July 19, 2017, to among other things, reflect his current compensation and to add language to address provisions of Section 409A of the Code. The employment letter has an indefinite term, and Mr. Morof's employment is at-will. Mr. Morof's current annual base salary is $340,000. In addition, he is entitled to an automobile allowance of $600 per month, and he is currently eligible to earn annual incentive compensation with a target bonus equal to $135,000, payable from our Executive Bonus Pool applicable to other members of our senior executive team. He is also eligible to earn a matching contribution to our 401(k) Plan as determined annually by us.

If Mr. Morof resigns from employment for good reason, or is terminated without cause, he is entitled to 12 months of base salary plus any accrued annual bonus and a prorated annual bonus for the year of termination. He is also entitled to continued participation in our employee benefit programs, as if still employed as chief financial officer, during that 12 month period.

Pursuant to Mr. Morof's employment letter, if Mr. Morof is involuntarily terminated for any reason other than cause or voluntarily terminates his employment for good reason within the one month prior to, or twelve months following, a change in control (as defined in our 2012 Plan) Mr. Morof will also be entitled to a one-time special bonus equal to $500,000, payable in full within three business days following such termination.

For purposes of Mr. Morof's employment letter, "cause" means the occurrence of any of the following:

- a felony conviction or admission of guilt (other than as relates to a misdemeanor motor vehicle accident);
- any material (i) willful, intentional, or deliberate neglect of Mr. Morof's proper responsibilities, or (ii) non-compliance by Mr. Morof with the lawful and reasonable orders or directions of our chief executive officer and/or our board of directors;
- participation in a fraud or act of dishonesty against us; or
- other material non-compliance with our policies or guidelines generally applicable to our C-level executives that results in substantial injury to us.

For purposes of Mr. Morof's employment letter, "good reason" means the occurrence of any of the following:

- a material diminution in Mr. Morof's duties or responsibilities or the assignment to Mr. Morof of duties that are materially inconsistent with his duties as our chief financial officer;
- any material reduction in Mr. Morof's compensation and benefit opportunities, unless applied in a substantially equal or pro rata fashion across our C-level executives; or
- the requirement to relocate Mr. Morof's principal place of employment more than 30 miles from our Troy, Michigan offices.

Mr. Morof is required to provide written notice of any such good reason condition and we shall have 30 days from receipt of such written notice to remedy such condition.

AShF, Srl consulting agreement

We entered into a consulting agreement with AShF, a Società a Responsabilità Limitata incorporated under the laws of Italy, which is effective as of January 1, 2017 and was subsequently amended effective as of January 1, 2017. AShF is wholly-owned by our chief strategy officer, Massimo Fariello, and Mr. Fariello serves as chief executive officer of AShF.

Under the consulting agreement, AShF agreed to make available Mr. Fariello to provide services to us, and Mr. Fariello would be located in Torino, Italy. The consulting agreement will continue for a one year initial term that is projected to end December 31, 2017, and is renewed automatically for additional successive terms of one year each, except that either we or AShF may terminate the agreement at any time upon sixty days prior written notice to the other party.

AShF's compensation includes (i) base consulting fees, which are currently €205,000 per year, (ii) participation in our Executive Bonus Pool, the terms of which are described below under the heading "Executive compensation—Employee benefit and equity compensation plans—Executive bonus pool" with an annual target bonus equal to €85,000 and (iii) a special payment equal to fifty percent (50%) of each base consulting fee payment and each target bonus payment. In addition, we reimburse AShF for actual out-of-pocket expenses incurred in furtherance of AShF's performance of services, plus travel expenses, other than vehicle expenses for travel by car within Italy.

Benefits upon termination or change in control

Each of Messrs. Morof and Fariello are party to certain stock option agreements with us which provide that if such individual's employment is terminated by us for any reason other than cause or by the named executive officer voluntarily for good reason (each as defined in our 2012 Plan) within one month prior to or within 12 months following a change in control (as defined in our 2012 Plan), all unvested options shall vest in full.

Mr. Morof's employment letter also provides for certain severance benefits, the terms of which are described above under the heading "Executive compensation—Executive employment and service agreements and change in control arrangements—Howard N. Morof employment letter."

Outstanding equity awards at fiscal year end 2016

The following table sets forth information regarding outstanding equity awards held by our named executive officers as of December 31, 2016. All references to our Class A shares herein refer to our currently existing Class A shares following the Recapitalization.

			Option awards			
Name	Grant date		Number of securitiesunderlyingunexercisedoptions (#)exercisable	Number of securitiesunderlyingunexercisedoptions (#)unexercisable	Option exerciseprice ($)	Option expirationdate
James R. Scapa	7/1/2010	(1)	433,749	—	2.56	6/30/2020
Howard N. Morof	8/6/2013	(2)	97,230	42,500	9.91	8/5/2023
	12/15/2014	(3)	433	432	15.15	12/14/2024
	12/17/2015	(4)	189	567	15.35	12/16/2025
	5/17/2016	(5)	—	968	14.57	5/16/2026
Massimo Fariello	7/1/2010	(1)	15,000	—	2.56	6/30/2020
	12/21/2012	(6)	200	—	9.91	11/20/2022
	12/15/2014	(7)	396	396	15.15	12/14/2024

	12/17/2015 (8)	204	609	15.35	12/16/2025
	5/17/2016 (9)	—	951	14.57	5/16/2026

(1) All of the Class A shares subject to the option were fully vested as of July 1, 2010.

(2) All of the Class A shares subject to the option were fully vested as of August 6, 2017.

(3) One-fourth of the Class A shares subject to the option vested on each of December 15, 2015, and December 15, 2016, and one-fourth of the Class A shares subject to the option are scheduled to vest on each of the next two anniversaries of December 15th thereafter, in each case, subject to continued employment with us.

(4) One-fourth of the Class A shares subject to the option vested on December 17, 2016, and one-fourth of the Class A shares subject to the option are scheduled to vest on each of the next three anniversaries of December 17th thereafter, in each case, subject to continued employment with us.

(5) One-fourth of the Class A shares subject to the option vested on May 17, 2017, and one-fourth of the Class A shares subject to the option are scheduled to vest on each of the next three anniversaries of May 17th thereafter, in each case, subject to continued employment with us.

(6) All of the Class A shares subject to the option were fully vested as of December 21, 2016.

(7) One-fourth of the Class A shares subject to the option vested on each of December 15, 2015, and December 15, 2016, and one-fourth of the Class A shares subject to the option are scheduled to vest on each of the next two anniversaries of December 15th thereafter, in each case, subject to continued service with us.

(8) One-fourth of the Class A shares subject to the option vested on December 17, 2016, and one-fourth of the Class A shares subject to the option are scheduled to vest on each of the next three anniversaries of December 17th thereafter, in each case, subject to continued service with us.

(9) One-fourth of the Class A shares subject to the option vested on May 17, 2017, and one-fourth of the Class A shares subject to the option are scheduled to vest on each of the next three anniversaries of May 17th thereafter, in each case, subject to continued service with us.

See the section entitled “Executive compensation—Benefits upon termination or change in control” for a description of vesting acceleration applicable to stock options held by our named executive officers.

Employee benefit and equity compensation plans

The equity incentive plans described in this section are our 2017 Equity Incentive Plan, or our 2017 Plan, which we intend to adopt prior to the completion of this offering, our 2012 Plan, our 2001 NQSO Plan, and our 2001 ISO and NQSO Plan. Prior to the Recapitalization, each of our 2012 Plan, 2001 NQSO Plan, and 2001 ISO and NQSO Plan provided for the grant of shares of our Class B nonvoting common stock. As a result of the Recapitalization, in order to prevent the enlargement of participants’ rights, each of the 2012 Plan, 2001 NQSO Plan, and 2001 ISO and NQSO Plan was amended on April 3, 2017 to provide that the definition of common stock in each such plan, and the shares issuable pursuant to each option agreement entered into thereunder, would mean Class A voting common stock. The following description of each of our equity incentive plans gives effect to the amendment to each plan and each option agreement entered into thereunder to provide for the issuance of Class A voting common stock as if it had occurred on December 31, 2016.

Altair Engineering Inc. 2017 equity incentive plan

On , our board of directors adopted our 2017 Plan, and we expect our 2017 Plan to be approved by our stockholders. Subject to stockholder approval, our 2017 Plan will be effective one business day prior to the effective date of the registration statement of which this prospectus forms a part. Our 2017 Plan will provide for the grant of incentive stock options, within the meaning of Section 422 of the Code, to our employees and any parent and subsidiary corporations’ employees, and for the grant of nonstatutory stock options, stock appreciation rights, restricted stock, restricted stock units, performance units, performance shares, other cash-based awards and other stock-based awards to our employees, directors and consultants and our parent, subsidiary, and affiliate corporations’ employees and consultants.

Authorized shares. shares of our Class A common stock is reserved for issuance under our 2017 Plan. The number of shares available for issuance under our 2017 Plan will also include an annual increase on the first day of each fiscal year beginning in fiscal 2018, equal to the lesser of:

- of the outstanding shares of all classes of common stock as of the last day of our immediately preceding fiscal year; or
- such other amount as our administrator may determine.

Plan administration. Our compensation committee will administer our 2017 Plan. In the case of awards intended to qualify as “performance-based compensation” within the meaning of Section 162(m) of the Code, our committee will consist of two or more “outside directors” within the meaning of Section 162(m) of the Code. In addition, if we determine it is desirable to qualify transactions under our 2017 Plan as exempt under Rule 16b-3 of the Exchange Act, or Rule 16b-3, such transactions will be structured to satisfy the requirements for exemption under Rule 16b-3. Subject to the provisions of our 2017 Plan, the administrator will have the power to administer our 2017 plan, including but not limited to, the power to: (i) determine fair market value; (ii) select service providers to whom awards may be granted under our 2017 Plan; (iii) to determine the number of shares covered by each award granted under our 2017 Plan; (iv) to approve the forms of award agreement for use under our 2017 Plan; (v) to determine the terms and conditions, not inconsistent with the terms of our 2017 Plan, of any award granted thereunder; (vi) to institute and determine the terms and conditions of an exchange program; (vii) to construe and interpret the terms of our 2017 Plan and awards granted thereunder; (viii) to prescribe, amend and rescind rules and regulations relating to our 2017 Plan; (ix) to modify or amend each award; (x) to allow participants to satisfy tax withholding obligation as provided under our 2017 Plan; (xi) to

authorize any person to execute on behalf of the Company any instrument required to effect the grant of an award previously granted by the administrator; (xii) to allow a participant to defer the receipt of the payment of cash or the delivery of shares that would otherwise be due to such participant under an award; and (xiii) to make all other determinations deemed necessary or advisable for administering our 2017 Plan.

Stock options. The exercise price of all options granted under our 2017 Plan must at least be equal to the fair market value of our Class A common stock on the date of grant (110% for incentive stock options granted to 10% stockholders). The term of an incentive stock option may not exceed 10 years (five years for incentive stock options granted to 10% stockholders). After a termination of service, a participant may generally exercise his or her option, to the extent vested for 90 days following a termination (or such other time period as set forth in the option agreement) or twelve months if termination is on account of death or disability. However, in no event may an option be exercised after the expiration of its term.

Restricted stock. Restricted stock awards are grants of shares of our Class A common stock that vest in accordance with terms and conditions established by the administrator. The administrator will determine the number of shares of restricted stock granted to any participant and, subject to the provisions of our 2017 Plan, will determine the terms and conditions of such awards. Recipients of restricted stock awards may have voting and dividend rights with respect to such shares upon grant without regard to vesting. Shares of restricted stock that do not vest are returned to us and again will become available for grant under our 2017 Plan.

Restricted stock units. Subject to the provisions of our 2017 Plan, the administrator will determine the terms and conditions of restricted stock units, including the vesting criteria, which may include accomplishing specified performance criteria or continued service to us, and the form and timing of payment. Notwithstanding the foregoing, the administrator, in its sole discretion, may accelerate the time at which any restrictions will lapse or be removed.

Stock appreciation rights. Stock appreciation rights allow the recipient to receive the appreciation in the fair market value of our Class A common stock between the exercise date and the date of grant. Stock appreciation rights may not have a term exceeding 10 years. After the termination of service of a participant, he or she may exercise his or her stock appreciation right for the period of time stated in his or her stock appreciation right agreement. However, in no event may a stock appreciation right be exercised after the expiration of its term. Subject to the provisions of our 2017 Plan, the administrator determines the other terms of stock appreciation rights, including when such rights become exercisable and whether to pay any increased appreciation in cash or with shares of our Class A common stock, or a combination thereof, except that the per share exercise price for the shares to be issued pursuant to the exercise of a stock appreciation right will be no less than 100% of the fair market value per share on the date of grant.

Performance units and performance shares. Performance units and performance shares are awards that will result in a payment to a participant only if performance goals established by the administrator are achieved or the awards otherwise vest. The administrator will establish organizational or individual performance goals or other vesting criteria in its discretion, which, depending on the extent to which they are met, will determine the number and the value of performance units and performance shares to be paid out to participants. After the grant of a performance unit or performance share, the administrator, in its sole discretion, may reduce or waive any performance criteria or other vesting provisions for such performance unit or performance share. Performance units shall have an initial dollar value established by the administrator prior to the grant date. Performance shares shall have an initial value equal to the fair market value of our Class A common stock on the grant date. The administrator, in its sole discretion, may pay earned performance units or performance shares in the form of cash, in shares or in some combination thereof.

Other cash-based awards and other stock-based awards. Our 2017 Plan provides for the grant of other types of equity-based or equity-related awards. Other cash-based awards and other stock-based awards will be granted in such amounts and subject to such terms and conditions as determined by the administrator, in its sole discretion. These awards may involve the actual transfer of shares of our Class A common stock, or payment in cash or otherwise of amounts based upon the value of shares of our Class A common stock.

Outside directors. Our 2017 Plan provides that all non-employee directors will be eligible to receive all types of awards, except for incentive stock options, under our 2017 Plan. During any fiscal year, a non-employee director may not be granted (i) cash-settled awards with a grant date fair value (determined in accordance with GAAP) of more than $, or (ii) stock-settled awards with a grant date fair value (determined in accordance with GAAP) of more than $.

Non-transferability. Unless the administrator provides otherwise, our 2017 Plan generally will not allow for the transfer of awards and only the recipient of an award may exercise an award during his or her lifetime.

Section 162(m). For awards that are intended to be exempt from the deducibility limit of Section 162(m) of the Code, no participant may receive in any one calendar year options or stock appreciation rights with respect to more than shares of our Class A common stock, or awards that are denominated in shares of our Class A common stock (other than options and stock appreciation rights) relating to more than shares in the aggregate. In addition, the maximum cash amount payable to any participant in any one calendar year of the Company with respect to awards (other than options and stock appreciation rights) that are intended to be exempt from the deductibility limit of Section 162(m) of the Code is $.

Certain adjustments. In the event of certain changes in our capitalization, to prevent diminution or enlargement of the benefits or potential benefits available under our 2017 Plan, the administrator will adjust the number and class of shares that may be delivered under our 2017 Plan and the number, class, and price of shares covered by each outstanding award, and the numerical share limits set forth in our 2017 Plan. In the event of our proposed liquidation or dissolution, the administrator will notify participants as soon as practicable, and all awards will terminate immediately prior to the consummation of such proposed transaction.

Change in control. Our 2017 Plan will provide that in the event of a "merger" or "change in control," as defined under our 2017 Plan, each outstanding award will be treated as the administrator determines, except that if a successor corporation or its parent or subsidiary does not assume or substitute an equivalent award for any outstanding award, then such award will fully vest, all restrictions on such award will lapse, all performance goals or other vesting criteria applicable to such award will be deemed achieved at 100% of target levels, and such award will become fully exercisable, if applicable, for a specified period prior to the transaction. The award will then terminate upon the expiration of the specified period of time.

Amendment; termination. The administrator will have the authority to amend, suspend or terminate our 2017 Plan, provided such action does not impair the existing rights of any participant without his or her consent. Our 2017 Plan will automatically terminate on the tenth anniversary of the date it was adopted by our board of directors, unless terminated earlier pursuant to the terms of our 2017 Plan.

Altair Engineering Inc. 2012 incentive and non-qualified stock option plan

On December 20, 2012, our board of directors adopted, and our stockholders approved, our 2012 Plan, effective as of December 20, 2012.

Authorized shares. 1,300,000 shares of our Class A common stock were reserved for issuance under our 2012 Plan. No options or shares will be available for issuance under our 2012 Plan after this offering. As of December 31, 2016, options to purchase 449,913 shares of our Class A common stock remained outstanding under our 2012 Plan. Our 2012 Plan provides for the grant of incentive stock options and non-qualified stock options to our service providers. Following this offering, our 2012 Plan will continue to govern outstanding awards granted thereunder.

Plan administration. Our board of directors administers our 2012 Plan. Subject to the provisions of our 2012 Plan, the administrator has the power to administer the plan, including but not limited to, the power to: (i) prescribe, amend and rescind rules and regulations relating to our 2012 Plan; (ii) select recipients to receive options; (iii) determine the number of shares subject to options; (iv) determine the terms and form of options; (v) determine whether options will be granted singly, in combination or in tandem with, in replacement of, or as alternatives to other options under our 2012 Plan or any other incentive or compensation plan offered by us; (vi) construe and interpret our 2012 Plan, any option agreement and any other document executed pursuant thereto; (vii) correct any defect or omission, or reconcile any inconsistency in our 2012 Plan, any option or any option agreement; (viii) determine when an option has been earned and/or vested; (ix) accelerate or defer, with the consent of the participant, the vesting of any option; (x) authorize any person on our behalf to execute documents to effectuate the grant of an option as made by our board of directors under our 2012 Plan; (xi) with the consent of any adversely affected participant, effect (A) the reduction of the exercise price of any outstanding option under our 2012 Plan; (B) the cancellation of any outstanding option under our 2012 Plan and the grant in substitution therefor of (1) a new option under our 2012 Plan or another equity plan offered by us covering the same or a different number of shares of our Class A common stock, (2) cash, and/or (3) other valuable consideration as determined by our board of directors in its sole discretion; or (C) any other action that is treated as a repricing under generally accepted accounting principles; (xii) with the consent of any adversely affected participant, otherwise adjust the terms of an option previously issued to such participant; (xiii) determine whether a transaction or event should be treated as a change in control, and if our board of directors determines that a transaction or event shall be a change in control, the effect of that change in control; and (xiv) make all other determinations deemed necessary or advisable for administration of our 2012 Plan. Our board of directors shall have the sole authority to determine the fair market value of our Class A common stock. Our board of directors shall have the authority to grant options to eligible participants who are foreign nationals, without amending our 2012 Plan, provided such grants are not inconsistent with the terms of our 2012 Plan. Our board of directors may make such modifications to the 2012 Plan as are necessary or advisable to comply with the laws of other countries in which we operate or have eligible participants.

Stock options. The exercise price per share of all incentive stock options and non-qualified stock options must be at least 100% of the fair market value per share of our Class A common stock on the date of grant (110% for incentive stock options for 10% stockholders). The term of an option cannot exceed ten years (five years for 10% stockholders). After a termination of service, the participant may generally exercise his or her option, to the extent vested, for 90 days following a termination (or such other time period as set forth in the option agreement) or twelve months if termination is on account of death or disability. However, in no event may an option be exercised later than the expiration of its term.

Non-transferability. Our 2012 Plan generally does not allow for the transfer of options except by the laws of descent and distribution and only the recipient of an option may exercise such an award during his or her lifetime.

Certain adjustments. In the event of certain changes in our capitalization without our receipt of consideration, such as a reorganization, takeover or liquidation, then the number of shares reserved for issuance under our 2012 Plan, the exercise price of and number of shares subject to outstanding options as well as any other factor pertaining to outstanding options shall be proportionally adjusted, subject to action by our board of directors or stockholders and compliance with securities laws.

Reorganization. Notwithstanding any other provision of our 2012 Plan to the contrary, our 2012 Plan provides that in the event of a reorganization, subject to any required action by our stockholders, our board of directors may make any adjustments to (i) the class and/or number of shares covered under our 2012 Plan; (ii) the number of shares for which each outstanding option pertains; (iii) the exercise price of an option; and/or (iv) any other aspect of our 2012 Plan to prevent the dilution or enlargement of the rights of participants under our 2012 Plan in connection with any increase or decrease in the number of issued and outstanding shares of our Class A common stock resulting from the payment of a stock dividend, stock split, reverse stock split, or any other event which results in an increase or decrease in the number of issued and outstanding shares of our Class A common capital stock without receipt of adequate consideration.

Change in control. Unless otherwise set forth in an option agreement, if (i) a change in control occurs (as defined in our 2012 Plan) and (ii) within the one month prior to, or the twelve months following the date of the change in control, a participant's employment is involuntarily terminated without cause or the participant voluntarily terminates for good reason (as such term is defined in our 2012 Plan), then all outstanding options held by such participant shall be fully vested. In addition, our board of directors has discretion to take action with respect to outstanding options in the event of a change in control, including substitution for an equivalent option, assumption or cancellation in exchange for a payment of cash or stock or any combination of cash and stock-based on the price per share received or to be received by our other stockholders in such instance.

Modification, extension and renewal of options. Our board of directors may modify, extend or renew any outstanding options or accept cancellation of an outstanding option in substitution for a new option; however, our board of directors cannot adversely impact any rights or obligations under any previously granted option without the participant's consent.

Amendment; termination. Our board of directors may amend, terminate, suspend, or discontinue our 2012 Plan at any time, provided that no amendment, termination or modification of our 2012 Plan may affect any option previously granted without the participant's consent. Approval by our stockholders is required to (i) increase the number of shares subject to our 2012 Plan; (ii) change the designation of the class of persons eligible to receive options; (iii) increase the maximum duration of an option; (iv) change the manner of determining the exercise price of an option; (v) extend the term of our 2012 Plan; and (vi) amend the amendment and termination provision of our 2012 Plan in a way that defeats its purpose.

Altair Engineering Inc. 2001 non-qualified stock option plan

On October 31, 2001, our board of directors adopted, and our stockholders approved, our 2001 NQSO Plan, effective as of December 1, 2001.

Authorized shares. 3,500,000 shares of our Class A common stock were reserved for issuance under our 2001 NQSO Plan. Under the terms of our 2001 NQSO Plan, no options may be issued after December 31, 2003, and, accordingly, no shares will be available for issuance under our 2001 NQSO Plan after this offering. As of December 31, 2016, options to purchase 1,586,960 shares of our Class A common stock remained outstanding under our 2001 NQSO Plan. Following this offering, our 2001 NQSO Plan will continue to govern outstanding awards granted thereunder.

Plan administration. Our board of directors administers our 2001 NQSO Plan. Subject to the provisions of our 2001 NQSO Plan, the administrator has the power to administer the plan, including but not limited to, the power to: (i) prescribe, amend and rescind rules and regulations relating to our 2001 NQSO Plan; (ii) select recipients to receive options; (iii) determine the number of shares subject to options; (iv) determine the terms and form of options; (v) determine whether options will be granted singly, in combination or in tandem with, in replacement of, or as alternatives to other options under our 2001 NQSO Plan or any other incentive or compensation plan offered by us; (vi) construe and interpret our 2001 NQSO Plan, any option agreement and any other document executed pursuant thereto; (vii) correct any defect or omission, or reconcile any inconsistency in our 2001 NQSO Plan, any option or any option agreement; (viii) determine when an option has been earned; (ix) authorize any person on our behalf to execute documents to effectuate the grant of an option as made by our board of directors under our 2001 NQSO Plan; (x) with the consent of the participant, reprice, cancel and reissue, or otherwise adjust the terms of a previously granted option; and (xi) make all other determinations deemed necessary or advisable for administration of our 2001 NQSO Plan. Our board of directors shall have the sole authority to determine the fair market value of our Class A common stock.

Stock options. Eligibility to receive options under our 2001 NQSO Plan was limited to employees that were then participants in our phantom stock plan. After a termination of service for cause or a voluntary termination, the participant may generally exercise his or her option for three months following such termination (or such other time periods set forth in the option agreement). Absent a termination for cause or a voluntary termination, each option will remain outstanding until the expiration of its term. In no event may an option be exercised later than the expiration of its term.

Non-transferability. Our 2001 NQSO Plan generally does not allow for the transfer of options except by the laws of descent and distribution and only the recipient of an option may exercise such option during his or her lifetime.

Certain adjustments. In the event of certain changes in our capitalization without our receipt of consideration, such as a reorganization, takeover or liquidation, then the number of shares reserved for issuance under our 2001 NQSO Plan, the exercise price of and number of shares subject to outstanding options as well as any other factor pertaining to outstanding options shall be proportionally adjusted, subject to action by our board of directors or stockholders and compliance with securities laws.

Reorganization. Notwithstanding any other provision of our 2001 NQSO Plan to the contrary, our 2001 NQSO Plan provides that in the event of a reorganization, subject to any required action by our stockholders, our board of directors may make any adjustments to: (i) the class and/or number of shares covered under our 2001 NQSO Plan; (ii) the number of shares for which each outstanding option pertains; (iii) the exercise price of an option; and/or (iv) any other aspect of our 2001 NQSO Plan to prevent the dilution or enlargement of the rights of participants under our 2001 NQSO Plan in connection with any increase or decrease in the number of issued and outstanding shares of our Class A common stock resulting from the payment of a stock dividend, stock split, reverse stock split, or any other event which results in an increase or decrease in the number of issued and outstanding shares of our Class A common capital stock without receipt of adequate consideration.

Merger and consolidation. If we are a party to a merger or consolidation as the surviving corporation, each outstanding option shall pertain to the securities of our company to which a holder of the number of shares issued would be entitled, subject to any required action by our stockholders. If we are a party to a merger or consolidation and we are not the surviving corporation, unless the surviving corporation expressly assumes the outstanding options, our board of directors shall exercise reasonable efforts to provide participants advanced notice before the effective date of the transaction to exercise options, subject to any required action by our stockholders.

Modification, extension and renewal of options. Our board of directors may modify, extend or renew any outstanding options or accept cancellation of an outstanding option in substitution for a new option; however, our board of directors cannot adversely impact any rights or obligations under any previously granted option without the participant's consent.

Amendment; termination. Our board of directors may amend, terminate, suspend, or discontinue our 2001 NQSO Plan at any time, provided that no amendment, termination or modification of our 2001 NQSO Plan may affect any option previously granted without the participant's consent. Approval by our stockholders is required to (i) increase the number of shares subject to our 2001 NQSO Plan; (ii) change the designation of the class of persons eligible to receive options; (iii) increase the maximum duration of an option; (iv) change the manner of determining the exercise price of an option; (v) extend the term of our 2001 NQSO Plan; and (vi) amend the amendment and termination provision of our 2001 NQSO Plan in a way that defeats its purpose.

Altair Engineering Inc. 2001 incentive and non-qualified stock option plan

On March 31, 2001, our board of directors adopted, and our stockholders approved, our 2001 ISO and NQSO Plan, effective as of January 31, 2001.

Authorized shares. 1,156,112 shares of our Class A common stock were reserved for issuance under our 2001 ISO and NQSO Plan. No options or shares will be available for issuance under our 2001 ISO and NQSO Plan after this offering. As of December 31, 2016, options to purchase 743,206 shares of our Class A common stock remained outstanding under our 2001 ISO and NQSO Plan. Our 2001 ISO and NQSO Plan provides for the grant of incentive stock

options and non-qualified stock options to our service providers. Following this offering, our 2001 ISO and NQSO Plan will continue to govern outstanding awards granted thereunder.

Plan administration. Our board of directors administers our 2001 ISO and NQSO Plan. Subject to the provisions of our 2001 ISO and NQSO Plan, the administrator has the power to administer the plan, including but not limited to, the power to: (i) prescribe, amend and rescind rules and regulations relating to our 2001 ISO and NQSO Plan; (ii) select recipients to receive options; (iii) determine the number of shares subject to options; (iv) determine the terms and form of options; (v) determine whether options will be granted singly, in combination or in tandem with, in replacement of, or as alternatives to other options under our 2001 ISO and NQSO Plan or any other incentive or compensation plan offered by us; (vi) construe and interpret our 2001 ISO and NQSO Plan, any option agreement and any other document executed pursuant thereto; (vii) correct any defect or omission, or reconcile any inconsistency in our 2001 ISO and NQSO Plan, any option or any option agreement; (viii) determine when an option has been earned and/or vested; (ix) accelerate or defer, with the consent of a participant, the vesting of any option; (x) authorize any person on our behalf to execute documents to effectuate the grant of an option as made by our board of directors under our 2001 ISO and NQSO Plan; (xi) with the consent of the participant, reprice, cancel and reissue, or otherwise adjust the terms of a previously granted option; and (xii) make all other determinations deemed necessary or advisable for administration of our 2001 ISO and NQSO Plan. Our board of directors shall have the sole authority to determine the fair market value of our Class A common stock.

Stock options. The exercise price per share of all incentive stock options must be at least 100% of the fair market value per share of our Class A common stock on the date of grant (110% for 10% stockholders) and the exercise price per share of all non-qualified stock options must be at least 100% of the net book value of our shares on the date of grant. The term of an option cannot exceed ten years (five years for 10% stockholders). After a termination of service, the participant may generally exercise his or her option, to the extent vested, for 90 days following a termination (or such other time period as set forth in the option agreement), or twelve months if termination is on account of death or disability. However, in no event may an option be exercised later than the expiration of its term.

Non-transferability. Our 2001 ISO and NQSO Plan generally does not allow for the transfer of options except by the laws of descent and distribution and only the recipient of an option may exercise his or her option during his or her lifetime.

Certain adjustments. In the event of certain changes in our capitalization without our receipt of consideration, such as a reorganization, takeover or liquidation, then the number of shares reserved for issuance under our 2001 ISO and NQSO Plan, the exercise price of and number of shares subject to outstanding options as well as any other factor pertaining to outstanding options shall be proportionally adjusted, subject to action by our board of directors or stockholders and compliance with securities laws.

Reorganization. Notwithstanding any other provision in our 2001 ISO and NQSO Plan to the contrary, our 2001 ISO and NQSO Plan provides that in the event of a reorganization, subject to any required action by our stockholders, our board of directors may make any adjustments to: (i) the class and/or number of shares covered under our 2001 ISO and NQSO Plan; (ii) the number of shares for which each outstanding option pertains; (iii) the exercise price of an option; and/or (iv) any other aspect of our 2001 ISO and NQSO Plan to prevent the dilution or enlargement of the rights of participants under our 2001 ISO and NQSO Plan in connection with any increase or decrease in the number of issued and outstanding shares of our Class A common stock resulting from the payment of a stock dividend, stock split, reverse stock split, or any other event which results in an increase or decrease in the number of issued and outstanding shares of our Class A common capital stock without receipt of adequate consideration.

Change in control. Unless otherwise set forth in an option agreement, if a change in control occurs (as defined in our 2001 ISO and NQSO Plan) our board of directors has discretion to (i) accelerate the vesting of any outstanding options, or (ii) upon at least ten days' notice to any affected participants, cancel any outstanding options and pay to such participants, in cash or stock, or any combination thereof, the value of such options based upon the price per share of our Class A common stock received or to be received by our other stockholders in the change in control.

Modification, extension and renewal of options. Our board of directors may modify, extend or renew any outstanding options or accept cancellation of outstanding options in substitution for new options; however, our board of directors cannot adversely impact any rights or obligations under any previously granted option without the participant's consent.

Amendment; termination. Our board of directors could amend, terminate, suspend, or discontinue our 2001 ISO and NQSO Plan at any time, provided that no amendment, termination or modification of our 2001 ISO and NQSO Plan could affect any option previously granted without the participant's consent. Approval by our stockholders was required to (i) increase the number of shares subject to our 2001 ISO and NQSO Plan; (ii) change the designation of the class of persons eligible to receive options; (iii) increase the maximum duration of an option; (iv) change the manner of determining the exercise price of an option; (v) extend the term of our 2001 ISO and NQSO Plan; and (vi) amend the amendment and termination provision of our 2001 ISO and NQSO Plan in a way that defeats its purpose. In accordance with the terms of our 2001 ISO and NQSO Plan, our 2001 ISO and NQSO Plan expired in January 2011.

401(k) plan

We maintain a tax-qualified retirement plan, or our 401(k) Plan, that provides eligible employees in the United States with an opportunity to save for retirement on a tax-advantaged basis. Under the terms of our 401(k) Plan, participants are able to defer up to 80% of their eligible compensation subject to applicable annual Internal Revenue Service limits. Participants are immediately and fully vested in their own contributions. Our 401(k) Plan permits us to make discretionary matching contributions and discretionary contributions to eligible participants, subject to five year graded vesting: twenty percent (20%) vests after one year, forty percent (40%) after two years, sixty percent (60%) after three years, eighty percent (80%) after four years and 100% after five years. Our 401(k) Plan has an automatic enrollment feature for all employees hired on or after April 1, 2014, automatically withholding elective deferrals equal to 3% of eligible compensation, unless the participant affirmatively changes the deferral amount.

Executive bonus pool

Each year we establish an annual executive bonus pool, or our Executive Bonus Pool, for (i) our C-level executive officers, excluding our chief executive officer, (ii) employees who report directly to our chief executive officer and (iii) vice presidents in key positions as selected by us. Incentives under our Executive Bonus Pool are based upon each individual's target amount as set and approved by our chief executive officer, multiplied by the achievement of (i) certain company financial targets and (ii) certain individual performance targets. Individuals are paid fifty percent (50%) of their potential bonus under our Executive Bonus Pool in equal monthly installments each year, and any additional earned bonus is paid after final bonus amounts are determined. We retain the right to change or suspend payment of potential bonuses at any time.

Limitation on liability and indemnification matters

Our Delaware certificate of incorporation and bylaws, each to be effective immediately prior to the effectiveness of the registration statement of which this prospectus is a part contain provisions that limit the personal liability of our directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, our directors will not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- any transaction from which the director derived an improper personal benefit.

Our Delaware certificate of incorporation, that will become effective immediately prior to the effectiveness of the registration statement of which this prospectus is a part, provides that we must indemnify our directors to the fullest extent permitted by Delaware law. In addition, our Delaware bylaws, that will become effective immediately prior to the effectiveness of the registration statement of which this prospectus is a part, provide that we must indemnify our directors and officers to the fullest extent permitted by Delaware law. Our Delaware bylaws also provide that we will advance expenses incurred by a director or officer in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity, regardless of whether we would otherwise be permitted to indemnify him or her under the provisions of Delaware law. We plan to enter into and expect to continue to enter into agreements to indemnify our directors, executive officers and other employees as determined by the board of directors. With certain exceptions, these agreements provide for indemnification for related expenses including, among others, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. We also maintain directors' and officers' liability insurance.

The limitation of liability and indemnification provisions in our Delaware certificate of incorporation and bylaws, that will become effective immediately prior to the effectiveness of the registration statement of which this prospectus is a part, may discourage stockholders from bringing a lawsuit against our directors for breach of their fiduciary duty of care. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and other stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions. At present, there is no pending litigation or proceeding involving any of our directors, officers or employees for which indemnification is sought, and we are not aware of any threatened litigation that may result in claims for indemnification.

Certain relationships and related party transactions

Certain relationships and related party transactions In addition to the executive officer and director compensation arrangements discussed above in the sections titled "Management" and "Executive Compensation," the following is a description of each transaction since January 1, 2014 and each currently proposed transaction in which:

- we have been or are to be a participant;
- the amounts involved exceeded or will exceed $120,000; and
- any of our directors, executive officers or beneficial holders of more than 5% of any class of our capital stock, or entities affiliated with them, or any immediate family members of or person sharing the household with any of these individuals, had or will have a direct or indirect material interest.

Redemptions of our old Class B and old Class A common stock

On November 10, 2012, we redeemed 131,400 shares of our old Class A Common Stock held by George J. Christ, one of the holders of more than 5% of our outstanding capital stock, for an aggregate purchase price of $1,971,000, payable in 36 monthly installments with an interest rate of 1% per year, commencing on December 10, 2012 and ending on November 10, 2015.

On December 10, 2012, we redeemed 131,400 shares of our old Class A Common Stock held by Mark Kistner, Trustee of the Mark Kistner Revocable Living Trust dated January 22, 1998, as amended, one of the holders of more than 5% of our outstanding capital stock, for an aggregate purchase price of $1,971,000, payable in 36 monthly installments with an interest rate of 1% per year, commencing on January 10, 2013 and ending on December 10, 2015.

On May 1, 2015, we redeemed 50,000 shares of our old Class B Common Stock held by Upali Fonseka, one of our holders of more than 5% of our outstanding capital stock, for an aggregate purchase price of $711,000.00, payable in 12 equal quarterly installments with an interest rate of 1% per year, commencing on August 1, 2015 and ending on May 1, 2018.

On January 1, 2016, we redeemed 43,800 shares of our old Class A Common Stock held by the Mark Kistner Trust, one of the holders of more than 5% of our outstanding capital stock, for an aggregate purchase price of $671,892, which was paid in 12 equal monthly installments commencing on January 10, 2016.

On January 1, 2016, we redeemed 43,800 shares of our old Class A Common Stock held by George J. Christ and Deborah M. Christ, Trustees of The Christ Revocable Trust dated May 8, 2015, one of the holders of more than 5% of our outstanding capital stock, for an aggregate purchase price of $671,892, which was paid in 12 equal monthly installments commencing on January 10, 2016.

On June 6, 2016, we redeemed 34,317 shares of our old Class B Common Stock held by Dennis Zuccaro, Trustee of the Dennis & Kathleen Zuccaro Trust dated January 19, 1987, one of the holders of more than 5% of our outstanding capital stock, for an aggregate purchase price of $499,998.69, which was paid in two installments of $250,000.00 and $249,998.69, on August, 1, 2016 and December 1, 2016, respectively.

On December 1, 2016, we redeemed 28,347 shares of our old Class A Common Stock held by George J. Christ and Deborah M. Christ, Trustees of The Christ Revocable Trust dated May 8, 2015, one of the holders of more than 5% of our outstanding capital stock, for an aggregate purchase price of $540,010, which is payable in 9 equal monthly installments commencing on January 10, 2017.

On December 1, 2016, we redeemed 14,777 shares of our old Class B Common Stock held by James E. Brancheau & Paula M. Brancheau JTWROS for an aggregate purchase price of $267,316, which is payable in 11 installments and accrues interest at a rate of 1% per month. We paid the first installment of $22,464 on January 10, 2017 and are paying the remainder of the purchase price, plus interest, in 10 equal monthly installments since February 10, 2017.

Altair Bellingham, LLC lease and acquisition

On December 28, 2000, we signed a real estate lease with Altair Bellingham LLC, or Bellingham, a Michigan limited liability company, of which the James R. Scapa Declaration of Trust dated March 5, 1987, as amended, or the Scapa Trust, owned 39.56% of the outstanding membership interest, Mark E. Kistner owned 24.18% of the outstanding membership interest and George J. Christ owned 36.26% of the outstanding membership interest to lease the building that we use as our world headquarters in Troy Michigan. James R. Scapa, the chairman of our board of directors and our chief executive officer, is the trustee of the Scapa Trust. Mr. Kistner, and Mr. Christ are each holders of more than 5% of our outstanding capital stock. Pursuant to the terms of the lease, we paid Bellingham rent of $577,501 and $416,225 in each of 2014 and 2015, respectively. On October 1, 2015, we acquired 100% of the outstanding equity of Bellingham from the Scapa Trust, Mr. Kistner and Mr. Christ pursuant to a membership interest purchase agreement, or the Bellingham Purchase Agreement. On January 31, 2016, pursuant to the Bellingham Purchase Agreement, we paid the Scapa Trust, Mr. Kistner and Mr. Christ $286,609, $175,182 and $262,701, respectively, as consideration for the purchase of their membership interest in Bellingham.

2013 credit agreement

In 2013, we entered into a credit agreement with JP Morgan Chase Bank, N.A. pursuant to which Bellingham, was an unconditional guarantor until the agreement was amended in 2016. For more information about our credit facilities, including the 2016 Credit Agreement, see the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and capital resources—Credit facility."

Investments in Groupknit, Inc.

On October 22, 2015, we acquired 5,000 shares of the common capital stock of Groupknit, Inc. a Michigan corporation, for an aggregate cash purchase price of $80,000. As part of the same investment, our executive officers Mr. Scapa, Mr. Dagg, Mr. Mahalingam, Mr. Chouinard and Mr. Fariello acquired an aggregate of 5,000 shares in Groupknit, Inc. for an aggregate cash purchase price of $80,000. Groupknit, Inc. also issued 15,000 shares each to two individuals in exchange for the contribution by each individual of his rights in the Groupknit Program technology and intellectual property. One such individual is the significant other of Mr. Scapa's daughter, the chief executive officer of one of our wholly-owned subsidiaries.

On December 27, 2016, we acquired an additional 2,500 shares of the common capital stock of Groupknit, Inc. for an aggregate cash purchase price of $40,000. As part of the same investment, our executive officers, Mr. Scapa, Mr. Dagg, Mr. Mahalingam, Mr. Chouinard and Mr. Fariello, acquired an aggregate of 2,500 shares in Groupknit, Inc. for an aggregate cash purchase price of $40,000.

Stock option grants to executive officers and directors

We have granted stock options to our named executive officers and our directors. For a description of equity awards to our named executive officers, see the section entitled "Executive compensation—Outstanding equity awards at fiscal year end 2016 table."

Indemnification of officers and directors

We plan to enter into indemnification agreements with each of our directors and executive officers prior to the completion of the offering. The indemnification agreements and our Delaware certificate of incorporation and bylaws will require us to indemnify our directors and executive officers to the fullest extent permitted by Delaware law. See the sections entitled "Management" and "Executive compensation" above.

Policies and procedures for related-party transactions

Our audit committee has the primary responsibility for the review, approval and oversight of any "related party transaction," which is any transaction, arrangement, or relationship (or series of similar transactions, arrangements, or relationships) in which we are, were, or will be a participant and the amount involved exceeds $120,000, and in which the related person has, had, or will have a direct or indirect material interest. Under our related party transaction

policy, our management will be required to submit any related person transaction not previously approved or ratified by our audit committee to our audit committee. In approving or rejecting the proposed transactions, our audit committee will take into account all of the relevant facts and circumstances available.

Principal and selling stockholders

Principal and selling stockholders The following table sets forth certain information with respect to the beneficial ownership of our common stock as of September 25, 2017, after giving effect to the automatic conversion, pursuant to the Recapitalization on April 3, 2017, of all outstanding shares of our old Class A common stock and our old Class B common stock into Class B common stock and Class A common stock, respectively, and as adjusted to reflect the shares of Class A common stock to be issued and sold in the offering, assuming no exercise of the underwriters' over-allotment option, by:

- each person or group of affiliated persons known by us to be the beneficial owner of more than 5% of our common stock;
- each of our current directors;
- each of our named executive officers;
- all executive officers and directors as a group; and
- the selling stockholders.

The amounts and percentage of shares of common stock beneficially owned are reported on the basis of regulations of the SEC governing the determination of beneficial ownership of securities. Under the rules of the SEC, a person is deemed to be a "beneficial owner" of a security if that person has or shares "voting power," which includes the power to vote or to direct the voting of such security, or "investment power," which includes the power to dispose of or to direct the disposition of such security. In computing the number of shares beneficially owned by a person and the percentage ownership of that person, common stock subject to options held by that person that are currently exercisable or exercisable within 60 days of the date of this prospectus, if any, are deemed outstanding, but are not deemed outstanding for computing the percentage ownership of any other person. Except as indicated by footnote, the persons named in the table below have sole voting and investment power with respect to all shares of common stock shown as beneficially owned by them, subject to community property laws where applicable.

The percentages reflect beneficial ownership immediately prior to and immediately after the completion of this offering as determined in accordance with Rule 13d-3 under the Exchange Act and are based on 2,346,928 shares of our Class A common stock and 10,300,857 shares of our Class B common stock outstanding as of September 25, 2017 and assumes there are shares of our common stock outstanding as of the date immediately following the completion of this offering, assuming no exercise by the underwriters of their option to purchase additional shares of our common stock, and there are shares of our common stock outstanding as of the date immediately following the completion of this offering, assuming full exercise by the underwriters of their option to purchase additional shares of our common stock. Except as noted below, the address for all beneficial owners in the table below is c/o Altair Engineering Inc. at 1820 E Big Beaver Rd, Troy MI 48083.

Principal and selling stockholders

	Beneficial Ownership of Common Stock Prior to the Offering						Beneficial Ownership of Common Stock After the Offering			
	Class A		Class B		% of TotalVotingPower(Pre-Offering)	Class A SharesBeingOffered	Class A		Class B		% TO
Name of Beneficial Owner	**Shares**	**%**	**Shares**	**%**	**%**	**Shares**	**Shares**	**%**	**Shares**	**%**	
Selling Stockholders and other 5% Stock holders:											
James R. Scapa[(1)]	433,749	15.60%	5,018,855	48.72%	47.85%						
George J. Christ[(2)]	—	—	3,942,683	38.28%	37.42%						
Mark E. Kistner	—	—	715,381	6.94%	6.79%						
Dennis Zuccaro[(3)]	265,683	11.32%	—	—	*				—	—	
G. Upali Fonseka	314,777	13.41%	—	—	*				—	—	
John Brink[(4)]	368,777	13.64%	—	—	*				—	—	

Regu Ramoo[5]	368,777	13.60%	—	—	*				—	—
Robert B. Little[6]	369,191	15.73%	—	—	*				—	—
Michael White[7]	184,388	7.28%	—	—	*				—	—
Executive Officers and Directors										
Brett Chouinard[8]	29,136	1.24%	4,000	*	*					*
Howard N. Morof[9]	175,864	7.17%	—	—	*				—	—
Massimo Fariello[10]	16,038	*	83,000	*	*			*		*
James P. Dagg[11]	184,626	7.29%	—	—	*				—	—
Dr. Uwe Schramm[12]	23,640	1.01%	—	—	*					*
Mahalingam Srikanth[13]	10,934	*	—	—	*			*	—	—
Jeffrey M. Brennan[14]	59,414	2.48%	4,000	*	*					*
Martin Nichols[15]	22,606	*	1,000	*	*					*
Tom M. Perring[16]	116,416	4.96%	5,000	*	*					*
Nelson Dias[17]	9,918	*	—	—	*					
James E. Brancheau[18]	315,792	13.45%	—	—	*				—	—
Steve Earhart[19]	10,000	*	—	—	*			*	—	—
Jan Kowal[20]	5,000	*	—	—	*			*	—	—
Trace Harris[21]	2,500	—	—	—	*			*	—	—
Richard Hart[22]	—	—	—	—	—		—	—	—	—
All executive officers and directors as a group (16 individuals)[23]	1,415,629	44.67%	5,115,855	49.66%	49.52%	—				

(*) Represents beneficial ownership of less than 1%

(1) Consists of (i) 3,162,854 shares of Class B common stock held of record by Mr. Scapa as trustee of the James R. Scapa Declaration of Trust dated March 5, 1987, and (ii) 1,856,001 shares of Class B common stock held of record by JRS Investments, LLC. Mr. Scapa is the manager of JRS Investments, LLC and has voting and investment power over the securities held by JRS Investments, LLC. Mr. Scapa also holds 433,749 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 30,000 shares subject to options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.

(2) Consists of (i) 2,336,682 shares of Class B common stock held of record by George J. Christ and Deborah M. Christ, as trustees of the Christ Revocable Trust dated May 8, 2015, and (ii) 1,606,001 shares of Class B common stock held of record by GC Investments, LLC. Mr. Christ is the manager of GC Investments, LLC and has voting and investment power over the securities held by GC Investments, LLC.

(3) Consists of 265,683 shares of Class A common stock held of record by Dennis Zuccaro as trustee of the Dennis and Kathleen Zuccaro Trust dated January 19, 1987.

(4) Consists of 355,777 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date.

(5) Consists of 363,777 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date.

(6)	Consists of 414 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 846 shares subject to options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(7)	Consists of 184,388 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date.
(8)	Consists of 3,875 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 14,696 options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(9)	Consists of (i) 35,000 shares of Class A common stock held of record by Mr. Morof as trustee of the Howard N. Morof Revocable Trust dated August 7, 1992, (ii) 35,270 shares of Class A common stock held of record by Mr. Morof as trustee of the Howard N. Morof Irrevocable Grantor Trust dated September 11, 2017 and (iii) 105,594 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 8,532 options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(10)	Consists of (i) 83,000 shares of Class B common stock held of record by Advanced Studies Holding Future Srl, an Italian Company, and (ii) 16,037 shares subject to options exercisable for Class A within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 6,539 options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(11)	Consists of 184,626 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 5,533 options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(12)	Consists of 2,140 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 11,845 options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(13)	Consists of 10,934 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 11,593 options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(14)	Consists of 48,719 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 2,477 options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(15)	Consists of 1,106 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 7,272 options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(16)	Consists of 2,319 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 2,427 options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(17)	Consists of 4,918 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 1,240 options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(18)	Consists of 792 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date.
(19)	Excludes 1,000 options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(20)	Consists of 5,000 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which are vested as of such date. Excludes 1,000 options which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(21)	Consists of 2,500 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, all of which will vest on November 23, 2017. Excludes 3,500 options which vest subject to time- based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(22)	Excludes 6,000 options which vest subject to time- based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.
(23)	Total includes all individuals listed under the heading “Executive Officers and Directors” and, James R. Scapa, our chairman and chief executive officer. Consists of (i) 593,323 shares of Class A common stock beneficially owned by our executive officers and directors, and not subject to our right of repurchase upon completion of this offering (ii) 5,115,855 shares of Class B common stock beneficially owned by our executive officers and directors and not subject to our right of repurchase upon completion of this offering, and (iii) 822,306 shares subject to options exercisable for Class A common stock within 60 days of the date of this prospectus, 819,806 of which are vested as of such date 2,500 of which will vest on November 23, 2017. Excludes 113,653 options which vest subject to time based vesting conditions that will not be satisfied within 60 days of the date of this prospectus.

Description of capital stock

Description of capital stock

General

The following is a summary of the rights of our Class A and Class B common stock and preferred stock and certain provisions of our Delaware certificate of incorporation and bylaws as they will be in effect immediately prior to the effectiveness of the registration statement of which this prospectus is a part. This summary does not purport to be complete and is qualified in its entirety by the provisions of our Delaware certificate of incorporation and bylaws, copies of which will be filed as exhibits to the registration statement of which this prospectus is a part.

Immediately following the completion of this offering, our authorized capital stock will consist of shares, with a par value of $ per share, of which:

- shares are designated as Class A common stock;
- shares are designated as Class B common stock; and
- shares are designated as preferred stock.

Our board of directors is authorized, without stockholder approval, except as required by the listing standards of the Nasdaq Global Select Market, to issue additional shares of our capital stock.

As of June 30, 2017, we had 10,300,857 shares of our old Class A common stock and 2,346,878 shares of our old Class B common stock outstanding, held by approximately 475 stockholders of record and no shares of preferred stock outstanding.

Class A and Class B common stock

Immediately prior to the effectiveness of the registration statement of which this prospectus is a part, and giving effect to the Recapitalization, we had two classes of common stock—Class A common stock and Class B common stock. Upon completion of this offering and in connection with our reincorporation in Delaware, we will have authorized a new class of Class A common stock entitled to one vote per share and a new class of Class B common stock entitled to 10 votes per share.

Voting rights

Holders of our Class A common stock and Class B common stock upon completion of this offering will have identical rights, provided however that, except as otherwise expressly provided in our Delaware certificate of incorporation or required by applicable law, on any matter that is submitted to a vote of our stockholders, holders of Class A common stock are entitled to one vote per share of Class A common stock and holders of Class B common stock are entitled to 10 votes per share of Class B common stock. Holders of shares of Class A common stock and Class B common stock vote together as a single class on all matters (including the election of directors) submitted to a vote of stockholders, unless otherwise required by Delaware law or our Delaware certificate of incorporation. Delaware law could require either holders of our Class A common stock or Class B common stock to vote separately as a single class in the following circumstances:

- if we were to seek to amend our Delaware certificate of incorporation to increase or decrease the par value of a class of our capital stock, then that class would be required to vote separately to approve the proposed amendment; and
- if we were to seek to amend our Delaware certificate of incorporation in a manner that alters or changes the powers, preferences or special rights of a class of our capital stock in a manner that affected its holders adversely, then that class would be required to vote separately to approve the proposed amendment.

Under our Delaware certificate of incorporation, we may not issue any shares of Class B common stock, other than those shares issuable upon exercise of options, warrants, or similar rights to acquire Class B common stock outstanding immediately prior to the completion of the offering and in connection with stock dividends, unless that issuance is approved by the affirmative vote of the holders of a majority of the outstanding shares of Class A common stock and Class B common stock, each voting separately as a class.

We have not provided for cumulative voting for the election of directors in our Delaware certificate of incorporation. Our Delaware certificate of incorporation and bylaws provide for a classified board of directors consisting of three classes of approximately equal size, each class serving staggered three-year terms. Only one class will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms.

No preemptive or similar rights

Our classes of common stock are not entitled to preemptive rights and are not subject to conversion, redemption or sinking fund provisions.

Economic rights

Except as otherwise expressly provided in our Delaware certificate of incorporation or required by applicable law, shares of Class A common stock and Class B common stock have the same rights and privileges and rank equally, share ratably and are identical in all respects as to all matters, including, without limitation those described below.

Dividends and distributions

Subject to preferences that may apply to any shares of preferred stock outstanding at the time, the holders of Class A common stock and Class B common stock are entitled to share equally, identically and ratably, on a per share basis, with respect to any dividend or distribution of cash, property or shares of our capital stock paid or distributed by us, unless different treatment of the shares of each such class is approved by the affirmative vote of the holders of a majority of the outstanding shares of Class A common stock and Class B common stock, each voting separately as a class. In the event a dividend or distribution is paid in the form of shares of Class A common stock or Class B common stock or rights to acquire shares of such stock, the holders of Class A common stock shall receive Class A common stock, or rights to acquire Class A common stock, as the case may be, and the holders of Class B common stock shall receive Class B common stock, or rights to acquire Class B common stock, as the case may be.

Liquidation rights

Upon our liquidation, dissolution or winding-up, the holders of Class A common stock and Class B common stock are entitled to share equally, identically and ratably in all assets remaining after the payment of any liabilities and the liquidation preferences and any accrued or declared but unpaid dividends, if any, with respect to any outstanding preferred stock, unless different treatment of the shares of each class is approved by the affirmative vote of the holders of a majority of the outstanding shares of Class A common stock and Class B common stock, each voting separately as a class.

Change of control transactions

Upon (A) the closing of the sale, transfer or other disposition of all or substantially all of our assets, (B) the consummation of a merger, consolidation, business combination or share transfer which results in our voting securities outstanding immediately prior to the transaction (or the voting securities issued with respect to our voting securities outstanding immediately prior to the transaction) representing less than a majority of the combined voting power of our voting securities or the voting securities of the surviving or acquiring entity, (C) the closing of the transfer (whether by merger, consolidation or otherwise), in one transaction or a series of related transactions, to a person or group of affiliated persons of securities of the Company if, after closing, the transferee person or group would hold 50% or more of our outstanding voting stock (or the outstanding voting stock of the surviving or acquiring entity), (D) any voluntary or involuntary recapitalization, liquidation, dissolution or winding-up, or (E) the issuance by us of voting securities representing more than 2% of our total voting power to a person who held 50% or less of our total voting power immediately prior to such transaction and who following such transaction holds more than 50% of our total voting power, the holders of Class A common stock and Class B common stock will be treated equally and identically with respect to shares of Class A common stock or Class B common stock owned by them, unless different treatment of the shares of each class is approved by the affirmative vote of the holders of a majority of the outstanding shares of Class A common stock and Class B common stock, each voting separately as a class.

Subdivisions and combinations

If we subdivide or combine in any manner outstanding shares of Class A common stock or Class B common stock, the outstanding shares of the other class will be subdivided or combined in the same manner, unless different treatment of the shares of each class is approved by the affirmative vote of the holders of a majority of the outstanding shares of Class A common stock and Class B common stock, each voting as a separate class.

Conversion

Each share of our Class B common stock is automatically convertible into one share of our Class A common stock pursuant to the terms of our Delaware certificate of incorporation upon the occurrence of certain events. With respect to all beneficial owners, as defined in our Delaware certificate of incorporation, of Class B common stock, each share of Class B common stock will convert automatically into one share of Class A common stock upon (i) the date specified by affirmative vote of the holders of at least 66-2/3% of the outstanding shares of Class B common stock, (ii) the executive holder, as defined in our Delaware certificate of incorporation, is neither (x) an executive officer of the company nor (y) a director of the company, (iii) the date on which the executive has beneficial ownership of less than 10% of the capital stock of the company, or (iv) the 12 year anniversary of the date of filing of our Delaware certificate of incorporation in connection with this offering.

With respect to each individual beneficial owner of Class B common stock, each share of Class B common stock held by a beneficial owner will convert automatically into one share of Class A common stock (i) at any time at the option of such owner, (ii) upon any transfer, whether or not for value, except for certain transfers described in our Delaware certificate of incorporation, including, without limitation, transfers from a founder, as defined in our Delaware certificate, to another founder, or certain permitted transferees, or (iii) in the event any beneficial owner owns shares of Class B common stock constituting less than 3% of the outstanding shares of Class B common stock.

Each share of Class B common stock held by all beneficial owners of Class B common stock, except the executive holder, will convert automatically into one share of Class A common stock in the event the key holders, as defined in our Delaware certificate of incorporation, beneficially own, in the aggregate, more shares of Class B common stock than the executive holder in which event the only holder of Class B common stock will be the executive holder.

In addition, upon the death or incapacity of a beneficial owner of Class B common stock, other than the executive holder, each share of Class B common stock held by such beneficial owner will convert automatically into one share of Class A common stock, immediately upon such death or incapacity, except, with respect to the key holders, such automatic conversion will occur on the date which is nine (9) months after the date of such death or incapacity. Upon the death or incapacity of the executive holder, each share of Class B common stock held by all beneficial owners of Class B common stock will convert automatically into one share of Class A common stock on the date which is nine (9) months after the date of such death or incapacity.

Preferred stock

After the completion of this offering, no shares of preferred stock will be outstanding. Pursuant to our Delaware certificate of incorporation, our board of directors will have the authority, without further action by the stockholders, to issue from time to time up to shares of preferred stock in one or more series. Our board of directors may designate the rights, preferences, privileges and restrictions of the preferred stock, including dividend rights, conversion rights, voting rights, redemption rights, liquidation preference, sinking fund terms and the number of shares constituting any series or the designation of any series. The issuance of preferred stock could have the effect of restricting dividends on the Class A and Class B common stock, diluting the voting power of the Class A and Class B common stock, impairing the liquidation rights of the Class A and Class B common stock or delaying, deterring or preventing a change in control. Such issuance could have the effect of decreasing the market price of the Class A and Class B common stock. We currently have no plans to issue any shares of preferred stock.

Option awards

As of June 30, 2017, we had outstanding options to purchase an aggregate of 2,872,207 shares of our old Class B common stock pursuant to our 2001 NQSO Plan, 2001 ISO and NQSO Plan and 2012 Plan, with weighted-average exercise prices of $0.00, $2.56, and $14.91, respectively. We do not have any issued and outstanding options exercisable for any shares of our old Class A common stock.

Anti-takeover effects of Delaware law and our certificate of incorporation and bylaws

Our Delaware certificate of incorporation and bylaws to be immediately prior to the effectiveness of the registration statement of which this prospectus is a part will contain provisions that could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions and certain provisions of Delaware law, which are summarized below, could discourage takeovers, coercive or otherwise. These provisions are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us.

Dual class stock. As described above under the heading "Description of capital stock—Class A and Class B common stock—Voting rights," our Delaware certificate of incorporation provides for a dual class common stock structure, which will provide our founders and certain others with significant influence over all matters requiring stockholder approval, including the election of directors and significant corporate transactions, such as a merger or other sale of our company or its assets.

Issuance of undesignated preferred stock. As discussed above under the heading "Description of capital stock—Preferred stock," our board of directors will have the ability to designate and issue preferred stock with voting or other rights or preferences that could deter hostile takeovers or delay changes in our control or management.

Limits on ability of stockholders to act by written consent or call a special meeting. Our Delaware certificate of incorporation will provide that our stockholders may not act by written consent. This limit on the ability of stockholders to act by written consent may lengthen the amount of time required to take stockholder actions. As a result, the holders of a majority of our capital stock would not be able to amend the bylaws or remove directors without holding a meeting of stockholders called in accordance with the bylaws.

In addition, our bylaws will provide that special meetings of the stockholders may be called only by the chairman of our board of directors, the chief executive officer, the president (in the absence of a chief executive officer) or a majority of our board of directors. A stockholder may not call a special meeting, which may delay the ability of our stockholders to force consideration of a proposal or for holders controlling a majority of our capital stock to take any action, including the removal of directors.

Requirements for advance notification of stockholder nominations and proposals. Our bylaws will establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of our board of directors or a committee of the board of directors. These advance notice procedures may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed and may also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect its own slate of directors or otherwise attempt to obtain control of our company.

Board classification. Our Delaware certificate of incorporation provides that our board of directors will be divided into three classes, one class of which is elected each year by our stockholders. The directors in each class will serve for a three-year term. For more information on the classified board of directors, see the section entitled "Management—Board composition." Our classified board of directors may tend to discourage a third party from making a tender offer or otherwise attempting to obtain control of us because it generally makes it more difficult for stockholders to replace a majority of the directors.

Election and removal of directors. Our certificate of incorporation and bylaws contain provisions that establish specific procedures for appointing and removing members of our board of directors. Under our certificate of incorporation and bylaws, vacancies and newly created directorships on our board of directors may be filled only by a majority of the directors then serving on our board of directors. Under our certificate of incorporation and bylaws, directors may be removed only for cause.

No cumulative voting. The Delaware General Corporation Law provides that stockholders are not entitled to the right to cumulative votes in the election of directors unless our certificate of incorporation provides otherwise. Our certificate of incorporation and bylaws do not expressly provide for cumulative voting. Without cumulative voting, a minority stockholder may not be able to gain as many seats on our board of directors as the stockholder would be able to gain if cumulative voting were permitted. The absence of cumulative voting makes it more difficult for a minority stockholder to gain a seat on our board of directors to influence our board of directors' decision regarding a takeover.

Amendment of charter provision. Any amendment of the above provisions in our certificate of incorporation would require approval by holders of at least two-thirds of our then outstanding Class A and Class B common stock, voting together as a single class.

Delaware anti-takeover statute. We will be subject to the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. In general, Section 203 prohibits a publicly held Delaware corporation from engaging, under certain circumstances, in a business combination with an interested stockholder for a period of three years following the date the person became an interested stockholder unless:

- prior to the date of the transaction, our board of directors approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, but not the outstanding voting stock owned by the interested stockholder, (1) shares owned by persons who are directors and also officers and (2) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- at or subsequent to the date of the transaction, the business combination is approved by our board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least two-thirds of the outstanding voting stock that is not owned by the interested stockholder.

Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of a corporation's outstanding voting stock. We expect the existence of this provision to have an anti-takeover effect with respect to transactions our board of directors does not approve in advance. We also anticipate that Section 203 may discourage attempts that might result in a premium over the market price for the shares of Class A common stock held by stockholders.

The provisions of Delaware law and the provisions of our certificate of incorporation and bylaws could have the effect of discouraging others from attempting hostile takeovers and as a consequence, they might also inhibit temporary fluctuations in the market price of our Class A common stock that often result from actual or rumored hostile takeover attempts. These provisions might also have the effect of preventing changes in our management. It is also possible that these provisions could make it more difficult to accomplish transactions that stockholders might otherwise deem to be in their best interests.

Transfer agent and registrar

Upon the completion of this offering, the transfer agent and registrar for our common stock will be American Stock Transfer & Trust Company, LLC. The transfer agent's address is Operations Center 6201 15th Avenue Brooklyn, NY 11219, and its telephone number is (800) 937-5449.

Exchange listing

We intend to apply to list our Class A common stock on the Nasdaq Global Select Market under the symbol "ALTR."

Shares eligible for future sale

Shares eligible for future sale Prior to this offering, there has been no public market for our common stock. Future sales of our Class A common stock in the public market, or the availability of such shares for sale in the public market, could adversely affect the market price of our Class A common stock prevailing from time to time. As described below, only a limited number of Class A shares will be available for sale shortly after this offering due to contractual and legal restrictions on resale. Nevertheless, sales of a substantial number of shares of our Class A common stock in the public market after such restrictions lapse, or the perception that those sales may occur, could adversely affect the prevailing market price of our Class A common stock at such time and our ability to raise equity-related capital at a time and price we deem appropriate.

Sales of restricted shares

Upon completion of this offering, we will have outstanding an aggregate of shares of Class A common stock and shares of Class B common stock. Of these shares, all of the shares of Class A common stock to be sold in this offering (or shares assuming the underwriters exercise the option to purchase additional shares in full) will be freely tradable without restriction or further registration under the Securities Act, unless the shares are held by any of our "affiliates" as such term is defined in Rule 144 under the Securities Act. All remaining shares of Class A and Class B common stock will be deemed "restricted securities" as such term is defined under Rule 144. The restricted securities were, or will be, issued and sold by us in private transactions and are eligible for public sale only if registered under the Securities Act or if they qualify for an exemption from registration under Rule 144 or Rule 701 under the Securities Act, which rules are summarized below.

As a result of the lock-up agreements described below and the provisions of Rule 144 and Rule 701 under the Securities Act, all of the shares of our common stock (excluding the shares to be sold in this offering) will be available for sale in the public market upon the expiration of the lockup agreements, beginning 180 days after the date of this prospectus (subject to extension) and when permitted under Rule 144 or Rule 701, subject to the limitations set forth below.

Lock-up agreements

We, each of our current directors, executive officers, the selling stockholders and certain of our principal stockholders, have agreed that, we and they will not, during the period ending 180 days after the date of this prospectus, except with the prior written consent of J.P. Morgan Securities LLC and RBC Capital Markets, LLC:

- offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of common stock or any securities convertible into or exercisable or exchangeable for shares of common stock;

- file any registration statement with the SEC relating to the offering of any shares of common stock or any securities convertible into or exercisable or exchangeable for common stock; or

- enter into any swap or other agreement that transfers to another, in whole or in part, any of the economic consequences of ownership of our common stock;

whether any such transaction described above is to be settled by delivery of shares of our common stock or such other securities, in cash or otherwise, subject to certain exceptions, as set forth in "Underwriting."

In addition to the restrictions contained in the lock-up agreements described above, we have entered into agreements with certain security holders, including our standard form of stock purchase agreement, option agreement and restricted stock unit agreement, that contain certain market stand-off provisions imposing restrictions on the ability of such security holders to offer, sell or transfer our equity securities for a period of 180 days following the

date of this prospectus.

Restrictions on transfer and repurchase rights

Prior to the completion of this offering, the holders of approximately 2,276,878 shares of our Class A common stock will be subject to certain restrictions on these holders' abilities to transfer their Class A common stock without our consent pursuant to stock restriction and repurchase agreements that we have entered into with these holders. Each stock option holder who has exercised stock options granted under our 2001 NQSO Plan, 2001 ISO and NQSO Plan, and 2012 Plan has executed a stock restriction and repurchase agreement. Under each stock restriction and repurchase agreement (other than certain agreements entered into with members of our board) we have a mandatory obligation to repurchase shares received on exercise of the option in the event of breach of restrictive covenants. We have a mandatory repurchase right upon a termination for cause under each stock restriction and repurchase agreement pursuant to our 2001 NQSO Plan and our 2001 ISO and NQSO Plan, and a discretionary repurchase right upon a termination for cause under each stock restriction and repurchase agreement pursuant to our 2012 Plan, in each case, other than certain agreements entered into with members of our board. Each stock restriction and repurchase agreement under our 2001 ISO and NQSO Plan and our 2012 Plan also requires us to repurchase any shares that are unvested on the date of termination with us.

In the event of a repurchase as a result of a breach of restrictive covenants, termination for cause, or with respect to unvested shares, the repurchase price under our 2001 NQSO Plan and 2001 ISO and NQSO Plan equals the exercise price paid by the participant for the underlying shares (plus, in the case of the 2001 NQSO Plan, any amount paid by the participant in exchange for rights under our phantom equity plan), and the repurchase price under our 2012 Plan equals the lesser of (i) the exercise price paid by the participant for the underlying shares, and (ii) the fair market value per share determined as of the closing date of the repurchase. Each stock restriction and repurchase agreement also provides us with a right of first refusal and certain repurchase rights upon terminations other than for cause (other than certain agreements entered into with members of our board), each of which will terminate upon the completion of this offering.

Prior to the completion of this offering, the holders of approximately 240,387 shares of our Class A common stock will be subject to certain restrictions on these holders' abilities to transfer their Class A common stock without our consent pursuant to stock restriction and repurchase agreements that we have entered into with these holders.

Prior to the completion of this offering, the holders of approximately 538,812 shares of our Class B common stock will be subject to certain restrictions on these holders' abilities to transfer their Class B common stock without our consent pursuant to stock restriction and repurchase agreements that we have entered into with these holders.

Pursuant to these agreements, the holders of the shares of our common stock subject to these agreements, or the Restricted Shares, must notify us prior to transferring or selling any Restricted Shares. The notice must include the purchase price of any such proposed transfer or sale. If the proposed transfer or sale is for value, we have a right of first refusal (subject to certain exceptions for transfers related to estate planning) to purchase all of the Restricted Shares subject to the proposed transfer or sale from the holder on terms no less favorable than the terms described in the notice of proposed transfer. If we choose not to exercise our right to repurchase the transfer restrictions on the Restricted Shares, the holder may transfer the Restricted Shares, subject to the transferee agreeing to be bound to the terms of the stock restriction and repurchase agreement.

These transfer restrictions terminate upon the earliest to occur of (i) the sale by us of all or substantially all of our capital stock (including the Restricted Shares), (ii) the date on which we consummate the sale of all or substantially all of the our assets pursuant to or followed by a plan of liquidation or (iii) the date on which our capital stock (including the Restricted Shares) is first eligible and admitted for trading on any United States securities exchange or on any formal over-the-counter quotation system in general use in the United States. Following the completion of this offering and the commencement of trading of our Class A shares on the transfer restrictions on the Restricted Shares will automatically be lifted.

Pledged shares as collateral

In connection with certain of our acquisitions, we issued shares of our common stock as partial acquisition consideration, the Consideration Shares. The recipients of the Consideration Shares concurrently entered into stock pledge agreements with us pursuant to which each recipient pledged its Consideration Shares as collateral to secure certain indemnification obligations of the recipient under the applicable purchase agreement. The stock pledge agreements provide that in the event the relevant holder defaults on any indemnification obligation owed to us under the applicable purchase agreement or in the performance of such stockholder's obligations under the stock pledge agreement, subject to certain conditions, we may take possession of or sell the applicable Consideration Shares for up to the fair market value of the liability we incur.

As of September 25, 2017, we have issued and outstanding an aggregate of 247,500 Consideration Shares of which 40,000 shares were released on August 17, 2017, 12,500 shares will be released on March 12, 2018, 25,000 shares will be released on March 12, 2019, 50,000 shares will be released on March 28, 2019, 70,000 shares will be released on May 5, 2020 and 50,000 shares will be released on September 28, 2020.

Rule 144

In general, under Rule 144 as currently in effect, once we have been subject to public company reporting requirements for at least 90 days, a person who is not deemed to have been one of our affiliates for purposes of the Securities Act at any time during 90 days preceding a sale and who has beneficially owned the shares proposed to be sold for at least six months, including the holding period of any prior owner other than our affiliates, is entitled to sell such shares without complying with the manner of sale, volume limitation or notice provisions of Rule 144, subject to compliance with the public information requirements of Rule 144. If such a person has beneficially owned the shares proposed to be sold for at least one year, including the holding period of any prior owner other than our affiliates, then such person is entitled to sell such shares without complying with any of the requirements of Rule 144.

In general, under Rule 144, as currently in effect, our affiliates or persons selling shares on behalf of our affiliates are entitled to sell upon expiration of the lock-up agreements described above, within any three-month period beginning 90 days after the date of this prospectus, a number of shares that does not exceed the greater of:

- 1% of the number of shares of Class A common stock then outstanding, which will equal approximately shares immediately after this offering; or
- the average weekly trading volume of the Class A common stock during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale.

Sales under Rule 144 by our affiliates or persons selling shares on behalf of our affiliates are also subject to certain manner of sale provisions and notice requirements and to the availability of current public information about us.

Rule 701

Rule 701 generally allows a stockholder who purchased shares of our Class A common stock pursuant to a written compensatory plan or contract and who is not deemed to have been an affiliate of our company during the immediately preceding 90 days to sell these shares in reliance upon Rule 144, but without being required to comply with the public information, holding period, volume limitation or notice provisions of Rule 144. Rule 701 also permits affiliates of our company to sell their Rule 701 shares under Rule 144 without complying with the holding period requirements of Rule 144. All holders of Rule 701 shares, however, are required to wait until 90 days after the date of this prospectus before selling such shares pursuant to Rule 701.

Stock issued under employee benefit plans

We intend to file a registration statement on Form S-8 under the Securities Act covering all of the shares of our common stock subject to options outstanding or reserved for issuance under our equity plans. We expect to file this registration statement as soon as practicable after the completion of this offering. This registration statement will become effective immediately upon filing, and shares covered by this registration statement will thereupon be eligible for sale in the public markets, subject to vesting restrictions, the terms of the applicable stock restriction agreement, the lock-up agreements described above and Rule 144 limitations applicable to affiliates. For a more complete discussion of our stock plans, see the section entitled “Executive compensation—Employee benefit and equity compensation plans.”

Material United States federal income tax consequences to non-U.S. holders of our Class A common stock

Material United States federal income tax consequences to non-U.S. holders of our Class A common stock The following is a summary of the material United States federal income tax consequences to non-U.S. holders (as defined below) of their ownership and disposition of our Class A common stock, but does not purport to be a complete analysis of all the potential tax considerations relating thereto. This summary is based upon current provisions of the Code, existing and proposed United States Treasury Regulations promulgated thereunder, current administrative rulings, and judicial decisions, all as in effect as of the date hereof. Especially in light of recent legislative proposals, these authorities may be changed, possibly retroactively, so as to result in United States federal tax consequences different from those set forth below. We have not obtained, and do not intend to obtain, any opinion of counsel or ruling from the Internal Revenue Service, or the IRS, with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS will agree with such statements and conclusions.

This summary also does not address the tax considerations arising under the laws of any non-United States, state or local jurisdiction or under any non-income tax laws, including United States federal gift and estate tax laws, except to the limited extent set forth below. In addition, this discussion does not address the potential application of the tax on net investment income or the alternative minimum tax. This discussion may not apply, in whole or in part, to particular non-U.S. holders in light of their individual circumstances or to holders subject to special treatment under the United States federal income tax laws, including, without limitation:

- insurance companies, banks or other financial institutions;
- tax-exempt organizations;
- pension plans;
- controlled foreign corporations or passive foreign investment companies;
- brokers or dealers in securities or currencies;
- traders in securities that elect to use a mark-to-market method of accounting for their securities holdings;
- persons that own, or are deemed to own, more than 5% of our capital stock (except to the extent specifically set forth below);
- certain former citizens or long-term residents of the United States;
- persons that hold our Class A common stock as a position in a hedging transaction, straddle, conversion transaction, synthetic security or other integrated investment;
- persons that hold or receive our Class A common stock pursuant to the exercise of any employee stock option or otherwise as compensation; and

- persons that do not hold our Class A common stock as a capital asset within the meaning of Section 1221 of the Code.

In addition, this discussion does not address the tax treatment of partnerships, including any entity or arrangement treated as a partnership for United States federal income tax purposes. Generally, the tax treatment of a person treated as a partner in such an entity will depend on the status of the partner, the activities of the partner and the partnership, and certain determinations made at the partner level. Accordingly, partnerships that hold our Class A common stock, and partners in such partnerships, should consult their tax advisors.

Non-U.S. holder defined

For purposes of this discussion, you are a non-U.S. holder if you are a beneficial owner of our Class A common stock that is not, for United States federal income tax purposes:

- an individual citizen or resident of the United States;
- a corporation, or other entity taxable as a corporation, created or organized in the United States or under the laws of the United States or any political subdivision thereof;
- an estate whose income is subject to United States federal income tax regardless of its source; or
- a trust whose administration is subject to the primary supervision of a United States court and which has one or more "United States persons" (as defined in the Code) who have the authority to control all substantial decisions of the trust, or which has made a valid election to be treated as a United States person.

Distributions to non-U.S. holders

As described in the section titled "Dividend Policy," we do not anticipate paying any cash dividends or making distributions of other property on our Class A common stock in the foreseeable future. However, if we do make distributions of cash or property on our Class A common stock, those payments will constitute dividends for United States tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under United States federal income tax principles. To the extent those distributions exceed both our current and our accumulated earnings and profits, the excess will constitute a return of capital and will first reduce a non-U.S. holder's tax basis in our Class A common stock, but not below zero, and then will be treated by a non-U.S. holder as gain from the sale of stock as described below under "—Gain on dispositions of our Class A common stock by non-U.S. holders."

Subject to the discussion below on effectively connected income, any dividend paid to a non-U.S. holder generally will be subject to United States withholding tax either at a rate of 30% of the gross amount of the dividend or such lower rate as may be specified by an applicable income tax treaty. To receive a reduced treaty rate, a non-U.S. holder must provide us with an IRS Form W-8BEN or W-8BEN-E (or applicable successor form) and certify qualification for the reduced rate. If a non-U.S. holder is eligible for a reduced rate of United States withholding tax pursuant to an income tax treaty, such non-U.S. holder may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim with the IRS. If a non-U.S. holder holds our Class A common stock through a financial institution or other agent acting on such non-U.S. holder's behalf, appropriate documentation will need to be provided to the agent, which then will be required to provide certification to us or our paying agent, either directly or through other intermediaries.

Dividends received by a non-U.S. holder that are effectively connected with such non-U.S. holder's conduct of a trade or business in the United States (and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by such non-U.S. holder in the United States), are generally exempt from the 30% withholding tax if certain certification and disclosure requirements are satisfied. To obtain this exemption, a non-U.S. holder must provide us with an IRS Form W-8ECI (or applicable successor form) properly certifying such exemption. However, such effectively connected dividends, although not subject to withholding tax, generally are taxed at the same graduated United States federal income tax rates applicable to United States persons, net of certain deductions and credits. In addition, dividends received by a corporate non-U.S. holder that are effectively connected with the conduct of a trade or business in the United States may also be subject to a branch profits tax at a rate of 30% or such lower rate as may be specified by an applicable income tax treaty. Non-U.S. holders should consult with tax advisors regarding any applicable income tax or other treaties that may provide for different rules.

Any documentation provided to an applicable withholding agent may need to be updated in certain circumstances. The certification requirements described above also may require a non-U.S. holder to provide a United States taxpayer identification number.

For additional withholding rules that may apply to dividends, including dividends paid to foreign financial institutions (as specifically defined by the applicable rules) or to certain other foreign entities that have substantial direct or indirect United States owners, see the discussion below under the headings "—Backup withholding and information reporting" and "—Withholdable payments to foreign financial institutions and other foreign entities."

Gain on dispositions of our Class A common stock by non-U.S. holders

Subject to the discussion below under the headings "—Backup withholding and information reporting" and "—Withholdable payments to foreign financial institutions and other foreign entities," a non-U.S. holder generally will not be required to pay United States federal income tax or withholding tax on any gain recognized upon the sale, exchange or other taxable disposition of our Class A common stock unless:

- the gain is effectively connected with the conduct of a trade or business by such non-U.S. holder in the United States (and, if an applicable income tax treaty so provides, the gain is attributable to a permanent establishment or a fixed base maintained by such non-U.S. holder in the United States), in which case the non-U.S. holder will be required to pay tax on the net gain derived from the sale or disposition at the graduated rates and in the manner applicable to United States persons, and an additional branch profits tax at a rate of 30% (or such lower rate as may be specified by an applicable income tax treaty) may also apply to a corporate non-U.S. holder;

- such non-U.S. holder is a nonresident alien individual who is present in the United States for a period or periods aggregating 183 days or more during the calendar year in which the sale or disposition occurs and certain other conditions are met, in which case the non-U.S. holder will be required to pay a flat 30% tax (or such lower rate as may be specified by an applicable income tax treaty) on the gain derived from the sale or disposition, which gain may be offset by United States-source capital losses for the taxable year of the sale or disposition; or

- our Class A common stock constitutes a United States real property interest by reason of our status as a "United States real property holding corporation", or USRPHC, for United States federal income tax purposes at any time within the shorter of the five-year period preceding such non-U.S. holder's disposition of, or holding period for, our Class A common stock, in which case the non-U.S. holder generally will be taxed on net gain derived from the sale or disposition at the graduated rates applicable to United States persons.

We believe that we are not currently and will not become a USRPHC and the remainder of this discussion so assumes. However, because the determination of whether we are a USRPHC depends on the fair market value of our United States real property relative to the fair market value of our other business assets, there can be no assurance that we will not become a USRPHC in the future. Even if we become a USRPHC, however, as long as our Class A common stock is regularly traded on an established securities market, such Class A common stock will be treated as United States real property interests only if a non-U.S. holder actually or constructively holds more than 5% of such regularly traded Class A common stock at any time during the shorter of the five-year period preceding such non-U.S. holder's disposition of, or holding period for, our Class A common stock. Non-U.S. holders should consult with tax advisors regarding any applicable income tax or other treaties that may provide for different rules.

Backup withholding and information reporting

We (or the applicable paying agent) must report annually to the IRS the amount of dividends on our Class A common stock paid to non-U.S. holders and the amount of tax withheld, if any. A similar report will be sent to each non-U.S. holder. Copies of this information reporting may also be made available under the provisions of a specific income tax treaty or agreement with the tax authorities in a non-U.S. holder's country of residence.

Non-U.S. holders will generally be subject to backup withholding (at a current rate of 28%) for dividends on our Class A common stock paid to such non-U.S. holders unless an exemption is established such as by, for example, properly certifying non-United States status on an IRS Form W-8BEN or W-8BEN-E (or applicable successor form). Notwithstanding the foregoing, backup withholding and information reporting may apply if either we or our paying agent has actual knowledge, or reason to know, that a holder of our Class A common stock is a United States person.

Information reporting and backup withholding generally are not required with respect to the amount of any proceeds from the sale or other disposition of our Class A common stock by a non-U.S. holder outside the United States through a foreign office of a foreign broker that does not have certain specified connections to the United States. However, if a non-U.S. holder sells or otherwise disposes of shares of Class A common stock through a United States broker or the United States offices of a foreign broker, the broker will generally be required to report the amount of proceeds paid to such non-U.S. holder to the IRS and also to backup withhold on that amount unless the broker is provided appropriate certification of status as a non-United States person or an exemption is otherwise established. Information reporting will also apply if a non-U.S. holder sells shares of Class A common stock through a foreign broker deriving more than a specified percentage of its income from United States sources or having certain other connections to the United States, unless such broker has documentary evidence in its records that such non-U.S. holder is a non-United States person and certain other conditions are met, or an exemption is otherwise established.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment may be refunded or credited against a non-U.S. holder's United States federal income tax liability, if any, provided that an appropriate claim is timely filed with the IRS. Non-U.S. holders should consult with tax advisors regarding the application of the information reporting and backup withholding rules to investment in our Class A common stock.

Withholdable payments to foreign financial institutions and other foreign entities

The Foreign Account Tax Compliance Act, or FATCA, imposes a United States federal withholding tax of 30% on certain payments to "foreign financial institutions" (as specifically defined under these rules) and certain other non-United States persons that fail to comply with certain information reporting and certification requirements pertaining to their direct and indirect United States securityholders and/or United States account holders. Such payments include dividends on and, on or after January 1, 2019, gross proceeds from the sale or other disposition of our Class A common stock. Under certain circumstances, a non-U.S. holder may be eligible for refunds or credits of such taxes. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this paragraph. Non-U.S. holders should consult with tax advisors regarding the possible implications of this legislation and any applicable intergovernmental agreements on investment in our Class A common stock.

Federal estate tax

Our Class A common stock beneficially owned by an individual who is not a citizen or resident of the United States (as defined for United States federal estate tax purposes) at the time of their death will generally be includable in the decedent's gross estate for United States federal estate tax purposes and, therefore, may be subject to United States federal estate tax unless an applicable estate tax treaty or other treaty provides otherwise. Investors are urged to consult their own tax advisors regarding the United States federal estate tax consequences of the ownership or disposition of our Class A common stock.

THIS DISCUSSION IS NOT TAX ADVICE. NON-U.S. HOLDERS ARE URGED TO CONSULT WITH TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE UNITED STATES FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATION, AS WELL AS ANY TAX CONSEQUENCES OF THE PURCHASE, OWNERSHIP AND DISPOSITION OF OUR CLASS A COMMON STOCK ARISING UNDER THE UNITED STATES FEDERAL ESTATE OR GIFT TAX RULES OR UNDER THE LAWS OF ANY STATE, LOCAL, NON-UNITED STATES OR OTHER TAXING JURISDICTION OR UNDER ANY APPLICABLE TAX TREATY, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAWS.

Underwriting

Underwriting We and the selling stockholders are offering the shares of Class A common stock described in this prospectus through a number of underwriters. J.P. Morgan Securities LLC and RBC Capital Markets, LLC are acting as joint book-running managers of the offering and as representatives of the underwriters. We and the selling stockholders have entered into an underwriting agreement with the underwriters. Subject to the terms and conditions of the underwriting agreement, we and the selling stockholders have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus, the number of shares of Class A common stock listed next to its name in the following table:

Name	Number of shares
J.P. Morgan Securities LLC	
RBC Capital Markets, LLC	
Deutsche Bank Securities Inc.	
William Blair & Company, L.L.C.	
Canaccord Genuity Inc.	
Total	

The underwriters are committed to purchase all the shares of Class A common stock offered by us and the selling stockholders if they purchase any shares. The underwriting agreement also provides that if an underwriter defaults, the purchase commitments of non-defaulting underwriters may also be increased or the offering may be terminated.

The underwriters propose to offer the shares of Class A common stock directly to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers at that price less a concession not in excess of $ per share. Any such dealers may resell shares to certain other brokers or dealers at a discount of up to $ per share from the initial public offering price. After the initial offering of the shares to the public, the offering price and other selling terms may be changed by the underwriters. Sales of shares made outside of the United States may be made by affiliates of the underwriters.

The underwriters have an option to buy up to additional shares of Class A common stock from us. The underwriters have 30 days from the date of this prospectus to exercise this option to purchase additional shares. If any shares of Class A common stock are purchased with this option to purchase additional shares, the underwriters will purchase shares of Class A common stock in approximately the same proportion as shown in the table above. If any additional shares of Class A common stock are purchased, the underwriters will offer the additional shares on the same terms as those on which the shares are being offered.

The underwriting fee is equal to the public offering price per share of Class A common stock less the amount paid by the underwriters to us per share of Class A common stock. The underwriting fee is $ per share. The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters assuming both no exercise and full exercise of the underwriters' option to purchase additional shares of Class A common stock from us and the selling stockholders.

	Without option topurchaseadditional shares exercise	With full option topurchaseadditional shares exercise
Per Share		$$
Total		$$

We estimate that the total expenses of this offering, including registration, filing and listing fees, printing fees and legal and accounting expenses, but excluding the underwriting discounts and commissions, will be approximately $.

We also have agreed to reimburse the underwriters for certain of their expenses, as set forth in the underwriting agreement, including an amount of up to $, that may be incurred in connection with the review by the Financial Industry Regulatory Authority, Inc. of the terms of the offering.

A prospectus in electronic format may be made available on the web sites maintained by one or more underwriters, or selling group members, if any, participating in the offering. The underwriters may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters and selling group members that may make Internet distributions on the same basis as other allocations.

We have agreed that we will not (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase or otherwise transfer or dispose of, directly or indirectly, or file with the Securities and Exchange Commission a registration statement under the Securities Act relating to, any shares of our Class A common stock or Class B common stock, or securities convertible into or exchangeable or exercisable for any shares of our Class A common stock or Class B common stock, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing, or (ii) enter into any swap or other arrangement that transfers all or a portion of the economic consequences associated with the ownership of any shares of common stock or any such other securities (regardless of whether any of these transactions are to be settled by the

delivery of shares of common stock or such other securities, in cash or otherwise), in each case without the prior written consent of J.P. Morgan Securities LLC and RBC Capital Markets, LLC for a period of 180 days after the date of this prospectus, other than the shares of our common stock to be sold hereunder and any shares of our common stock issued upon the exercise of options granted under our existing equity compensation plans.

Our directors and executive officers, the selling stockholders, and certain of our significant stockholders have entered into lock-up agreements with the underwriters prior to the commencement of this offering pursuant to which each of these persons or entities, with limited exceptions, for a period of 180 days after the date of this prospectus, may not, without the prior written consent of J.P. Morgan Securities LLC and RBC Capital Markets, LLC, (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of our Class A common stock or Class B common stock, or any securities convertible into or exercisable or exchangeable for our Class A common stock or Class B common stock (including, without limitation, common stock or such other securities which may be deemed to be beneficially owned by such directors, executive officers, managers and members in accordance with the rules and regulations of the SEC and securities which may be issued upon exercise of a stock option or warrant) or (2) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the common stock or such other securities, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of common stock or such other securities, in cash or otherwise, or (3) make any demand for or exercise any right with respect to the registration of any shares of our common stock or any security convertible into or exercisable or exchangeable for our common stock.

We and the selling stockholders have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933, as amended.

We intend to apply to have our Class A common stock approved for listing on the Nasdaq Global Select Market under the symbol “ALTR”.

In connection with this offering, the underwriters may engage in stabilizing transactions, which involves making bids for, purchasing and selling shares of Class A common stock in the open market for the purpose of preventing or retarding a decline in the market price of the Class A common stock while this offering is in progress. These stabilizing transactions may include making short sales of the Class A common stock, which involves the sale by the underwriters of a greater number of shares of Class A common stock than they are required to purchase in this offering, and purchasing shares of Class A common stock on the open market to cover positions created by short sales. Short sales may be “covered” shorts, which are short positions in an amount not greater than the underwriters’ option to purchase additional shares referred to above, or may be “naked” shorts, which are short positions in excess of that amount. The underwriters may close out any covered short position either by exercising their option to purchase additional shares, in whole or in part, or by purchasing shares in the open market. In making this determination, the underwriters will consider, among other things, the price of shares available for purchase in the open market compared to the price at which the underwriters may purchase shares through the option to purchase additional shares. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the Class A common stock in the open market that could adversely affect investors who purchase in this offering. To the extent that the underwriters create a naked short position, they will purchase shares in the open market to cover the position.

The underwriters have advised us that, pursuant to Regulation M of the Securities Act of 1933, as amended, they may also engage in other activities that stabilize, maintain or otherwise affect the price of the Class A common stock, including the imposition of penalty bids. This means that if the representatives of the underwriters purchase Class A common stock in the open market in stabilizing transactions or to cover short sales, the representatives can require the underwriters that sold those shares as part of this offering to repay the underwriting discount received by them.

These activities may have the effect of raising or maintaining the market price of the Class A common stock or preventing or retarding a decline in the market price of the Class A common stock, and, as a result, the price of the Class A common stock may be higher than the price that otherwise might exist in the open market. If the underwriters commence these activities, they may discontinue them at any time. The underwriters may carry out these transactions on the Nasdaq Global Select Market, in the over-the-counter market or otherwise.

Prior to this offering, there has been no public market for our Class A common stock. The initial public offering price will be determined by negotiations between us, the selling stockholders and the representatives of the underwriters. In determining the initial public offering price, we, the selling stockholders and the representatives of the underwriters expect to consider a number of factors including:

- the information set forth in this prospectus and otherwise available to the representatives;
- our prospects and the history and prospects for the industry in which we compete;
- an assessment of our management;
- our prospects for future earnings;
- the general condition of the securities markets at the time of this offering;
- the recent market prices of, and demand for, publicly traded common stock of generally comparable companies; and
- other factors deemed relevant by the underwriters, the selling stockholders and us.

Neither we, the selling stockholders nor the underwriters can assure investors that an active trading market will develop for our Class A common shares, or that the shares will trade in the public market at or above the initial public offering price.

Certain of the underwriters and their affiliates have provided in the past to us and our affiliates and may provide from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and such affiliates in the ordinary course of their business, for which they have received and may continue to receive customary fees and commissions. Affiliates of J.P. Morgan Securities LLC and RBC Capital Markets, LLC are lenders under our revolving credit facilities, and will receive more than 5% of the net proceeds of this offering in connection with the repayment of outstanding loans under our revolving facilities. In addition, from time to time, certain of the underwriters and their affiliates may effect transactions for their own account or the account of customers, and hold on behalf of themselves or their customers, long or short positions in our debt or equity securities or loans, and may do so in the future. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Conflicts of interest

The offering is being conducted in accordance with the applicable provisions of Rule 5121 of the FINRA Conduct Rules because certain of the underwriters will have a "conflict of interest" pursuant to Rule 5121(f)(5)(C)(i). Affiliates of J.P. Morgan Securities LLC and RBC Capital Markets, LLC will receive more than 5% of the net proceeds of this offering in connection with the repayment of outstanding loans under our revolving credit agreement. See the section entitled "Use of proceeds." As such, any underwriter that has a conflict of interest pursuant to Rule 5121 will not confirm sales to accounts in which it exercises discretionary authority without the prior written consent of the customer. In accordance with Rule 5121, Deutsche Bank Securities Inc. has assumed the responsibilities of acting as a "qualified independent underwriter." In its role as a qualified independent underwriter, Deutsche Bank Securities Inc. has participated in the preparation of the registration statement and the prospectus and has exercised the usual standards of due diligence with respect thereto. We and the selling stockholders have agreed to indemnify Deutsche Bank Securities Inc. against certain liabilities incurred in connection with acting as a qualified independent underwriter, including liabilities under the Securities Act.

Selling restrictions

General

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus in any jurisdiction where action for that purpose is required. The securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

Canada

The shares may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the shares must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor. Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

European economic area

In relation to each Member State of the European Economic Area (each, a "Relevant Member State"), no offer of shares may be made to the public in that Relevant Member State other than:

A. to any legal entity which is a qualified investor as defined in the Prospectus Directive;

B. to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the representatives; or

C. in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of shares shall require the Company, the selling stockholders or the representatives to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

Each person in a Relevant Member State who initially acquires any shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed that it is a "qualified investor" within the meaning of the law in that Relevant Member State implementing Article 2(1)(e) of the Prospectus Directive. In the case of any shares being offered to a financial intermediary as that term is used in Article 3(2) of the Prospectus Directive, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the shares acquired by it in the offer have not been acquired on a

non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer of any shares to the public other than their offer or resale in a Relevant Member State to qualified investors as so defined or in circumstances in which the prior consent of the representatives has been obtained to each such proposed offer or resale.

The Company, the selling stockholders, the representatives and their affiliates will rely upon the truth and accuracy of the foregoing representations, acknowledgements and agreements.

This prospectus has been prepared on the basis that any offer of shares in any Relevant Member State will be made pursuant to an exemption under the Prospectus Directive from the requirement to publish a prospectus for offers of shares. Accordingly any person making or intending to make an offer in that Relevant Member State of shares which are the subject of the offering contemplated in this prospectus may only do so in circumstances in which no obligation arises for the Company or any of the underwriters to publish a prospectus pursuant to Article 3 of the Prospectus Directive in relation to such offer. Neither the Company, the selling stockholders, nor the underwriters have authorized, nor do they authorize, the making of any offer of shares in circumstances in which an obligation arises for the Company, the selling stockholders or the underwriters to publish a prospectus for such offer.

For the purpose of the above provisions, the expression "an offer to the public" in relation to any shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the shares to be offered so as to enable an investor to decide to purchase or subscribe the shares, as the same may be varied in the Relevant Member State by any measure implementing the Prospectus Directive in the Relevant Member State and the expression "Prospectus Directive" means Directive 2003/71/EC (including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member States) and includes any relevant implementing measure in the Relevant Member State and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

United Kingdom

In addition, in the United Kingdom, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are "qualified investors" (as defined in the Prospectus Directive) (i) who have professional experience in matters relating to investments falling within Article 19 (5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, or "the Order", and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons").

Any person in the United Kingdom that is not a relevant person should not act or rely on the information included in this document or use it as basis for taking any action. In the United Kingdom, any investment or investment activity that this document relates to may be made or taken exclusively by relevant persons. Any person in the United Kingdom that is not a relevant person should not act or rely on this document or any of its contents.

Hong Kong

The shares have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of that Ordinance. No advertisement, invitation or document relating to the shares has been or may be issued or has been or may be in the possession of any person for the purposes of issue, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the Securities and Futures Ordinance and any rules made under that Ordinance.

Japan

The shares have not been and will not be registered under the Financial Instruments and Exchange Act. Accordingly, the shares may not be offered or sold, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to or for the benefit of a resident of Japan, except pursuant to an exemption from the registration requirements, and otherwise in compliance with, the Financial Instruments and Exchange Act and any other applicable laws, regulations and ministerial guidelines of Japan.

Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore, or "the SFA", (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275, of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(a)	a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
(b)	a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor, securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the securities pursuant to an offer made under Section 275 of the SFA except:

(a)	to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;
(b)	where no consideration is or will be given for the transfer;
(c)	where the transfer is by operation of law;
(d)	as specified in Section 276(7) of the SFA; or
(e)	as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Legal matters

Legal matters The validity of the shares of Class A common stock offered hereby will be passed upon for us by Lowenstein Sandler LLP, New York City, New York. Goodwin Procter LLP, Boston, Massachusetts is representing the underwriters in this offering.

Experts

Experts

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements at December 31, 2015 and 2016, and for each of the two years in the period ended December 31, 2016, as set forth in their report. We have included our financial statements in the prospectus and elsewhere in the registration statement in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

Where you can find more information

Where you can find more information We filed a registration statement on Form S-1 with the SEC with respect to the registration of the Class A common stock offered for sale with this prospectus. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information about us, the Class A common stock we are offering by this prospectus and related matters, you should review the registration statement, including the exhibits filed as a part of the registration statement. Statements contained in this prospectus about the contents of any contract or any other document that is filed as an exhibit to the registration statement are not necessarily complete, and we refer you to the full text of the contract or other document filed as an exhibit to the registration statement. A copy of the registration statement and the exhibits that were filed with the registration statement may be inspected without charge at the public reference facilities maintained by the SEC at 100 F. Street, N.E., Washington, D.C. 20549, and copies of all or any part of the registration statement may be obtained from the SEC upon payment of the prescribed fee. Information on the operation of the public reference facilities may be obtained by calling the SEC at 1-800-SEC-0330. The SEC maintains a website that contains reports, proxy and information statements, and other information regarding registrants that file electronically with the SEC. The address of the site is http://www.sec.gov.

Upon completion of this offering, we will become subject to the information and periodic reporting requirements of the Securities Exchange Act of 1934, as amended, and, in accordance with such requirements, will file periodic reports, proxy statements, and other information with the SEC. These periodic reports, proxy statements, and other information will be available for inspection and copying at the regional offices, public reference facilities, and web site of the SEC referred to above. We intend to furnish our stockholders with annual reports containing consolidated financial statements audited by our independent registered accounting firm.

Altair Engineering Inc. and subsidiaries

Index to consolidated financial statements

Index to consolidated financial statements

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Report of independent registered public accounting firm

Report of Independent Registered Public Accounting Firm Board of Directors and Stockholders of Altair Engineering Inc.

We have audited the accompanying consolidated balance sheets of Altair Engineering Inc. and subsidiaries as of December 31, 2015 and 2016, and the related consolidated statements of operations, comprehensive income (loss), changes in stockholders' deficit and cash flows for the years then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States) and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the consolidated financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Altair Engineering Inc. and subsidiaries at December 31, 2015 and 2016, and the consolidated results of their operations and their cash flows for the years then ended in conformity with U.S. generally accepted accounting principles.

/s/ Ernst & Young LLP Detroit, Michigan June 16, 2017

Altair Engineering Inc. and subsidiaries

Consolidated balance sheets

Consolidated balance sheets

	December 31,		June 30,	Pro forma Liabilities,MezzanineEquity and Stockholders'Deficit as of
(in thousands)	**2015**	**2016**	**2017**	**June 30, 2017**
			(unaudited)	
Assets				
CURRENT ASSETS:				
Cash and cash equivalents	$13,756	$16,874	$17,419	
Accounts receivable—net	66,821	70,498	61,499	
Inventory	2,075	1,227	1,689	
Income tax receivable	6,075	9,069	11,979	
Prepaid expenses and other current assets	7,096	7,435	10,012	
Total current assets	95,823	105,103	102,598	
Property and equipment—net	25,379	29,708	29,449	
Goodwill	29,240	36,625	43,666	
Other intangible assets—net	9,390	11,168	16,012	
Deferred tax assets	57,199	62,896	66,049	
Other long-term assets	4,819	5,276	7,836	
TOTAL ASSETS	$221,850	$250,776	$265,610	

Liabilities and Stockholders' Deficit

CURRENT LIABILITIES:				
Current portion of long-term debt	$13,817	$10,435	$10,601	$10,601
Accounts payable	6,216	5,009	6,413	6,413
Accrued compensation and benefits	20,327	22,955	22,294	22,294
Other accrued expenses and current liabilities	17,052	18,945	18,783	18,783
Deferred revenue	93,508	100,661	123,820	123,820
Total current liabilities	150,920	158,005	181,911	181,911
Long-term debt, net of current portion	69,360	74,806	60,494	60,494
Deferred revenue—non-current	13,008	13,268	12,960	12,960
Stock-based compensation awards	17,725	22,236	35,948	19,097
Other long-term liabilities	12,876	17,114	13,386	13,386
TOTAL LIABILITIES	263,889	285,429	304,699	287,848
Commitments and contingencies				
MEZZANINE EQUITY	—	—	2,345	$2,345
STOCKHOLDERS' DEFICIT:				
Common stock (no par value)				
Old Class A, authorized 24,820 shares; issued and outstanding, 10,420 and 10,301 as of December 31, 2015 and 2016, respectively	—	—	—	—
Old Class B, authorized 6,288 shares; issued and outstanding, 1,437 and 2,225 as of December 31, 2015 and 2016, respectively	—	—	—	—
New Class A, authorized 19,000 shares; issued and outstanding 2,347 as of June 30, 2017, actual and pro forma	—	—	—	—
New Class B, authorized 11,000 shares; issued and outstanding 10,301 as of June 30, 2017, actual and pro forma	—	—	—	—
Additional paid-in capital	41,914	39,693	40,889	40,889
Accumulated deficit	(77,255)	(67,092)	(76,526)	(59,675)
Accumulated other comprehensive loss	(6,708)	(7,264)	(5,797)	(5,797)
Total Altair Engineering Inc. stockholders' deficit	(42,049)	(34,663)	(41,434)	(24,583)
Noncontrolling interest	10	10	—	—
TOTAL STOCKHOLDERS' DEFICIT	(42,039)	(34,653)	(41,434)	(24,583)
TOTAL LIABILITIES, MEZZANINE EQUITY AND STOCKHOLDERS' DEFICIT	$221,850	$250,776	$265,610	$265,610

See accompanying notes to consolidated financial statements.

Altair Engineering Inc. and subsidiaries

Consolidated statements of operations

Consolidated statements of operations

	Years ended December 31,		Six months ended June 30,	
(in thousands, except share data)	**2015**	**2016**	**2016**	**2017**
			(unaudited)	
Revenue:				
Software	$205,567	$223,818	$106,929	$113,697
Software related services	37,294	35,770	17,790	17,175
Total software	242,861	259,588	124,719	130,872
Client engineering services	45,075	47,702	24,289	24,594
Other	6,193	5,950	3,332	3,062

Total revenue	294,129	313,240	152,340	158,528
Cost of revenue:				
Software	27,406	31,962	15,021	17,633
Software related services	30,079	27,653	13,838	13,773
Total software	57,485	59,615	28,859	31,406
Client engineering services	36,081	38,106	19,207	19,969
Other	5,642	4,879	2,692	2,297
Total cost of revenue	99,208	102,600	50,758	53,672
Gross profit	194,921	210,640	101,582	104,856
Operating expenses:				
Research and development	62,777	71,325	34,012	41,608
Sales and marketing	63,080	66,086	32,093	36,338
General and administrative	54,069	57,202	27,882	37,290
Amortization of intangible assets	2,624	3,322	1,477	2,098
Other operating income	(2,576)	(2,742)	(1,129)	(3,330)
Total operating expenses	179,974	195,193	94,335	114,004
Operating income (loss)	14,947	15,447	7,247	(9,148)
Interest expense	2,416	2,265	1,247	1,159
Other expense (income), net	782	(520)	(652)	786
Income (loss) before income taxes	11,749	13,702	6,652	(11,093)
Income tax expense (benefit)	818	3,539	2,699	(1,659)
Net income (loss)	$10,931	$10,163	$3,953	$(9,434)
Income (loss) per share:				
Net income (loss) per share attributable to common stockholders, basic	$0.94	$0.83	$0.33	$(0.75)
Net income (loss) per share attributable to common stockholders, diluted	$0.74	$0.70	$0.28	$(0.75)
Weighted average shares outstanding:				
Weighted average number of shares used in computing net income (loss) per share, basic	11,652	12,213	11,973	12,564
Weighted average number of shares used in computing net income (loss) per share, diluted	14,677	14,464	14,309	12,564
Pro forma net income (loss) (unaudited)		$12,341		$(3,303)
Pro forma net income (loss) per share:				
Pro forma net income (loss) per share attributable to common stockholders, basic (unaudited)		$1.01		$(0.26)
Pro forma net income (loss) per share attributable to common stockholders, diluted (unaudited)		$0.85		$(0.26)

See accompanying notes to consolidated financial statements.

Altair Engineering Inc. and subsidiaries

Consolidated statements of comprehensive income (loss)

Consolidated statements of comprehensive income (loss)

	Years ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
			(unaudited)	
Net income (loss)	$10,931	$10,163	$3,953	(9,434)
Other comprehensive income (loss), net of tax:				
Foreign currency translation (net of tax effect of $953, $(60), $(81) and $0, respectively)	(2,115)	20	(1,080)	1,511
Retirement related benefit plans (net of tax effect of $(36), $195, $102 and $0, respectively)	(253)	(576)	14	(44)
Total other comprehensive (loss) income	(2,368)	(556)	(1,066)	1,467

Comprehensive income (loss)	8,563	9,607	2,887	(7,967)
Less: comprehensive loss attributable to noncontrolling interest	(1)	—	—	—
Comprehensive income (loss) attributable to Altair Engineering Inc.	$8,564	$9,607	$2,887	$(7,967)

See accompanying notes to consolidated financial statements.

Altair Engineering Inc. and subsidiaries

Consolidated statement of changes in stockholders' deficit

Consolidated statement of changes in stockholders' deficit

	Common stock[1]									
(in thousands, except share data)	New class A voting		New class B voting		Additional paid-in capital		Accumulated other comprehensive loss	Total Altair Engineering Inc. stockholders' deficit	Non-controlling interest	Totalstockholders' deficit
	Shares	Amount	Shares	Amount						
Balance at January 1, 2015	1,071	$ —	10,391	$ —	$41,530	$(87,461)	$(4,341)	$(50,272)	$11	$(50,261)
Net income	—	—	—	—	—	10,931	—	10,931	—	10,931
Issuance of common stock	432	—	50	—	1,036	—	—	1,036	—	1,036
Stock redemptions	(66)	—	(21)	—	(1,221)	—	—	(1,221)	—	(1,221)
Return of capital	—	—	—	—	—	(725)	—	(725)	—	(725)
Stock-based compensation	—	—	—	—	569	—	—	569	—	569
Foreign currency translation, net of tax	—	—	—	—	—	—	(2,114)	(2,114)	(1)	(2,115)
Retirement related benefit plans, net of tax	—	—	—	—	—	—	(253)	(253)	—	(253)
Balance at December 31, 2015	1,437	—	10,420	—	41,914	(77,255)	(6,708)	(42,049)	10	(42,039)
Net income	—	—	—	—	—	10,163	—	10,163	—	10,163
Issuance of common stock	871	—	—	—	456	—	—	456	—	456
Stock redemptions	(83)	—	(119)	—	(3,291)	—	—	(3,291)	—	(3,291)
Stock-based compensation	—	—	—	—	614	—	—	614	—	614
Foreign currency translation, net of tax	—	—	—	—	—	—	20	20	—	20
Retirement related benefit plans, net of tax	—	—	—	—	—	—	(576)	(576)	—	(576)
Balance at December 31, 2016	2,225	—	10,301	—	39,693	(67,092)	(7,264)	(34,663)	10	(34,653)
Net loss (unaudited)	—	—	—	—	—	(9,434)	—	(9,434)	—	(9,434)

Issuance of common stock (unaudited)	122	—	—	—	890	—	—	890	—	890
Purchase of noncontrolling interests (unaudited)	—	—	—	—	(19)	—	—	(19)	(10)	(29)
Stock-based compensation (unaudited)	—	—	—	—	325	—	—	325	—	325
Foreign currency translation, net of tax (unaudited)	—	—	—	—	—	—	1,511	1,511	—	1,511
Retirement related benefit plans, net of tax (unaudited)	—	—	—	—	—	—	(44)	(44)	—	(44)
Balance at June 30, 2017 (unaudited)	2,347	$—	10,301	$—	$40,889	$(76,526)	$(5,797)	$(41,434)	$—	$(41,434)

(1) All references to Common stock refer to the Company's currently existing Class A and Class B shares following the *Recapitalization* as described in Note 10.

See accompanying notes to consolidated financial statements.

Altair Engineering Inc. and subsidiaries

Consolidated statements of cash flows

Consolidated statements of cash flows

	Years Ended December 31,		Six months ended June 30,	
(in thousands)	**2015**	**2016**	**2016**	**2017**
			(unaudited)	
OPERATING ACTIVITIES:				
Net income (loss)	$10,931	$10,163	$3,953	$(9,434)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:				
Depreciation and amortization	8,378	9,980	4,847	5,084
Provision for bad debt	145	291	133	116
Write-down of inventory to net realizable value	1,003	179	—	—
Stock-based compensation expense	597	5,132	175	14,037
Deferred income taxes	(9,131)	(6,076)	194	(3,679)
Other, net	124	86	(8)	34
Changes in assets and liabilities:				
Accounts receivable	(8,120)	(4,397)	11,019	11,412
Prepaid expenses and other current assets	(5,115)	(2,337)	(2,869)	(3,850)
Other long-term assets	(1,526)	(930)	(732)	(2,567)
Accounts payable	558	(1,321)	(945)	955
Accrued compensation and benefits	2,006	2,366	(1,202)	(1,531)
Other accrued expenses and current liabilities	2,488	(1,173)	(3,120)	(2,331)
Deferred revenue	8,500	9,422	10,561	17,871
Net cash provided by operating activities	10,838	21,385	22,006	26,117
INVESTING ACTIVITIES:				
Capital expenditures	(5,233)	(9,444)	(3,699)	(4,335)
Payments for acquisition of businesses	(2,757)	(6,499)	(4,775)	(6,437)
Purchase of noncontrolling interests	—	—	—	(29)

Other investing activities, net	(40)	(90)	(63)	(119)
Net cash used in investing activities	(8,030)	(16,033)	(8,537)	(10,920)
FINANCING ACTIVITIES:				
Borrowings under revolving commitment	103,186	151,928	79,183	44,227
Payments on revolving commitment	(91,673)	(136,087)	(75,279)	(53,564)
Principal payments on long-term debt	(15,950)	(16,232)	(10,939)	(5,248)
Proceeds from issuance of debt	1,248	2,030	2,028	—
Payments of deferred offering costs	—	—	—	(869)
Principal payments on capital leases	(55)	(185)	(8)	(20)
Payment for return of capital	—	(725)	(725)	—
Proceeds from issuance of common stock	291	456	202	476
Payments for redemption of common stock	(1,744)	(3,049)	(1,137)	(611)
Net cash used in financing activities	(4,697)	(1,864)	(6,675)	(15,609)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(1,639)	(362)	646	962
Net (decrease) increase in cash, cash equivalents and restricted cash	(3,528)	3,126	7,440	550
Cash, cash equivalents and restricted cash at beginning of year	17,541	14,013	14,013	17,139
Cash, cash equivalents and restricted cash at end of period	$14,013	$17,139	$21,453	$17,689
Supplemental disclosures of cash flow:				
Interest paid	$2,261	$2,190	$1,083	$1,163
Income taxes paid	$5,626	$5,909	$2,178	$2,352
Supplemental disclosure of non-cash investing and financing activities:				
Notes issued for stock redemptions	$753	$807	$1,160	$—
Capital leases	$270	$129	$—	$—
Promissory notes issued for acquisitions	$750	$4,182	$2,407	$2,728
Issuance of common stock in connection with acquisitions	$745	$—	$—	$415
Obligations for return of capital in other current liabilities	$725	$—	$—	$—
Deferred offering costs in other long-term assets	$—	$—	$—	$1,522
Property and equipment in accounts payable, other accrued expenses and current liabilities and other liabilities	$178	$1,777	$2,035	$155
Issuance of common stock with put rights	$—	$—	$—	$2,345

See accompanying notes to consolidated financial statements.

Altair Engineering Inc. and subsidiaries

Notes to consolidated financial statements

Notes to consolidated financial statements

(Unaudited as of June 30, 2017 and for the six months ended June 30, 2016 and 2017)

1. Description of business

Altair Engineering Inc. (“Altair” or the “Company”) was formed in 1985 and incorporated in the state of Michigan. The Company, together with its subsidiaries, is a provider of enterprise-class engineering software to enable innovation across the entire product lifecycle from concept design to in-service operation.

The Company’s simulation-driven approach to innovation is powered by its broad portfolio of high-fidelity and high-performance physics solvers. The Company’s integrated suite of software optimizes design performance across multiple disciplines including structures, motion, fluids, thermal management, electromagnetics, system modeling and embedded systems, while also providing data analytics and true-to-life visualization and rendering.

Altair’s engineering and design platform offers a wide range of multi-disciplinary computer aided engineering (“CAE”) solutions. The Company engages with its customers to provide consulting, training, and support, especially when applying optimization.

Altair also provides Client Engineering Services to support its customers with long-term ongoing product design and development expertise. This has the benefit of embedding the Company within customers, deepening its understanding of their processes, and allowing the Company to more quickly perceive trends in the overall market, helping the Company to better tailor its research and development and sales initiatives. The Company hires simulation specialists, industrial designers, design engineers, materials experts, development and test specialists, manufacturing engineers and information technology specialists for placement at a customer site for specific customer-directed assignments.

2. Summary of significant accounting policies

Principles of consolidation

The accompanying consolidated financial statements have been prepared using accounting principles generally accepted in the United States of America ("U.S. GAAP"). The consolidated financial statements include the results of the Company and its controlled subsidiaries. Third-party holdings of equity interests in the Company's subsidiaries that are less than controlled represent noncontrolling interests. Intercompany accounts and transactions have been eliminated in the consolidated financial statements.

Use of estimates

The preparation of the consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, and disclosures of contingent assets and liabilities at the date of the financial statements, and reported amounts of revenue and expenses during the reporting periods. On an ongoing basis, management evaluates its significant estimates including provision for doubtful accounts, tax valuation allowances, liabilities for uncertain tax provisions, impairment of goodwill and intangible assets, retirement obligations, useful lives of intangible assets, revenue for fixed price contracts, valuation of common stock, and stock-based compensation. Actual results could differ from those estimates.

Unaudited interim consolidated financial information

The accompanying interim consolidated balance sheet as of June 30, 2017, the interim consolidated statements of operations, comprehensive income (loss), stockholders' deficit, and the cash flows for the six months ended June 30, 2016 and 2017 are unaudited. The unaudited interim financial statements have been prepared on the same basis as the audited consolidated financial statements, and in management's opinion, include all adjustments, consisting of only normal recurring adjustments, necessary for the fair presentation of the Company's financial position as of June 30, 2017, and its results of operations and cash flows for the six months ended June 30, 2016 and 2017. The financial data and the other financial information disclosed in the notes to these consolidated financial statements related to the six-month periods are also unaudited. The results of operations for the six months ended June 30, 2017 are not necessarily indicative of the results to be expected for the full year or any other period.

Unaudited pro forma balance sheet information

The unaudited pro forma balance sheet information as of June 30, 2017 presents the Company's liabilities, mezzanine equity and stockholders' deficit to give effect to the assumed automatic conversion of the class A redeemable common shares into shares of Class A common stock that will occur upon effectiveness of the initial public offering, as though the conversion had occurred as of the beginning of the period.

Foreign currency translation

The functional currency of the Company's foreign subsidiaries is their respective local currency. The assets and liabilities of the subsidiaries are translated to U.S. dollars at the exchange rate on the balance sheet date. Equity balances and transactions are translated using historical exchange rates. Revenues and expenses are translated at the average exchange rate during the period. Translation adjustments arising from the use of differing exchange rates from period to period are recorded as a component of accumulated other comprehensive loss within stockholders' deficit.

All assets and liabilities denominated in a currency other than the functional currency are remeasured into the functional currency with gains and losses recognized in foreign currency losses, net, in the consolidated statements of operations. The Company has no transactions which hedge purchase commitments and no intercompany balances which are designated as being of a long-term investment in nature.

Revenue recognition

The Company generates revenue from the following sources: (1) Software; (2) Client engineering services; and (3) Other. Revenue is recognized when persuasive evidence of an agreement exists, delivery has occurred or services have been rendered, the fee is fixed or determinable, and collection of the fee is probable or reasonably assured. Certain transactions require that government imposed taxes be assessed to the customer. The Company presents revenue net of such government imposed taxes.

Software revenue

Software component

Software revenue includes product revenue from software product licensing arrangements, related services consisting of software maintenance and support in the form of post-contract customer support ("PCS"), and professional services such as consulting and training services. Software products are sold to customers primarily under a term-based software licensing model and to a lesser degree, perpetual software licenses. Software revenue also includes consulting services from product design and development projects.

Most term-based software license agreements include the Company's patented units-based subscription model which allows customers to license a pool of units for their organizations, providing individual users flexible access to the Company's entire portfolio of software applications as well as to its growing portfolio of partner products. The amount of software usage is limited by the number of the units licensed by the customer. Revenue from these arrangements is fixed (based on the units licensed) and is not based on actual customer usage of each software product.

Software product license arrangements may include PCS and professional services, such as consulting and training services, which represent multiple-element arrangements. The Company has analyzed the elements included in its multiple element arrangements and has determined that it does not have vendor-specific objective evidence ("VSOE") of fair value to allocate revenue to its software products license, PCS, and professional services including consulting and training. For arrangements that have two or more elements such as software, PCS or professional services for which the Company has not established VSOE of fair value, the Company uses the combined services approach to recognize revenue for these transactions. Under the combined services approach, revenue from the software product licenses, including perpetual licenses, PCS and professional services, if applicable, are considered to be one accounting unit and, once the software has been delivered and the provision of each undelivered service has commenced, are recognized ratably over the remaining period of the arrangement which consists of the longer of the PCS period, or the period the professional services are expected to be performed. If the professional services are essential to the functionality of the software products, then revenue recognition does not commence until such services are completed. In transactions with resellers, the Company contracts only with the reseller, in which pricing, length of licenses and support services are agreed upon. The reseller negotiates the price charged and length of licenses and support service directly with its customer.

The term-based software license arrangements typically have a duration of 12 months and include PCS, including the right to receive unspecified software upgrades, when and if available during the license term. The Company does not charge separately for PCS. Revenues for software licenses sold on a term-based model are recognized ratably over the term of the license arrangement, once all other revenue recognition criteria have been met.

The Company also sells perpetual licenses to its customers. The Company does not have VSOE of fair value for PCS, which is sold along with the perpetual licenses. As a result, revenue from these arrangements is recognized ratably over the initial PCS term.

Software related services component Consulting services from product design and development projects are provided to customers on a time-and-materials ("T&M") or fixed-price basis. Altair recognizes software services revenue for T&M contracts based upon hours worked and contractually agreed-upon hourly rates. Revenue from fixed-price engagements is recognized using the proportional performance method based on the ratio of costs incurred, to the total estimated project costs. Project costs are based on standard rates, which vary by the consultant's professional level, plus all direct expenses incurred to complete the engagement that are not reimbursed by the client. Project costs are typically expensed as incurred. The use of the proportional performance method is dependent upon management's ability to reliably estimate the costs to complete a project. We use historical experience as a basis for future estimates to complete current projects. Additionally, the Company believes that costs are the best available measure of performance. If the costs to complete a project are not estimable or the completion is uncertain, the revenue is recognized upon completion of the services.

Client engineering services revenue Client engineering services revenue are derived from professional services for staffing primarily representing engineers located at a customer site. These professional services are provided to customers on a T&M basis. The Company recognizes engineering services revenue for T&M contracts based upon hours worked and contractually agreed-upon hourly rates.

Other revenue

Other revenue includes product revenue from the sale of LED products for the replacement of fluorescent tubes. Revenue from the sale of LED products for the replacement of fluorescent tubes is recognized when all revenue recognition criteria stated above are met, which is generally when the products are delivered to resellers or to end customers. Sales returns, which reduce revenue and cost of revenue, are estimated using historical experience.

Cost of revenue

Cost of software

Cost of software revenue consist of expenses related to software licensing and customer support. Significant expenses include employee related costs for support team members, travel costs, and royalties for third-party software products available to customers through the Company's products or as part of the Company's Partner Alliance Program.

Cost of client engineering services Cost of engineering services revenue consist primarily of employee compensation costs.

Cost of other

Cost of other revenue includes the cost of LED lighting products and freight related to products sold to retail and commercial sales channels.

Deferred revenue

Deferred revenue consists of customer billings or payments received in advance of the recognition of revenue and is recognized as revenue when revenue recognition criteria are met.

Deferred offering costs

Deferred offering costs, which consist of direct incremental legal and accounting fees, and other direct costs relating to the Company's initial public offering ("IPO"), are capitalized. The deferred offering costs will be offset against IPO proceeds upon the consummation of the IPO. In the event the offering is terminated or suspended, deferred offering costs will be expensed. No amounts were deferred as of December 31, 2015 or 2016. As of June 30, 2017, the Company deferred $2.4 million of offering costs, which are recorded as other long-term assets in the accompanying consolidated balance sheet.

Cash, cash equivalents and restricted cash

The Company considers all highly liquid investments with original or remaining maturities of 90 days or less at the date of purchase to be cash equivalents. Cash and cash equivalents are recorded at cost, which approximates fair value.

Restricted cash is included in other long-term assets on the consolidated balance sheets. The following table provides a reconciliation of cash, cash equivalents and restricted cash reported in the consolidated balance sheets that sum to the total of the amounts reported in the consolidated statements of cash flows (in thousands):

	December 31,		June 30,
	2015	2016	2017
	(unaudited)		
Cash and cash equivalents	$13,756	$16,874	$17,419
Restricted cash included in other long-term assets	257	265	270
Total cash, cash equivalents, and restricted cash shown in the statement of cash flows	$14,013	$17,139	$17,689

Restricted cash represents amounts required for a contractual agreement with an insurer for the payment of potential health insurance claims, and term deposits for bank guarantees.

Accounts receivable, net

An allowance for doubtful accounts is recorded when amounts are determined to be uncollectible based on specific identification of customer circumstances, age of the receivable and other available information. Accounts are written off when it becomes apparent that such amounts will not be collected. Generally, the Company does not require collateral or charge interest on accounts receivable. Accounts receivable were reported net of an allowance for doubtful accounts of $0.9 million and $0.6 million at December 31, 2015 and 2016, respectively. Activity in the allowance for doubtful accounts was as follows (in thousands):

	For the year ended December 31,	
	2015	2016
Balance, beginning of year	$(1,439)	$(937)
Provision charged to expense	(145)	(291)
Write-offs, net of recoveries	536	638
Effects of foreign currency translation	111	25
Balance, end of year	$(937)	$(565)

Concentrations of credit risk

The Company's financial instruments that are potentially subject to concentrations of credit risk consist primarily of cash and trade receivables. The risk with respect to trade receivables is partially mitigated by the diversity, both by geography and by industry, of the Company's customer base. The Company's accounts receivable are derived from sales to a large number of direct customers and resellers around the world. Sales to customers within the automotive industry accounted for 51% and 50%, respectively, of the Company's 2015 and 2016 revenue, with no other industry representing more than 10% of revenue. No individual customer accounted for 10% or more of revenue in the years ended December 31, 2015 or 2016.

Inventory

Inventory is stated at the lower of cost or market. Cost is determined using the first-in, first-out method. The valuation of inventory requires management to estimate excess inventory as well as inventory that is not of saleable quality. The determination of obsolete or excess inventory requires management to estimate market conditions and future demand for the Company's products.

Inventory consisted of the following (in thousands):

	December 31,		June 30,
	2015	2016	2017
			(unaudited)
Raw materials	$790	$570	$546
Finished goods	2,241	1,507	1,913
Obsolescence and excess reserve	(956)	(850)	(770)
Total inventory	$2,075	$1,227	$1,689

Property and equipment, net

Property and equipment are stated at cost, less accumulated depreciation and amortization. Equipment held under capital leases are stated at the present value of minimum lease payments less accumulated amortization. Depreciation is calculated using the straight-line method over the estimated useful lives of the assets. Leasehold improvements and assets acquired under capital leases are amortized over the lease term or the estimated useful life of the related asset or improvement, whichever is shorter.

Expenditures for maintenance and repairs are charged to expense in the period incurred. Major expenditures for betterments are capitalized when they meet the criteria for capitalization. When assets are retired or otherwise disposed of, the cost and accumulated depreciation are removed from the accounts and any resulting gain or loss is reflected in the consolidated statements of operations in the period realized.

Software development costs

Software development costs incurred prior to the establishment of technological feasibility are expensed as incurred. Technological feasibility is established upon the completion of a detailed program design. Capitalization of software development costs begins upon the establishment of technological feasibility and ends when the product is available for general release. Generally, the time between the establishment of technological feasibility and commercial release of software is short. As such, all internal software development costs have been expensed as incurred and included in research and development expense in the accompanying consolidated statements of operations.

Impairment of long-lived assets

Long-lived assets, such as property and equipment, and definite-lived intangible assets, including developed technology, and customer relationships, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If circumstances require a long-lived asset or asset group to be tested for possible impairment, the Company compares the undiscounted future cash flows expected to be generated by that asset or asset group to its carrying amount. If the carrying amount of the long-lived asset or asset group is not recoverable on an undiscounted cash flow basis, an impairment charge is recognized to the extent that the carrying amount exceeds its fair value. Fair value is determined through various valuation techniques, including discounted cash flow models and third-party independent appraisals. No impairment losses were recognized in 2015, 2016, or for the six months ended June 30, 2017.

Goodwill and other indefinite-lived intangible assets

Goodwill represents the excess of the consideration transferred for an acquired entity over the estimated fair values of the net tangible assets and the identifiable assets acquired. As described in Note 4—Acquisitions, the Company has recorded goodwill in connection with certain acquisitions. Goodwill and other indefinite-lived intangible assets are not amortized, but rather are reviewed for impairment annually or more frequently if facts or circumstances indicate that its carrying value may not be recoverable.

The Company has determined that there is one reporting unit with goodwill subject to goodwill impairment testing. An entity has the option to perform a qualitative assessment to determine whether it is more likely than not that the fair value of the reporting unit is less than its carrying amount prior to performing the quantitative two-step impairment test. The qualitative assessment evaluates various events and circumstances, such as macro-economic conditions, industry and market conditions, cost factors, relevant events and financial trends that may impact a reporting unit's fair value. If it is determined that the estimated fair value of the reporting unit is more likely than not less than its carrying amount, including goodwill, the two-step goodwill impairment test is required. Otherwise, no further analysis would be required.

If the two-step impairment test for goodwill is deemed necessary, this quantitative impairment analysis compares the fair value of the Company's reporting unit to its related carrying value. If the fair value of the reporting unit is less than its carrying amount, an indication of goodwill impairment exists and the Company must perform step two of the impairment test. Under step two, an impairment loss is recognized for any excess of the carrying amount of the reporting unit's goodwill over the implied fair value of that goodwill. The implied fair value of goodwill is determined by allocating the fair value of the reporting unit in a manner similar to a purchase price allocation and the residual fair value after this allocation is the implied fair value of the reporting unit goodwill. Fair value of the reporting units is determined using an income approach. The income approach is based on projected debt-free cash flows which are discounted to the present value using discount factors that consider the timing and risk of cash flows. The Company also takes into consideration a multiple of earnings valuation technique. The Company believes that this approach is appropriate because it provides a reasonable estimate of the price that would be received to sell the reporting unit in an orderly transaction between market participants at the measurement date. While there are inherent uncertainties related to the assumptions used in this analysis, the Company believes that this approach provides a reasonable estimate of fair value. If the fair value of the reporting unit exceeds its carrying amount, step two does not need to be performed.

The Company performs its annual impairment review of goodwill in the fourth quarter of each year and when a triggering event occurs between annual impairment dates. For 2015 and 2016, the Company performed a qualitative assessment of goodwill and determined that it was not more likely than not that the fair value of its reporting unit with goodwill was less than the carrying amounts. Accordingly, the Company determined that its goodwill was not impaired.

Valuation of common stock

Due to the absence of an active market for the Company's common stock, the Board of Directors, with the assistance of a third-party valuation specialist, determines the fair value of the Company's common stock. The valuation methodology includes estimates and assumptions including forecasts of future cash flows that require significant judgments. These valuations consider a number of objective and subjective factors, including the Company's actual operating and financial performance, external market conditions, performance of comparable publicly traded companies, comparable transactions, business developments, likelihood of achieving a liquidity event, such as an initial public offering or sale, and common stock transactions, among other factors. The Company utilized methodologies in accordance with the framework of the American Institute of Certified Public Accountants' Technical Practice Aid, *Valuation of Privately-Held Company Equity Securities issued as Compensation,* to estimate the fair value of its common stock. Significant changes to the key assumptions used in the valuations could result in different fair values of the Company's common stock at each valuation date.

Derivative financial instruments

The Company may use derivative financial instruments, primarily interest rate swap contracts, to hedge its exposure to interest rate risk. Such derivative financial instruments are initially recorded at fair value on the date on which a derivative contract is entered into and are subsequently remeasured to fair value at period end. Any gains or losses arising from changes in fair value on derivative contracts during the year are recorded in other expense (income), net in the consolidated statement of operations. Hedge accounting has not been applied.

Income taxes

The Company accounts for income taxes under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and for operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date. The Company records net deferred tax assets to the extent it believes that these assets will more likely than not be realized. These deferred tax assets are subject to periodic assessments as to recoverability and if it is determined that it is more likely than not that the benefits will not be realized, valuation allowances are recorded which increase the provision for income taxes. In making such determination, the Company considers all available positive and negative evidence, including historical taxable income, projected future taxable income, the expected timing and reversal of existing temporary differences and tax planning strategies. If based upon the evidence, it is more likely than not that the deferred tax asset will not be realized, a valuation allowance is recorded. A valuation allowance is recognized to reduce deferred tax assets to the amount that management believes is more likely than not to be realized.

The Company applies a more-likely-than-not recognition threshold to its accounting for tax uncertainties. The Company reviews all of its tax positions and makes determinations as to whether its tax positions are more likely than not to be sustained upon examination by the relevant taxing authorities. Only those benefits that have a greater than fifty percent likelihood of being sustained upon examination by taxing authorities are recognized. Interest and penalties related to uncertain tax positions are recorded in the provision for income taxes in the consolidated statements of operations.

In November 2015, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2015-17, *Balance Sheet Classification of Deferred Taxes*, which eliminates the guidance in Topic 740, Income Taxes, that required an entity to separate deferred tax assets and liabilities between current and noncurrent amounts in a classified balance sheet. The amendments require that all deferred tax assets and liabilities of the same jurisdiction or a tax filing group, as well as any related valuation allowance, be offset and presented as a single noncurrent amount in a classified balance sheet. The standard is effective for annual periods beginning after December 15, 2016, and interim periods within those annual periods, and may be applied on either prospectively to all deferred tax liabilities and assets or retrospectively to all periods presented. Early adoption is permitted. The Company adopted this standard early for the year ended December 31, 2015. The adoption of this standard did not have a material impact on the Company's financial statements.

Research and development costs

Research and development costs are expensed as incurred. Research and development expenses consist primarily of salaries and benefits of research and development employees and costs incurred related to the development of new software products and significant enhancements and engineering changes to existing software products.

Advertising costs

Advertising costs are expensed as incurred. Advertising expenses were $2.2 million and $2.5 million for the years ended December 31, 2015 and 2016, respectively.

Mezzanine equity

During the quarter ended June 30, 2017, the Company issued 50,000 shares of new class A common stock to a third party as partial consideration for the purchase of developed technology. These shares have a put right that can be exercised by the holder five years from date of purchase at $50 per share that requires the shares to be recorded at fair value and classified as mezzanine equity in the consolidated balance sheet.

Stock-based compensation

Employee stock-based awards, consisting of stock options expected to be settled by issuing shares of Class B Common Stock, are recorded as equity awards. The fair value of these awards on the date of grant is measured using the Black-Scholes option pricing model. The Company expenses the grant date fair value of its time-vested stock options subject to graded vesting using the straight-line method over the applicable service period.

Employee stock-based awards, consisting of stock options with repurchase features that allow them to be settled in cash at a purchase price that is less than the current fair value are considered liability-based awards. These awards are initially recorded at fair value and remeasured to fair value at the end of each reporting period until settled. During the quarter ended June 30, 2017, the Company changed its accounting policy to measure the fair value of its liability awards using the Black-Scholes option pricing model. The impact of the change in accounting policy was immaterial to the financial statements.

Recent accounting guidance

Accounting standards adopted The Company adopted ASU No. 2014-15, *Presentation of Financial Statements—Going Concern,* effective for the year ended December 31, 2016. This update provides guidance regarding management's responsibility to evaluate whether there exists substantial doubt about an organization's ability to continue as a going concern and to provide related footnote disclosures in certain circumstances. The adoption did not have a material effect on the Company's consolidated financial statements.

The Company adopted ASU No. 2015-03, *Simplifying the Presentation of Debt Issuance Costs ("ASU 2015-03"),* effective for the year ended December 31, 2016. This update amended existing guidance to require that debt issuance costs related to a recognized debt liability be presented in the balance sheet as a direct reduction from the carrying amount of that debt liability, consistent with debt discounts. ASU 2015-03 was applied retrospectively and did not have a material effect on the Company's consolidated financial statements.

The Company adopted ASU No. 2015-05, *Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Fees Paid in a Cloud Computing Arrangement* ("ASU 2015-05"), effective for the year ended December 31, 2016. The amendments in this update provided guidance to customers about whether a cloud computing arrangement includes a software license. If a cloud computing arrangement includes a software license, then

the customer should account for the software license element of the arrangement consistent with the acquisition of other software licenses. If a cloud computing arrangement does not include a software license, the customer should account for the arrangement as a service contract. The guidance did not change U.S. GAAP for a customer's accounting for service contracts. ASU 2015-05 was applied retrospectively and did not have a material effect on the Company's consolidated financial statements.

The Company adopted ASU No. 2015-16, *Business Combinations: Simplifying the Accounting for Measurement-Period Adjustments* ("ASU 2015-16"), effective for the year ended December 31, 2016. The amendments in ASU 2015-16 eliminate the requirement to restate prior period financial statements for measurement period adjustments. The amendments also require that the cumulative impact of a measurement period adjustment (including the impact on prior periods) be recognized in the reporting period in which the adjustment is identified. The amendments for ASU 2015-16 were prospectively applied and did not have a material effect on the Company's consolidated financial statements.

The Company adopted ASU No. 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash* ("ASU 2016-18"), effective for all periods beginning after December 15, 2017. ASU 2016-18 clarifies the presentation of restricted cash and restricted cash equivalents in the statements of cash flows. Under ASU 2016-18 restricted cash and restricted cash equivalents are included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statements of cash flows. The Company early adopted ASU No 2016-18 in 2016 on a retrospective basis, and the adoption did not have a material effect on the Company's consolidated financial statements.

The Company adopted ASU No. 2015-11, *Inventory: Simplifying the Measurement of Inventory*, ASU 2015-11, effective for fiscal years and interim periods beginning after December 15, 2016. ASU 2015-11 requires an entity to measure inventory within the scope at the lower of cost and net realizable value. Net realizable value is the estimated selling prices in the ordinary course of business, less reasonable predictable costs of completion, disposal and transportation. The Company adopted ASU No 2015-11 on January 1, 2017, on a prospective basis, and the adoption did not have a material effect on the Company's consolidated financial statements.

Accounting standards not yet adopted Revenue Recognition—In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers* ("ASU 2014-09"). This standard outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes most existing revenue recognition guidance under U.S. GAAP. The core principle of the guidance is that an entity should recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. ASU 2014-09 also requires enhanced disclosures about the nature, amount, timing, and uncertainty of revenues and cash flows arising from contracts with customers. Entities have the option of using either a full retrospective or a modified retrospective approach for the adoption of the new standard. In August 2015, the FASB issued ASU 2015-14, *Revenue from Contracts with Customers: Deferral of the Effective Date* that defers the effective date of ASU 2014-09 for all entities by one year for public business entities. This ASU is effective for fiscal years beginning after December 15, 2017 including interim periods within that reporting period. For all other entities, including emerging growth companies, this ASU is effective for fiscal years beginning after December 15, 2018, and interim periods within annual periods beginning after December 15, 2019. Early adoption is permitted.

The Company is evaluating the use of either the retrospective or modified retrospective transition method and the timing of adopting this standard. Under existing U.S. GAAP, the Company does not have VSOE of fair value for PCS sold along with software products licenses; therefore, revenues for the software products licenses (including perpetual licenses), PCS and professional services, if applicable, are considered to be one accounting unit and, once all services have commenced, are recognized ratably over the remaining period of the arrangement (the longer of the contractual service term or PCS term). Under ASU 2014-09, the concept of assessing VSOE has been eliminated and the Company must estimate a fair value associated with each performance obligation within an arrangement. As a result, the Company expects the timing of revenue recognition to be accelerated because it anticipates that license revenue will be recognized at a point in time, rather than over time, which is its current practice. Generally, the license revenue component of an arrangement represents a significant portion of the overall fair value of a software arrangement. As a result, the Company expects the impact of adopting ASU 2014-09 to have a significant impact on the consolidated financial statements. The Company is currently evaluating the method of implementation and impact this standard will have on its consolidated financial statements.

Financial Instruments—In January 2016, the FASB issued ASU No. 2016-01, *Financial Instruments—Overall: Recognition and Measurement of Financial Assets and Financial Liabilities* ("ASU 2016-01"). This standard affects the accounting for equity instruments, financial liabilities under the fair value option and the presentation and disclosure requirements of financial instruments. The standard is effective for public entities for annual reporting periods beginning after December 15, 2017, including interim periods within those fiscal years. For all other entities, including emerging growth companies, ASU 2016-01 is effective for fiscal years beginning after December 21, 2018, and interim periods within fiscal years beginning after December 15, 2019. Early adoption is permitted. The Company is evaluating the impact of the adoption of ASU 2016-01 on its financial statements and related disclosures.

Leases—In February 2016, the FASB issued ASU No. 2016-02, *Leases* ("ASU 2016-02"). This standard amends various aspects of existing accounting guidance for leases, including the recognition of a right-of-use asset and a lease liability on the balance sheet for all leases with terms longer than 12 months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. This standard also introduces new disclosure requirements for leasing arrangements. The standard is effective for public entities for annual reporting periods, and interim periods within those annual reporting periods, beginning after December 15, 2018. For all other entities, including emerging growth companies, ASU 2016-02 is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years beginning after December 15, 2020. Early adoption is permitted. The new standard must be adopted using a modified retrospective approach, and provides for certain practical expedients. The Company is evaluating the impact of the adoption of ASU 2016-02 on its financial statements and related disclosures.

Employee Share-Based Payment Accounting—In March 2016, FASB issued ASU No. 2016-09, *Improvements to Employee Share-Based Payment Accounting* ("ASU 2016-09"). This standard involves several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities and classification on the statement of cash flows. The standard is effective for public entities for annual reporting periods, and interim periods within those annual periods, beginning after December 15, 2016. For all other entities, including emerging growth

companies, ASU 2016-09 is effective for annual periods beginning after December 15, 2017 and interim periods within fiscal years beginning after December 15, 2018. The method of adoption is dependent on the specific aspect of accounting addressed in this new guidance. The Company is evaluating the impact of the adoption of ASU 2016-09 on its financial statements and related disclosures.

Cash Classification—In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments* ("ASU 2016-15"), to improve financial reporting in regards to how certain transactions are classified in the statement of cash flows. ASU 2016-15 provides guidance for targeted changes with respect to how cash receipts and cash payments are classified in the statements of cash flows, with the objective of reducing diversity in practice. The standard is effective for public entities for annual reporting periods beginning after December 15, 2017, including interim periods within those fiscal years. For all other entities, including emerging growth companies, ASU 2016-15 is effective for fiscal years beginning after December 15, 2018, and interim periods within fiscal years beginning after December 15, 2019. Early adoption is permitted. The Company is evaluating the impact of the adoption of ASU No. 2016-15 on its financial statements and related disclosures.

Business Combinations—In January 2017, the FASB issued ASU No. 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business* ("ASU 2017-01"). This update narrows the definition of a business. If substantially all the fair value of the gross assets acquired is concentrated in a single identifiable asset or group of similar identifiable assets, the acquiree may not be considered a business. The update also requires a business to include an input and a substantive process that significantly contributes to the ability to create outputs. This definition is expected to reduce the number of acquisitions accounted for as business combinations, which will impact the accounting treatment of certain items, including the accounting treatment of contingent consideration and transaction expenses. The standard is effective for public entities for annual reporting periods beginning after December 15, 2017, including interim periods within those fiscal years. For all other entities, including emerging growth companies, ASU 2017-01 is effective for annual periods beginning after December 15, 2018, and interim periods within annual periods beginning after December 15, 2019. Early adoption is permitted and the update will be applied prospectively. The effect of the implementation will depend upon the nature of the Company's future acquisitions.

3. Fair value measurements

The accounting guidance for fair value, among other things, defines fair value, establishes a consistent framework for measuring fair value and expands disclosure for each major asset and liability category measured at fair value on either a recurring or nonrecurring basis. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in an orderly transaction between market participants at the reporting date. The framework for measuring fair value consists of a three-level valuation hierarchy that prioritizes the inputs to valuation techniques used to measure fair value based upon whether such inputs are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect market assumptions made by the reporting entity. The three-level hierarchy for the inputs to valuation techniques is briefly summarized as follows:

Level 1—	Quoted prices in active markets for identical assets and liabilities at the measurement date;
Level 2—	Observable inputs, other than the quoted prices in active markets, that are observable either directly or indirectly; and
Level 3—	Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

An asset's or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques used need to maximize the use of observable inputs and minimize the use of unobservable inputs.

Items measured at fair value on a recurring basis

The following table sets forth a summary of the changes in the fair value of the Company's Level 3 financial liabilities (in thousands):

	Liability fornew Class A redeemablecommonshares	Liability for stock-basedcompensationawards
Balance at December 31, 2014	$6,172	$11,654
Shares issued upon exercise of stock options	609	—
Repurchase of shares	(218)	—
Forfeitures of stock options	—	(188)
Exercise of stock options	—	(687)
Change in fair value	129	254
Balance at December 31, 2015	6,692	11,033
Shares issued upon exercise of stock options	1,841	—
Repurchase of shares	(79)	—
Exercise of stock options	—	(2,084)
Forfeitures of stock options	—	(110)
Change in fair value	2,178	2,765

Balance at December 31, 2016	10,632	11,604
Shares issued upon exercise of stock options (unaudited)	88	—
Exercise of stock options (unaudited)	—	(216)
Forfeitures of stock options (unaudited)	—	(54)
Change in fair value (unaudited)	6,131	7,763
Balance at June 30, 2017 (unaudited)	$16,851	$19,097

The carrying value of cash and cash equivalents, accounts receivable and accounts payable approximate fair value due to their short maturities. Interest on the Company's long-term debt is at a variable rate, and as such the debt obligation outstanding approximates fair value.

The carrying value of the Company's derivative financial instruments are measured at fair value on a recurring basis. The fair value of derivatives is determined based on inputs derived from or corroborated by observable market data pertaining to relevant interest rates and is considered a level 2 fair value measurement. See Note 9—Financial instruments for additional information regarding the use and fair value of derivatives.

4. Acquisitions

Carriots S.L. (unaudited)

In May 2017, the Company acquired 100% of the shares of Carriots S.L. ("Carriots") for $3.6 million cash, $2.7 million notes payable, and 20,000 shares of the Company's new Class A voting stock. Carriots is an Internet of Things ("IoT") Cloud platform that allows easy development of new IoT enabled products. Carriots complements Altair's other product suites to provide a comprehensive solution for customers to design and implement IoT enabled products.

The following table summarizes the consideration transferred to acquire Carriots and the amounts of identified assets acquired and liabilities assumed at the acquisition date (in thousands):

Fair value of consideration transferred	$6,657
Recognized amounts of identifiable assets acquired and liabilities assumed:	
Deferred tax assets	394
Other assets	472
Trade names	252
Developed technology (4-year life)	1,317
Customer relationships (7-year life)	296
Accounts payable and other liabilities	(1,015)
Total net identifiable assets acquired and liabilities assumed	1,716
Goodwill	$4,941

The allocation of the consideration transferred to the assets and the liabilities assumed is substantially complete yet finalization of the valuation is still in process.

CEDRAT S.A.

In April 2016, the Company completed the acquisition of all of the common shares of CEDRAT S.A. ("CEDRAT") for $3.7 million in cash and $1.4 million in a note payable. CEDRAT is in the field of simulating low-frequency electromagnetics and thermal simulations for electric motor design. The acquisition of CEDRAT and its Flux technology complements Altair's broad software coverage, including Altair's comprehensive set of solvers for the rapidly growing electromagnetic market.

The following table summarizes the consideration transferred to acquire CEDRAT and the amounts of identified assets acquired and liabilities assumed at the acquisition date (in thousands):

Fair value of consideration transferred	$ 5,122
Recognized amounts of identifiable assets acquired and liabilities assumed:	
Cash	$363
Accounts receivable	542
Income tax receivable	995
Other assets	206
Trade names	269
Developed technology (4-year life)	1,085
Customer relationships (7-year life)	938
Accounts payable and other liabilities	(2,742)

Deferred revenue	(290)
Total net identifiable assets acquired and liabilities assumed	1,366
Goodwill[(1)]	$3,756

(1) The goodwill included $3.5 million that was tax deductible.

Other business acquisitions

During the years ended December 31, 2015 and 2016, the Company completed other business acquisitions that were individually and in the aggregate insignificant. The Company has accounted for all of its acquisitions using the acquisition method. The operating results of each acquisition have been included in the consolidated financial statements since the respective dates of acquisition.

The combined consideration transferred related to the 2015 acquisitions was $4.4 million, which consisted of cash of $2.9 million, equity of $0.7 million and notes of $0.8 million. The total consideration transferred was allocated to assets and liabilities of each acquisition based on management's estimates of the fair values of the assets acquired and liabilities assumed. The allocation included $1.9 million to intangibles, consisting of developed technology, customer relationships, and trade names and $2.9 million to goodwill, of which $1.0 million was tax deductible.

The combined purchase price related to the 2016 acquisitions, excluding CEDRAT, was $6.0 million, which consisted of cash of $3.1 million and notes payable of $2.9 million. The total consideration transferred was allocated to assets and liabilities of each acquisition based on management's estimates of the fair values of the assets acquired and liabilities assumed. The allocation included $2.3 million to intangibles, consisting of developed technology, customer relationships, and trade names and $4.1 million to goodwill. There was no taxable goodwill associated with the Company's other 2016 acquisitions.

For each of its acquisitions the Company typically engages a third party valuation firm to assist the Company in valuing certain assets and liabilities acquired.

5. Property and equipment, net

Property and equipment consists of the following (in thousands):

	Estimated useful lives	December 31, 2015	2016	June 30, 2017
				(unaudited)
Land	Indefinite	$3,994	$7,994	$7,994
Building and improvements	5-39 years	14,924	14,956	14,994
Computer equipment and software	3-5 years	25,324	27,461	30,143
Office furniture and equipment	5-15 years	5,534	5,306	5,551
Leasehold improvements	*	5,245	5,397	5,586
Total property and equipment		55,021	61,114	64,268
Less: accumulated depreciation and amortization		29,642	31,406	34,819
Property and equipment, net		$25,379	$29,708	$29,449

* Shorter of lease term or estimated useful life, generally ranging from five to ten years.

In November 2016, the Company purchased land adjacent to our corporate headquarters for future expansion of our facilities for $4.0 million.

Depreciation expense was $5.8 million and $6.7 million for the years ended December 31, 2015 and 2016 and $3.4 million and $3.0 million for the six months ended June 30, 2016 and 2017, respectively.

6. Goodwill and other intangible assets

Goodwill

The changes in the carrying amount of goodwill, which is attributable to the Software reporting segment, are as follows (in thousands):

Balance at December 31, 2014	$28,859
Acquisitions	2,897
Effects of foreign currency translation	(2,516)
Balance at December 31, 2015	29,240
Acquisitions	7,855
Effects of foreign currency translation	(470)
Balance at December 31, 2016	36,625
Acquisitions (unaudited)	4,941

Effects of foreign currency translation (unaudited)	2,100
Balance at June 30, 2017 (unaudited)	$43,666

Other intangible assets

A summary of other intangible assets is shown below (in thousands):

	December 31, 2015			
	Weighted averageamortizationperiod	**Gross carryingamount**	**Accumulated amortization**	**Net carrying amount**
Definite-lived intangible assets:				
Developed technology	4 years	$7,179	$2,433	$4,746
Customer relationships	7 years	7,323	4,051	3,272
Noncompete agreements	5 years	824	824	—
Other intangibles	10 years	105	30	75
Total definite-lived intangible assets		15,431	7,338	8,093
Indefinite-lived intangible assets:				
Trade names		1,297	—	1,297
Total other intangible assets		$16,728	$7,338	$9,390

	December 31, 2016			
	Weighted averageamortizationperiod	**Gross carryingamount**	**Accumulated amortization**	**Net carrying amount**
Definite-lived intangible assets:				
Developed technology	4 years	$10,631	$5,034	$5,597
Customer relationships	7 years	8,646	4,977	3,669
Noncompete agreements	5 years	824	824	—
Other intangibles	10 years	117	40	77
Total definite-lived intangible assets		20,218	10,875	9,343
Indefinite-lived intangible assets:				
Trade names		1,825		1,825
Total other intangible assets		$22,043	$10,875	$11,168

	June 30, 2017			
	Weighted averageamortizationperiod	**Gross carryingamount**	**Accumulated amortization**	**Net carrying amount**
	(unaudited)			
Definite-lived intangible assets:				
Developed technology	4 years	$16,966	$6,845	$10,121
Customer relationships	7 years	9,155	5,540	3,615
Noncompete agreements	5 years	824	824	—
Other intangibles	10 years	124	45	79
Total definite-lived intangible assets		27,069	13,254	13,815
Indefinite-lived intangible assets:				
Trade names		2,197		2,197
Total other intangible assets		$29,266	$13,254	$16,012

Amortization expense related to amortizing intangible assets was $2.6 million and $3.3 million for the years ended December 31, 2015 and 2016, respectively, and $1.5 million and $2.1 million for the six months ended June 30, 2016 and 2017, respectively.

Estimated amortization expense for the next five years as of December 31, 2016 is as follows (in thousands):

Year ending	
December 31, 2017	$3,527
December 31, 2018	$2,641
December 31, 2019	$1,440

December 31, 2020	$1,035
December 31, 2021	$428

7. Debt

The carrying value of debt is as follows (in thousands):

	December 31,		June 30,
	2015	2016	2017
			(unaudited)
Secured Credit Agreement:			
Revolving Credit Facility	$11,513	$27,355	$18,018
Term Loan A	67,122	57,500	52,500
Note payable, equipment	3,296	—	—
Obligations held under capital leases (Note 18)	310	196	165
Other borrowings	1,118	330	523
Total debt	83,359	85,381	71,206
Less: unamortized debt issuance costs	182	140	111
Less: current portion of long-term debt	13,817	10,435	10,601
Long-term debt, net of current portion	$69,360	$74,806	$60,494

On June 14, 2017, we entered into an amended and restated credit agreement with JPMorgan Chase Bank, N.A., as administrative agent, which restated our prior credit agreement, as amended, in its entirety (“2017 Credit Agreement” or the “Credit Agreement”). This amendment was administrative in nature and did not change amounts, terms, or rates.

Secured credit agreement

At December 31, 2015, the Company’s credit agreement consisted of a $67.1 million term loan (“Term Loan A”), a $20.0 million revolving commitment (“Revolving Credit Facility”) and a $1.0 million ancillary facility (collectively, the “2013 Credit Agreement”). The Company was required to make quarterly principal payments on Term Loan A and any outstanding balance was to be paid in full on the maturity date of December 18, 2018.

On April 18, 2016, the Company entered into an Amended and Restated Credit Agreement (“2016 Credit Agreement”) with JPMorgan Chase Bank, N.A., as administrative agent, which restated in its entirety the 2013 Credit Agreement. The 2016 Credit Agreement originally consisted of a $65.0 million term loan (“Term Loan A”) and a $35.0 million revolving commitment (“Revolving Credit Facility”). In November 2016, the 2016 Credit Agreement was amended pursuant to which the Royal Bank of Canada became a lender thereunder and the commitment under the Revolving Credit Facility was increased to $60.0 million. Included in the Revolving Credit Facility are a $5.0 million swingline subfacility, and a letter of credit subfacility. In addition, the 2016 Credit Agreement provides for a $4.0 million ancillary facility adding additional borrowing capacity. In connection with the 2016 Credit Agreement, the Company updated the December 31, 2015 balance sheet to reflect the reclassification from short-term to long-term debt for the revolving credit facility and a portion of the long-term debt to reflect updated debt service requirements.

As of June 30, 2017, the Company’s Credit Agreement consisted of a $52.5 million term loan (“Term Loan A”), a $60.0 million revolving commitment (“Revolving Credit Facility”) and a $4.0 million ancillary facility. Included in the Revolving Credit Facility are a $5.0 million swingline subfacility, and a letter of credit subfacility.

Interest rates on borrowings outstanding under the Credit Agreement range from (i) an adjusted LIBO rate ((the London Interbank Offered Rate multiplied by the Statutory Reserve Rate)) plus 1.5% to 2.0% (dependent upon the Company’s leverage ratio) for Eurodollar-based borrowings or (ii) the Commercial Bank Floating Rate (“CBFR”) (the greater of the Prime Rate or the adjusted LIBO rate plus 2.5%) for CBFR borrowings. The Company can elect the type of borrowing for each loan.

Term loan facilities

At December 31, 2016 and June 30, 2017, the Company was required to make quarterly principal payments on Term Loan A of $2.5 million in 2017, 2018 and March 2019. Any outstanding principal balance is to be paid in full on the maturity date of April 18, 2019. At December 31, 2015 and 2016, respectively, there was $67.1 million and $57.5 million outstanding under Term Loan A at an interest rate of 2.2% and 2.6% based on the LIBO rate and the applicable margin.

At June 30, 2017, there was $52.5 million outstanding under Term Loan A.

Revolving credit facilities

As of December 31, 2015 and 2016 and June 30, 2017, respectively, the Company had $11.5 million, $27.4 million, and $18.0 million outstanding under the Revolving Credit Facility and there was $8.5 million, $32.6 million and $42.0 million available for future borrowing. The Revolving Credit Facility is available for general corporate purposes, including working capital, capital expenditures, and permitted acquisitions. All borrowings under the Revolving Credit Facility are due on the termination date in April 2019. The weighted-average interest rate on borrowings under the Revolving Credit Facility was 3.3% and 2.6% for the years ended December 31, 2015 and 2016, respectively.

The Company pays quarterly commitment fees of 0.25% per annum on the unused portion of the Revolving Credit Facility. Fees with respect to letters of credit accrue daily based on the stated amount of each outstanding letter of credit at the adjusted LIBO rate plus 1.5% to 2.0% (dependent upon the Company's leverage ratio).

Debt covenants

The Credit Agreement contains a number of covenants that, among other things, restrict, subject to certain exceptions, the Company's ability to incur additional indebtedness; create liens on assets; make investments, loans, advances or acquisitions; pay dividends or other distributions; redeem or repurchase certain equity interests; guarantee the obligations of others; and change the business conducted by the Company. In addition, the Credit Agreement contains financial covenants relating to minimum liquidity of $20.0 million, maintaining a minimum debt service coverage ratio of 1.3 to 1.0 and maximum leverage ratio of 3.0 to 1.0, as defined in the Credit Agreement. At December 31, 2016 and June 30, 2017, the Company was in compliance with all such financial covenants.

Collateral and guarantees

The Credit Agreement is unconditionally guaranteed by the Company and all existing and subsequently acquired controlled domestic subsidiaries. Any obligations of foreign subsidiaries are unconditionally guaranteed by the Company and certain foreign subsidiaries. Furthermore, the Credit Agreement is collateralized by a first priority, perfected security interest in, and mortgages on, substantially all tangible assets of the Company. In addition, foreign borrowings under the credit agreement will be secured by assets of the foreign borrowers.

Equipment term loan

In 2013, the Company entered into a promissory note for $6 million with a commercial lender to finance the purchase of manufacturing equipment. The note required interest at 5.25% per annum with monthly payments of principal and interest. The note was paid in full in June 2016 from borrowings under the Revolving Credit Facility.

Other borrowings

Other borrowings includes notes payable with U.S. based financial institutions. The notes total $1.0 million and $0.3 million at December 31, 2015 and 2016, respectively. The terms of the notes are three to five years and bear interest rates that range from 1.9% to 5.25%.

The Company has available overdraft and line of credit facilities in several countries in which it operates. These credit facilities are with various domestic and international banks and are at quoted market rates. The Company had $3.3 million of availability under these facilities and there were $0.3 million of commitments at December 31, 2015. The Company had $3.5 million of availability under these facilities and there were no outstanding commitments at December 31, 2016.

Scheduled maturities of long-term debt

At December 31, 2016, future maturities of long-term debt, excluding capital leases, were as follows (in thousands):

Year ending December 31,	
2017	$10,304
2018	10,026
2019	64,855
Total	$85,185

8. Other liabilities

The following table provides the details of other accrued expenses and current liabilities (in thousands):

	December 31,		June 30,
	2015	2016	2017
			(unaudited)
Accrued VAT	$3,747	$3,928	$4,310
Accrued royalties	1,490	1,583	1,811
Non-income tax liabilities	1,364	739	276
Billings in excess of cost	1,315	1,021	550
Related party liabilities	1,349	1,045	548
Defined contribution plan liabilities	1,144	1,139	1,011
Income taxes payable	1,381	2,156	74
Self-insurance and other insurance reserves	646	764	787
Obligations for acquisition of businesses	250	2,649	3,576
Other current liabilities	4,366	3,921	5,840
Total	$17,052	$18,945	$18,783

The following table provides the details of other long-term liabilities (in thousands):

	December 31,		June 30,
	2015	2016	2017
			(unaudited)
Pension and other post retirement liabilities	$4,436	$5,959	$6,724
Deferred tax liabilities	1,100	1,379	298
Other liabilities	7,340	9,776	6,364
Total	$12,876	$17,114	$13,386

9. Financial instruments

The Company is exposed to certain financial market risks related to its ongoing business operations. The primary risks the Company manages through derivative financial instruments and hedging activities are foreign currency exchange rate risk and interest rate risk. Derivative financial instruments and hedging activities can be utilized to protect the Company's cash flow from adverse movements in foreign currency exchange rates and to manage interest costs. Although the Company is exposed to credit loss in the event of nonperformance by the counterparty to the derivative financial instruments, the Company attempts to limit this exposure by entering into agreements directly with major financial institutions that meet the Company's credit standards and that are expected to fully satisfy their obligations under the contracts.

Interest rate swaps

Interest rate exposures are reviewed periodically and the Company may enter into interest rate swap agreements to manage its exposure. The Company's exposure to interest rate risk arises primarily from changes in the LIBO rate. The Company will hold these derivatives for economic purposes but does not designate these derivatives to obtain hedge accounting treatment. As such, gains or losses on these contracts (including contracts that do not qualify for hedge accounting under ASC 815), are reported in earnings immediately as Other expense (income), net. These contracts limit exposure to changes in interest payments associated with variable rate debt. However, as the change in the fair value of the interest rate swaps is impacted by both realized and unrealized gains and losses on the contracts, the amount recognized in earnings may not offset the changes in the variability of interest expense during a given period.

As of December 31, 2015, and 2016, the Company had a notional value of $4.8 million and $4.5 million, respectively, in outstanding interest rate swaps. As of June 30, 2017, the Company had an interest rate swap outstanding with a notional value of $4.5 million. This interest rate swap matures at various dates through December 23, 2019.

On January 27, 2014, the Company paid a nominal fee for an interest rate cap that terminated on December 31, 2015, to protect against rising interest rates associated with the Company's term loan. The notional amount on the interest rate cap was $40 million and protected the Company in the event the LIBO rate rose above 1.5%.

Foreign currency derivatives

The Company sells its products (and incurs costs) in countries throughout the world. As a result, it is exposed to fluctuations in foreign currency exchange rates. Foreign currency exposures are reviewed on a periodic basis and any natural offsets are considered prior to entering into a derivative financial instrument. The Company could enter into foreign exchange contracts to hedge portions of its foreign currency denominated forecasted revenues, purchases and the subsequent cash flows after considering natural offsets within the consolidated group. The Company will hold these derivatives for economic purposes but does not designate these derivatives to obtain hedge accounting treatment. As such, gains or losses on these contracts (including contracts that do not qualify for hedge accounting under ASC 815), are reported in earnings immediately and are substantially offset by the effect of the revaluation of the underlying foreign currency denominated transactions. There were no foreign exchange contracts outstanding at December 31, 2015 or 2016 or June 30, 2017.

Derivative instruments

The fair value of the Company's derivative instruments as of December 31, 2015 and 2016 was a liability of $0.5 million and $0.3 million, respectively.

Credit-risk-related contingent features

The Company has entered into International Swaps and Derivatives Association ("ISDA") agreements with its significant derivative counterparty. These agreements provide bilateral netting and offsetting of accounts that are in a liability position with those that are in an asset position. These agreements do not require the Company to maintain a minimum credit rating in order to be in compliance and do not contain any margin call provisions or collateral requirements that could be triggered by derivative instruments in a net liability position. As of December 31, 2016, the Company had not and was not required to post any collateral to support its derivatives in a liability position.

10. Stockholders' deficit

Class A and Class B common stock

Prior to the Recapitalization (as described below), the Company's authorized common stock consisted of 24,819,971 shares of no par, Class A Voting Common Stock and 6,288,468 shares of no par, Class B Nonvoting Common Stock. Each class of common stock had equal and identical rights, preferences and limitations, other than voting. The holders of old Class A common stock were entitled to one vote per share on all matters submitted to the stockholders for a vote and holders of old Class B common stock had no voting rights.

Recapitalization

On April 3, 2017, the Company completed a recapitalization (the "Recapitalization") of its capital stock by filing a certificate of amendment to its articles of incorporation with the State of Michigan pursuant to which: (i) each share of the Company's Class A voting common stock, or old Class A shares, automatically converted into one share of new Class B voting common stock entitled to ten votes per share; and (ii) each share of the Company's Class B non-voting common stock, or old Class B shares, automatically converted into one share of new Class A voting common stock entitled to one vote per share, in each case, without any further action on the part of the holders thereof.

Subsequent to the Recapitalization, the Company's authorized common stock consists of 19,000,000 shares no par, Class A Common Stock and 11,000,000 shares of no par, Class B Common Stock.

The holders of Class A and Class B common stock are entitled to dividends at the sole discretion of the Board of Directors. No common stock dividends were declared or paid in 2015 and 2016.

In October 2015, the Company acquired Altair Bellingham, LLC from significant stockholders of the Company for cash of $0.7 million, which was paid in February 2016. This transaction was reported as a return of capital for the year ended December 31, 2015.

In December 2013, the Company issued warrants to purchase 750,000 shares, subject to certain terms and conditions, at an exercise price of $18.00 per share as part of an old Class A Stock repurchase from a single investor. The warrants expired in December 2015 without having been exercised.

11. Stock-based compensation

2001 stock-based compensation plans

Nonqualified stock option plan In 2001, the Company established the Nonqualified Stock Option Plan ("NSO Plan") under which 1,586,960 stock options with an exercise price of $.0001 remain outstanding at December 31, 2016. The NSO Plan was terminated in 2003. Stock options under the NSO plan were immediately vested and have a contractual term of 35 years from the date of grant. The outstanding awards will continue to be governed by their existing terms under the NSO Plan. The NSO Plan is accounted for as an equity plan.

The following table summarizes the stock option activity under the NSO Plan:

	Number of options	Weighted averageexercise price per share	Weighted average remainingcontractual term(years)
Outstanding at January 1, 2016	2,272,611	$0.0001	21 years
Granted	—	—	
Exercised	(685,651)	$0.0001	
Forfeited	—	$—	
Outstanding at December 31, 2016	1,586,960	$0.0001	20 years
Granted (unaudited)	—	—	
Exercised (unaudited)	—	$—	
Forfeited (unaudited)	—	$—	
Outstanding at June 30, 2017 (unaudited)	1,586,960	$0.0001	20 years
Exercisable at December 31, 2016	1,586,960	$0.0001	20 years
Exercisable at June 30, 2017 (unaudited)	1,586,960	$0.0001	20 years

Incentive and nonqualified stock-based plan Also in 2001, the Company established the Incentive and Nonqualified Stock-based Plan ("ISO Plan") which was terminated in 2011 and was authorized to issue nonqualified stock options ("NQSO") and incentive stock options ("ISO") totaling 2,788,468 shares of old Class B, nonvoting stock. The NQSO grants could be issued at less than the fair market value at date of grant under the terms of the ISO Plan, while ISO grants were issued at a price equal to or greater than the fair market value at date of grant. Options generally vest over a two to three year period. All options have a contractual term of ten years from the date of grant. At December 31, 2015 and 2016, and June 30, 2017, there were 905,938, 743,186 and 732,845 options outstanding, respectively, under the ISO Plan.

Options granted under the ISO Plan are accounted for as liability awards as the terms of the awards could require or allow repurchase of the shares at amounts different than fair value. The Company made the accounting policy election to use the intrinsic value method of accounting to determine stock-based compensation liabilities for these awards. During the quarter ended June 30, 2017, the Company changed its accounting policy for this plan to measure the fair value of its liability awards using the Black-Scholes option pricing model. The impact of the change in accounting policy was immaterial to the financial statements.

The ISO Plan also includes stock-based compensation liability for 435,601 and 585,149 of old Class B shares outstanding at December 31, 2015 and 2016, respectively, and 589,990 of new Class A shares outstanding at June 30, 2017, resulting from the Company's call feature with an exercise price that may be set at less than the fair market value at date of grant under the terms of the ISO Plan. The Company utilized fair value of the outstanding old Class B shares and the new Class A shares to determine the stock-based compensation liabilities for these shares, based on the respective dates.

The following table summarizes the stock option activity under the 2001 Stock-based compensation plans for the periods indicated as follows:

	Number of options	Weighted averageexercise priceper share	Weighted averageremainingcontractualterm (years)
Outstanding at December 31, 2015	905,938	$2.27	3.8
Granted	—	—	
Exercised	(154,206)	$0.94	
Expired	(3,903)	$0.92	
Forfeited	(4,643)	$2.12	
Outstanding at December 31, 2016	743,186	$2.56	3.4
Granted (unaudited)	—	—	
Exercised (unaudited)	(8,300)	$2.56	
Forfeited (unaudited)	(2,041)	$2.04	
Outstanding at June 30, 2017 (unaudited)	732,845	$2.56	2.9
Exercisable at December 31, 2016	743,186	$2.56	3.4
Exercisable at June 30, 2017 (unaudited)	732,845	$2.56	2.9

The total intrinsic value of the ISO Plan stock options exercised during the years ended December 31, 2015 and 2016 was $0.7 million and $2.7 million, respectively.

2012 stock-based compensation plans

During 2012, the Company established the 2012 Incentive and Nonqualified Stock Option Plan (“2012 Plan”) which permits the issuance of 1,300,000 shares of old Class B Nonvoting Common Stock for the grant of nonqualified stock options (“NQSO”) and incentive stock options (“ISO”) for management, other employees, and board members of the Company. The options are issued at a price equal to or greater than fair market value at date of grant. All options have a contractual term of 10 years from date of grant.

The 2012 Plan is accounted for as an equity plan. For those options expected to vest, compensation expense is recognized on a straight-line basis over a four year period, the total requisite service period of the awards. Compensation expense related to the 2012 Plan was $0.6 million and $0.6 million for the years ended December 31, 2015 and 2016, respectively.

The following table summarizes the stock option activity under the 2012 Plan for the periods indicated as follows:

	Number of options	Weighted averageexercise priceper share	Weighted averageremainingcontractualterm (years)
Outstanding at December 31, 2015	452,955	$12.12	8.2
Granted	33,988	$15.61	
Exercised	(31,180)	$9.91	
Forfeited	(6,450)	$12.90	
Outstanding at December 31, 2016	449,313	$12.52	7.5
Granted (unaudited)	152,237	$20.73	
Exercised (unaudited)	(43,623)	$10.42	
Forfeited (unaudited)	(5,525)	$15.91	
Outstanding at June 30, 2017 (unaudited)	552,402	$14.91	7.8
Exercisable at December 31, 2016	264,919	$11.43	6.9
Exercisable at June 30, 2017 (unaudited)	229,443	$11.74	6.5

Total compensation cost related to nonvested awards not yet recognized as of December 31, 2016 totaled $0.9 million, and is expected to be recognized over a weighted average period of 2.4 years.

The Company measures the fair value of its equity awards on the date of grant using the Black-Scholes option pricing model. This valuation model requires the Company to make certain estimates and assumptions, including assumptions related to the expected price volatility of the Company’s stock, the period under which the options will be outstanding, the rate of return on risk-free investments, and the expected dividend yield for the Company’s stock.

The weighted average assumptions used in the Black-Scholes option pricing model used to calculate the fair value of options granted during the year ended December 31, 2015 and 2016, and six months ended June 30, 2017 were as follows:

	2015 grants	2016 grants	2017 grants (unaudited)
Weighted average grant date fair value per share	$5.70	$5.67-$6.61	$7.44-$7.45
Expected volatility	37%	37%	34%
Expected term (in years)	6.25	5.75-6.25	5.75-6.25
Risk-free interest rate	1.98%	1.37%-1.79%	2.02%
Expected dividend yield	0%	0%	0%

The Company's equity value was estimated utilizing a combination of the Discounted Cash Flow Method under the Income Approach, the Guideline Public Company Method, and the Transaction Method under the Market Approach. The equity value is used to derive the fair value per share which is used as an input in the Black Scholes option pricing model. The estimated volatility was derived using the historical volatility of the returns of comparable publicly traded companies. The risk-free rate was based on U.S. Treasury zero-coupon yield curves with a remaining term equal to the expected term of the option. The Company has not historically paid dividends and does not anticipate paying cash dividends in the foreseeable future. The Company used the simplified method to determine expected term.

The stock-based compensation expense was recorded as follows (in thousands):

	Year ended December 31,		Six months ended June 30,	
	2015	2016	2016	2017
			(unaudited)	
Cost of revenue-software	$44	$22	$14	$16
Research and development	149	1,370	41	3,784
Sales and marketing	109	775	35	2,115
General and administrative	295	2,965	85	8,122
Total stock-based compensation expense	$597	$5,132	$175	$14,037

12. Other expense (income), net

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

	Year ended December 31,		Six months ended June 30,	
	2015	2016	2016	2017
			(unaudited)	
Foreign exchange (gain) loss	$973	$(271)	$(664)	$917
Other	(191)	(249)	12	(131)
Other expense (income), net	$782	$(520)	$(652)	$786

13. Income taxes

The components of income (loss) before income taxes are as follows (in thousands):

	Year ended December 31,	
	2015	2016
U.S.	$(6,861)	$(2,225)
Non-U.S.	18,610	15,927
	$11,749	$13,702

The significant components of the income tax expense are as follows (in thousands):

	Year ended December 31,	
	2015	2016
Current		
U.S. Federal	$—	$—
Non-U.S.	9,893	9,413
U.S. State and Local	56	202

Total current	9,949	9,615
Deferred		
U.S. Federal	(8,445)	(5,358)
Non-U.S.	(587)	(610)
U.S. State and Local	(99)	(108)
Total deferred	(9,131)	(6,076)
Income tax expense	$818	$3,539

The reconciliation of income taxes calculated at the U.S. Federal statutory income tax rate of 35% to income tax expense is as follows (in thousands):

	Year ended December 31,	
	2015	2016
Income taxes at U.S. federal statutory rate	$4,117	$4,796
Foreign income taxes at rates other than the federal statutory rate	(10)	(584)
U.S. state and local income taxes, net of U.S. federal tax benefit	(47)	94
Foreign withholding taxes	3,790	4,235
Foreign dividends	4,152	5,077
U.S. foreign tax credit	(9,808)	(8,786)
Research and development tax credit	(1,608)	(2,696)
Domestic production activities deduction	(833)	(840)
Non-deductible stock-based compensation	234	2,064
Meals & entertainment	258	235
Other	125	(91)
Deferred tax on investment in subsidiary	(214)	(264)
Uncertain tax position	662	299
Income tax expense	$818	$3,539

Deferred income tax assets and liabilities result from differences in the basis of assets and liabilities for tax and financial statements purposes. The approximate tax effect of each type of temporary difference, and operating losses and tax credit carryforwards that give rise to a significant portion of the deferred tax assets and liabilities are as follows (in thousands):

	December 31,	
	2015	2016
Deferred tax assets:		
Deferred revenue	$11,806	$16,966
Net operating loss carryforwards	2,165	3,550
Tax credit carryforwards	22,878	17,839
Stock-based compensation	15,850	15,825
Capitalized research and development	8,343	12,492
Accrued expenses	1,775	1,775
Employee benefits	2,427	3,995
Other	1,974	2,527
Total deferred tax assets	67,218	74,969
Less: valuation allowance for deferred tax assets	(2,452)	(4,153)
Net deferred tax assets	64,766	70,816
Deferred tax liabilities:		
Prepaid royalties	4,889	5,821
Property and equipment and intangibles	2,619	2,394
Deferred tax on investment in subsidiary	536	272
Other	623	812

Total deferred tax liabilities	8,667	9,299
Net deferred tax assets	$56,099	$61,517

Provisions are made for estimated U.S. and non-U.S. income taxes, less available tax credits and deductions, which may be incurred on the remittance of undistributed earnings of foreign subsidiaries not deemed to be indefinitely reinvested. Deferred income taxes have not been provided on the undistributed earnings of certain foreign subsidiaries which are deemed to be indefinitely reinvested of approximately $3.6 million as of December 31, 2016. There are no other material liabilities for income taxes on the undistributed earnings of foreign subsidiaries as the Company has concluded that such earnings are indefinitely reinvested or should not give rise to additional income tax liabilities as a result of the distribution of such earnings.

The following table summarizes the changes to the valuation allowance balance at December 31, 2016 (In thousands):

Beginning balance	$ 2,452
Additions charged to expense	177
Deductions	(207)
Other	1,731
Ending balance	$4,153

The following table summarizes the amount and expiration dates of operating loss and tax credit carryforwards at December 31, 2016 (in thousands):

	Expiration dates	Amounts
U.S. general business credits and loss carryforwards	2018-2036	$19,003
Foreign loss carryforwards	indefinite	1,993
U.S. foreign tax credits	2024	393
Total operating loss and tax credit carryforwards		$21,389

A reconciliation of the beginning and ending amounts of unrecognized tax benefits is as follows (in thousands):

	Year ended December 31,	
	2015	2016
Unrecognized tax benefits—January 1	$4,712	$5,305
Increase in unrecognized tax benefits as a result of:		
Additions for tax positions of current period	826	299
Reductions for tax positions of prior periods	(233)	—
Unrecognized tax benefits—December 31	$5,305	$5,604

At December 31, 2016, the Company had $5.6 million of gross unrecognized tax benefits that if recognized would affect the effective tax rate and adjustments to other tax accounts, primarily deferred taxes. It is reasonably possible that a change in the Company's gross unrecognized tax benefits may occur in the next twelve months; however, it is not possible to reasonably estimate the effect this may have upon the gross unrecognized tax benefits.

The Company operates globally but considers its more significant tax jurisdictions to include the United States, India, Germany, Japan, and China. India has tax years open for examination from 2005 through 2015. All other significant jurisdictions have open tax years from 2013 through 2015.

The Company records interest and penalties with respect to unrecognized tax benefits as a component of the provision for income taxes. For the year ended December 31, 2015, accrued interest and penalties related to unrecognized tax benefits were $0.1 million and for the year ended December 31, 2016, accrued interest and penalties related to unrecognized tax benefits were insignificant.

At the end of each interim period, the Company makes its best estimate of the annual expected effective income tax rate and applies that rate to its ordinary year-to-date income (loss) before income taxes. The income tax provision or benefit related to unusual or infrequent items, if applicable, that will be separately reported or reported net of their related tax effects are individually computed and recognized in the interim period in which those items occur. In addition, the effect of changes in enacted tax laws or rates, tax status, judgment on the realizability of a beginning-of-the-year deferred tax asset in future years or income tax contingencies is recognized in the interim period in which the change occurs.

The computation of the annual expected effective income tax rate at each interim period requires certain estimates and assumptions including, but not limited to, the expected income (loss) before income taxes for the year, projections of the proportion of income (and/or loss) earned and taxed in respective jurisdictions, permanent and temporary differences, and the likelihood of the realizability of deferred tax assets generated in the current year. Jurisdictions with a projected loss for the year or a year-to-date loss for which no tax benefit or expense can be recognized due to a valuation allowance are excluded from the estimated annual effective tax rate. The impact of such an exclusion could result in a higher or lower effective tax rate during a particular quarter, based upon the composition and timing of actual earnings compared to annual projections. The estimates used to compute the provision or benefit for income taxes may change as new events occur, additional information is obtained or our tax environment changes. To the extent that the expected annual effective income tax rate changes, the effect of the change on prior interim periods is included in the income tax provision in the period in which the change in estimate occurs.

The Company's income tax expense (benefit) and effective tax rate for the six months ended June 30, 2016 and 2017 were as follows (in thousands, except percentages):

	Six months ended June 30,	
	2016	2017
	(unaudited)	
Income tax expense (benefit)	$2,699	$(1,659)
Effective tax rate	41%	15%

The effective tax rate was 41% and 15% for the six months ended June 30, 2016 and 2017, respectively. The tax rate is affected by the Company being a U.S. resident taxpayer, the tax rates in the U.S. and other jurisdictions in which the Company operates, the relative amount of income earned by jurisdiction and the relative amount of losses or income for which no benefit or expense is recognized. The effective tax rate was impacted by the geographic income mix in 2017 as compared to 2016, primarily related to United States pre-tax income of $7.2 million for 2016 compared to a $14.9 million pre-tax loss in 2017, and nondeductible stock-based compensation in the amount of $0.1 million in 2016 compared to $9.3 million in 2017.

14. Income (loss) per share and unaudited pro forma income (loss) per share

Basic income (loss) per share attributable to common stockholders is computed using the weighted average number of shares of common stock outstanding for the period, excluding stock options. Diluted income (loss) per share attributable to common stockholders is based upon the weighted average number of shares of common stock outstanding for the period and potentially dilutive common shares, including the effect of stock options under the treasury stock method. The following table sets forth the computation of the numerators and denominators used in the basic and diluted income (loss) per share amounts (in thousands, except per share data):

	Year ended December 31,		Six months ended June 30,	
	2015	2016	2016	2017
			(unaudited)	
Numerator:				
Net income (loss)	$10,931	$10,163	$3,953	$(9,434)
Denominator:				
Denominator for basic income (loss) per share—weighted average shares	11,652	12,213	11,973	12,564
Effect of dilutive securities, stock options	3,025	2,251	2,336	—
Denominator for dilutive income (loss) per share	14,677	14,464	14,309	12,564
Net income (loss) per share attributable to common stockholders, basic	$0.94	$0.83	$0.33	$(0.75)
Net income (loss) per share attributable to common stockholders, diluted	$0.74	$0.70	$0.28	$(0.75)

The computation of diluted income (loss) per share does not include shares that are anti-dilutive under the treasury stock method because their exercise prices are higher than the average fair value of the Company's stock during the year. For the year ended December 31, 2015 there were 0.2 million potentially anti-dilutive shares, which were excluded from the computation of income (loss) per share. For the year ended December 31, 2016 there were no anti-dilutive shares excluded from the computation of income (loss) per share. For the six months ended June 30, 2016 and 2017, respectively, there were 0.2 million and 2.4 million anti-dilutive shares excluded from the computation of income (loss) per share.

Unaudited pro forma income (loss) per share The unaudited pro forma income (loss) per share has been computed to give effect to the assumed automatic conversion of the class A redeemable common shares into shares of Class A common stock that will occur upon effectiveness of the initial public offering, as though the conversion had occurred as of the beginning of the period, and to reduce expense for the change in fair value for the class A redeemable common shares which was recorded during those related periods.

The following table sets forth the computation of the Company's unaudited pro forma numerators and denominators used in the pro forma basic and diluted income (loss) per share amounts (in thousands, except per share data):

	Year ended December 31,	Six months ended June 30,
	2016	2017
	(unaudited)	
Numerator:		
Net income (loss)	$10,163	$(9,434)
Pro forma adjustment to reflect the effect of stock-based redeemable class A common shares	2,178	6,131
Pro forma net income (loss)	$ 12,341	$(3,303)
Denominator:		
Denominator for basic income (loss) per share—weighted average shares	12,213	12,564
Effect of dilutive securities, stock options	2,251	—

Denominator for dilutive income (loss) per share	14,464	12,564
Pro forma net income (loss) per share attributable to common stockholders, basic	$1.01	$(0.26)
Pro forma net income (loss) per share attributable to common stockholders, diluted	$0.85	$(0.26)

15. Retirement benefits

The Company sponsors a 401(k) profit sharing plan (the "Plan") for all eligible U.S. employees. This Plan allows eligible employees to contribute up to 80% of their compensation to the Plan. The Company makes discretionary matching contributions to the Plan provided the employee is employed on the last day of the year. Such discretionary contributions vest ratably over five years of service. The Company's contributions to the Plan were $0.9 million and $1.1 million for the years ended December 31, 2015 and 2016, respectively.

The Company also participates in government-mandated retirement and/or termination indemnity plans, benefiting certain non-U.S. employees. Termination benefits are generally lump sum payments based upon an individual's years of credited service and annual salary at retirement. These plans are generally unfunded and employees receive payments at the time of retirement or termination under applicable labor laws or agreements. The amount of net benefit cost recorded in the consolidated statements of operations for these plans was $0.6 million and $0.9 million in 2015 and 2016, respectively. The amount of benefits paid under these plans was $0.1 million and $0.2 million in 2015 and 2016, respectively. The accumulated benefit obligation, unlike the projected benefit obligation, does not reflect expected benefit increases from future salary levels, and was $1.7 million and $3.0 million at December 31, 2015 and 2016, respectively, under these plans. The liability for pension benefits representing the projected benefit obligation, net of plan assets of $0.4 million and $0.7 million, under these plans was $4.7 million and $6.3 million at December 31, 2015 and 2016, respectively. A summary of the components of the pension benefits obligation recorded in the consolidated balance sheets are as follows (in thousands):

	December 31,	
	2015	**2016**
Accrued compensation and benefits	$265	$332
Other long-term liabilities	4,436	5,959
	$4,701	$6,291

The estimated future benefit payments, which reflect expected future service, that are expected to be paid for each of the next five years (in thousands):

Year ending	
December 31, 2017	$356
December 31, 2018	$193
December 31, 2019	$261
December 31, 2020	$299
December 31, 2021	$185
Next five years	$1,535

16. Accumulated other comprehensive loss

The components of accumulated other comprehensive loss is as follows (in thousands):

	Foreign currencytranslation	**Retirement relatedbenefit plans**	**Total**
Balance at December 31, 2014	$(3,631)	$(710)	$(4,341)
Other comprehensive loss before reclassification	(3,068)	(217)	(3,285)
Tax effects	953	(36)	917
Other comprehensive loss	(2,115)	(253)	(2,368)
Less: Other comprehensive income (loss) attributable to noncontrolling interest	(1)	—	(1)
Balance at December 31, 2015	(5,745)	(963)	(6,708)
Other comprehensive loss before reclassification	80	(771)	(691)
Tax effects	(60)	195	135
Other comprehensive income (loss)	20	(576)	(556)
Less: Other comprehensive income (loss) attributable to noncontrolling interest	—	—	—
Balance at December 31, 2016	(5,725)	(1,539)	(7,264)
Other comprehensive income (loss) before reclassification (unaudited)	1,511	(134)	1,377
Amounts reclassified from accumulated other comprehensive loss (unaudited)	—	90	90
Tax effects (unaudited)	—	—	—
Other comprehensive income (loss) (unaudited)	1,511	(44)	1,467

Balance at June 30, 2017 (unaudited)	$(4,214)	$(1,583)	$(5,797)

17. Related party transactions

In February 2017, the Company purchased the noncontrolling interest in a consolidated subsidiary from a founder stockholder for an aggregate purchase price of $29 thousand (unaudited).

In January 2016, the Company redeemed 87,600 shares of old Class B Non-Voting Common Stock from founder stockholders for an aggregate purchase price of $1.3 million payable in twelve equal monthly installments.

In June 2016, the Company redeemed 34,317 shares of old Class B Non-Voting Common Stock from a related party for an aggregate purchase price of $0.5 million payable in two equal installments.

In December 2016, the Company redeemed 14,777 shares of old Class B Non-Voting Common Stock from a related party for an aggregate purchase price of $0.3 million payable in twelve equal monthly installments.

In December 2016, the Company redeemed 28,347 shares of old Class A Voting Common Stock from a founder stockholder for an aggregate purchase price of $0.6 million payable in nine equal monthly installments.

In October 2015, the Company acquired Altair Bellingham, LLC from significant stockholders of the Company for cash of $0.7 million, which was paid in February 2016.

In 2015, the Company redeemed 50,000 shares of old Class B Non-Voting Common Stock for an aggregate purchase price of $0.7 million payable in equal monthly installments of principal and interest over three years.

At December 31, 2015 and 2016, and June 30, 2017, respectively, the Company had obligations to related parties for the redemptions summarized above in the amounts of $1.3 million, $1.0 million and $0.5 million (unaudited) recorded in other accrued expenses and current liabilities, and $0.4 million, $0.1 million and $0.0 million (unaudited) recorded in other long-term liabilities.

At December 31, 2015 and 2016, and June 30, 2017, respectively, the Company had receivables from an equity investment for $0.2 million, $0.4 million and $0.5 million (unaudited) recorded in other long-term assets.

18. Commitments and contingencies

MSC Litigation

In July 2007, MSC Software Corporation filed a lawsuit against the Company alleging misappropriation of trade secrets, breach of confidentiality and other claims. On April 10, 2014, a jury returned a verdict against the Company. The Company challenged the verdict and on November 13, 2014, a judge vacated all but $0.4 million of the judgment and ordered a new trial on damages. The Company has estimated and recorded a liability for the probable loss.

Legal proceedings

From time to time, the Company may be subject to legal proceedings and claims in the ordinary course of business. The Company has received, and may in the future continue to receive, claims from third parties asserting, among other things, infringement of their intellectual property rights. Future litigation may be necessary to defend the Company, its partners and its customers by determining the scope, enforceability and validity of third party proprietary rights, or to establish and enforce the Company's proprietary rights. The results of any current or future litigation cannot be predicted with certainty and regardless of the outcome, litigation can have an adverse impact on the Company because of defense and settlement costs, diversion of management resources and other factors.

Royalty agreements

The Company has entered into various renewable, nonexclusive license agreements under which the Company has been granted access to the licensor's technology and the right to sell or use the technology in the Company's products. Royalties are payable to developers of the software at various rates and amounts, which generally are based upon unit sales or revenue. Royalty fees were $7.1 million, and $7.9 million for the years ended December 31, 2015 and 2016, respectively, and are reported in Cost of revenue-software.

Leases

The Company leases office space, vehicles, and computer equipment. Such leases, some of which are noncancelable, are set to expire at various dates. Certain of these lease arrangements contain escalation clauses whereby monthly rent increases over time.

The future minimum annual lease payments under noncancelable operating leases with an initial term in excess of one year and future minimum capital lease payments at December 31, 2016 are as follows (in thousands):

	Capital leases	Operating leases
Year Ending December 31,		
2017	$131	$7,362
2018	65	4,801
2019	–	3,309
2020	–	1,879

2021	—	1,159
Thereafter	—	21
Total minimum lease payments	196	$18,531
Less: current installments under capital lease obligations	131	
Total long-term portion	$65	

Rent expense for operating leases was $7.7 million and $8.5 million for the years ended December 31, 2015 and 2016, respectively.

19. Segment information

The Company defines its operating segments as components of its business where separate financial information is available and used by the chief operating decision maker ("CODM") in deciding how to allocate resources to its segments and in assessing performance. The Company's CODM is its Chief Executive Officer.

The Company has identified two reportable segments for financial reporting purposes: Software and Client Engineering Services. The primary measure of segment operating performance is Adjusted EBITDA, which is defined as net income (loss) adjusted for income tax expense (benefit), interest expense, interest income and other, depreciation and amortization, stock-based compensation expense, restructuring charges, asset impairment charges and other special items as determined by management. Adjusted EBITDA includes an allocation of corporate headquarters costs.

The Software reportable segment derives revenue from the sale and lease of licenses for software products focused on the development and application of simulation technology to synthesize and optimize designs, processes and decisions for improved business performance. The Software segment also derives revenue from software support, upgrades, training and consulting services focused on product design and development expertise and analysis support from the component level up to complete product engineering at any stage of the lifecycle.

The Client Engineering Services reportable segment provides support to its customers with long-term ongoing product design and development expertise in its market segments of Solvers & Optimization, Modeling & Visualization, Industrial and Concept Design, and high-performance computing. The Company hires simulation specialists, industrial designers, design engineers, materials experts, development and test specialists, manufacturing engineers and information technology specialists for placement at customer sites for specific customer-directed assignments.

The "All other" represents innovative services and products, including toggled®, the Company's LED lighting and IoT business. toggled® is focused on developing and selling next-generation solid state lighting technology along with communication and control protocols based on intellectual property for the direct replacement of fluorescent light tubes with LED lamps. Potential services and product concepts that are still in their development stages are also included in "All other."

Inter-segment sales are not significant for any period presented. The CODM does not review asset information by segment when assessing performance, therefore no asset information is provided for reportable segments. The accounting policies of the segments are the same as those described in Note 2—Summary of significant accounting policies. The following tables are in thousands:

Year ended December 31, 2015	Software	Client engineeringservices	All other	Total
Revenue	$242,861	$45,075	$6,193	$294,129
Adjusted EBITDA	$23,149	$4,776	$(4,976)	$22,949

Year ended December 31, 2016	Software	Client engineeringservices	All other	Total
Revenue	$259,588	$47,702	$5,950	$313,240
Adjusted EBITDA	$29,411	$5,425	$(4,006)	$30,830

Six months ended June 30, 2016	Software	Client engineeringservices	All other	Total
Revenue (unaudited)	$124,719	$24,289	$3,332	$152,340
Adjusted EBITDA (unaudited)	$11,798	$2,914	$(1,779)	$12,933

Six months ended June 30, 2017	Software	Client engineeringservices	All other	Total
Revenue (unaudited)	$130,872	$24,594	$3,062	$158,528
Adjusted EBITDA (unaudited)	$6,723	$2,742	$(2,409)	$7,056

	Year ended December 31,		Six months ended June 30,	
	2015	2016	2016	2017
			(unaudited)	
Reconciliation of Adjusted EBITDA to U.S. GAAP Income (loss) before income taxes:				
Adjusted EBITDA	$22,949	$30,830	$12,933	$7,056

Stock-based compensation expense	(597)	(5,132)	(175)	(14,037)
Interest expense	(2,416)	(2,265)	(1,247)	(1,159)
Interest income and other[1]	191	249	(12)	2,131
Depreciation and amortization	(8,378)	(9,980)	(4,847)	(5,084)
Income (loss) before income taxes	$11,749	$13,702	$ 6,652	$(11,093)

(1) Includes a non-recurring adjustment for a change in estimated legal expenses resulting in $2 million of income for the six months ended June 30, 2017.

Revenue is attributed to geographic areas based on the country of origin. The following table provides sales to external customers and long-lived assets for each of the geographic areas in which the Company operates (in thousands):

	December 31, 2016			
	Revenue		Long-lived assets[1]	
	2015	2016	2015	2016
United States	$130,791	$139,079	$22,301	$25,901
Other countries	4,841	6,032	95	120
Total Americas	135,632	145,111	22,396	26,021
Germany	37,549	39,470	1,871	2,660
France	14,057	15,729	572	2,175
Other countries	35,933	34,909	4,619	4,317
Total Europe, Middle East and Africa	87,539	90,108	7,062	9,152
Japan	26,795	33,198	976	879
Other countries	44,163	44,823	3,038	2,999
Total Asia Pacific	70,958	78,021	4,014	3,878
Total	$294,129	$313,240	$33,472	$39,051

(1) Includes property and equipment, net and definite-lived intangible assets, net.

20. Subsequent events

Runtime Design Automation (unaudited)

On September 28, 2017, the Company acquired Runtime Design Automation (“Runtime”) for $10.0 million cash, an $8.7 million deferred payment obligation, and 177,000 shares of the Company’s Class A voting common stock. Runtime complements Altair’s PBS Works™ suite of products for comprehensive, secure workload management for HPC and cloud environments and has solutions to manage highly complex workflows. PBS Works targets product design, weather prediction, oil exploration and bio-informatics, and Runtime primarily serves customers in electronic design automation.

The Company has evaluated subsequent events through August 25, 2017, the date the unaudited consolidated financial statements were available to be issued, except for the first paragraph of this note as to which the date is September 29, 2017.

shares

ALTAIR ENGINEERING INC.

Class A common stock

J.P. Morgan	RBC Capital Markets	Deutsche Bank Securities
William Blair	Canaccord Genuity	

Until , 2017 (the 25th day after the commencement of this offering), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers’ obligation to deliver a prospectus when acting as an underwriter and with respect to their unsold allotments or subscriptions.

Part II

Information not required in the prospectus

Item 13. Other expenses of issuance and distribution.

The following table sets forth all fees and expenses to be paid by us, other than estimated underwriting discounts and commissions, in connection with this offering. All amounts shown are estimates except for the registration fee, the FINRA filing fee and the exchange listing fee.

	Amount to be paid

SEC registration fee	*
FINRA filing fee	*
Securities exchange fee	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Blue Sky fees and expenses (including legal fees)	*
Transfer agent and registrar fees and expenses	*
Miscellaneous	*
Total	$*

* To be filed by amendment.

Item 14. Indemnification of directors and officers.

In connection with the effectiveness of the registration statement, we intend to reincorporate in Delaware. Section 145 of the Delaware General Corporation Law, or DGCL, authorizes a corporation's board of directors to grant, and authorizes a court to award, indemnity to officers, directors, and other corporate agents under certain circumstances and subject to certain limitations. The terms of Section 145 of the DGCL are sufficiently broad to permit indemnification under certain circumstances for liabilities, including reimbursement of expenses incurred, arising under the Securities Act of 1933, as amended, or the Securities Act.

On effectiveness of the registration statement, as permitted by the DGCL, our certificate of incorporation and bylaws will include provisions that eliminate the personal liability of its directors and officers for monetary damages for breach of their fiduciary duty as directors and officers.

In addition, as permitted by Section 145 of the DGCL, our certificate of incorporation and bylaws will provide that:

- we shall indemnify our directors and officers for serving us in those capacities or for serving other business enterprises at our request, to the fullest extent permitted by Delaware law. Delaware law provides that a corporation may indemnify such person if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation and, with respect to any criminal proceeding, had no reasonable cause to believe such person's conduct was unlawful;
- we may, in our discretion, indemnify employees and agents in those circumstances where indemnification is permitted by applicable law;
- we are required to advance expenses, as incurred, to our directors and officers in connection with defending a proceeding, except that such director or officer shall undertake to repay such advances if it is ultimately determined that such person is not entitled to indemnification;
- we will not be obligated pursuant to our Delaware bylaws to indemnify a person with respect to proceedings initiated by that person, except with respect to proceedings authorized by our board of directors or brought to enforce a right to indemnification;
- the rights conferred in our certificate of incorporation and bylaws are not exclusive, and we are authorized to enter into indemnification agreements with our directors, officers, employees, and agents and to obtain insurance to indemnify such persons; and
- we may not retroactively amend the bylaw provisions to reduce our indemnification obligations to directors, officers, employees, and agents.

Our policy is to enter into separate indemnification agreements with each of our directors and certain officers that provide the maximum indemnity allowed to directors and executive officers by Section 145 of the DGCL and also to provide for certain additional procedural protections. We also maintain directors and officers insurance to insure such persons against certain liabilities.

These indemnification provisions and the indemnification agreements to be entered into between us and our directors and officers may be sufficiently broad to permit indemnification of our officers and directors for liabilities (including reimbursement of expenses incurred) arising under the Securities Act.

The Underwriting Agreement to be filed as Exhibit 1.1 to this registration statement provides for indemnification by the underwriters of us, our executive officers and directors and the selling stockholders, and by us and the selling stockholders of the underwriters for certain liabilities, including liabilities arising under the Securities Act and otherwise.

We have purchased and intend to maintain insurance on behalf of any person who is or was a director or officer against any loss arising from any claim asserted against him or her and incurred by him or her in any such capacity, subject to certain exclusions. Prior to the completion of this offering, we may procure additional insurance to provide coverage to our directors and officers against loss arising from claims relating to, among other things, public securities matters.

See also the undertakings set out in response to Item 17 herein.

Item 15. Recent sales of unregistered securities.

Set forth below is information regarding shares of our capital stock issued by us within the past three years. Also included is the consideration received by us for such shares and information relating to the section of the Securities Act, or rule of the SEC, under which exemption from registration was claimed.

Plan-related issuances

(1)	From September 25, 2014 through September 25, 2017, we granted to our directors, officers, employees, consultants and other service providers options to purchase an aggregate of 367,167 shares of our old Class B Common Stock with per share exercise prices ranging from $14.22 to $20.73 under our 2012 Stock Plan.
(2)	From September 25, 2014 through September 25, 2017, we issued to our directors, officers, employees, consultants and other service providers an aggregate of 85,618 shares of our old Class B Common Stock with per share exercise prices ranging from $9.91 to $18.09 pursuant to exercises of options granted under our 2012 Stock Plan.
(3)	From September 25, 2014 through September 25, 2017, we issued to our directors, officers, employees, consultants and other service providers an aggregate of 1,044,871 shares of our old Class B Common Stock with a per share exercise price of $0.0001 pursuant to exercises of options granted under our 2001 Nonqualified Stock Option Plan.
(4)	From September 25, 2014 through September 25, 2017, we issued to our directors, officers, employees, consultants and other service providers an aggregate of 236,617 shares of our old Class B Common Stock with per share exercise prices ranging from $0.92 to $5.15 pursuant to exercises of options granted under our 2001 Incentive and Nonqualified Stock-based Plan.

The issuances and grants of the securities described in Items 1 through 4 were exempt from registration under the Securities Act under Rule 701 in that the transactions were made pursuant to compensatory benefit plans and contractors relating to compensation as provided under Rule 701. The recipients of such securities were our employees, consultants or directors. The recipients of securities in each of these transactions represented their intention to acquire the securities for investment only and not with view to or for sale in connection with any distribution thereof and appropriate legends were affixed to the securities issued in these transactions.

Shares issued in connection with acquisitions

(1)	On May 31, 2014, we issued an aggregate of 164,841 shares of our old Class A common stock to the stockholders of EM Software & Systems GmbH and EM Software & Systems (USA) Inc., or the EMSS Entities, as partial consideration for our acquisition of all of the outstanding equity of the EMSS Entities pursuant to the terms of the agreement for stock subscription, purchase and sale and related transactions under which we acquired the EMSS Entities.
(2)	In connection with our acquisition of the EMSS Entities, on May 31, 2014, we issued 3,500 shares of our old Class A Common Stock to an EMSS-affiliated purchaser for an aggregate purchase price of $55,230.
(3)	From September 10, 2014 to October 14, 2014, we issued an aggregate of 31,659 shares of our old Class A Common Stock to certain EMSS-affiliated purchasers for an aggregate purchase price of $499,579.02, in connection with the acquisition of the EMSS Entities.
(4)	On August 15, 2014, we issued an aggregate of 40,000 shares of our old Class A Common Stock to the stockholders of Visual Solutions, Inc., or VSI, as partial consideration for our acquisition of all of the outstanding equity of VSI pursuant to the terms of the stock purchase agreement under which we acquired VSI.
(5)	On March 12, 2015, we issued 50,000 shares of our old Class A Common Stock to the sole stockholder of Multiscale Design Systems, LLC, or MDS, as partial consideration for our acquisition of all of the outstanding equity of MDS pursuant to the terms of the membership interest purchase agreement under which we acquired MDS.
(6)	On May 5, 2017, we issued 20,000 shares of our Class A Common Stock to the shareholders of Carriots,S.L, or Carriots, as partial consideration for our acquisition of all of the outstanding equity of Carriots pursuant to the terms of the share purchase agreement under which we acquired Carriots.
(7)	On May 5, 2017, we issued 50,000 shares of our Class A Common Stock to Easii IC SAS, or Easii, as partial consideration for its assignment of all of its rights to some of its software pursuant to the terms of the software assignment agreement under which we acquired the software.
(8)	On September 28, 2017, we issued 177,000 shares of our Class A Common Stock to shareholders of Runtime Design Automation, or Runtime, as partial consideration for the consummation of the merger of our wholly-owned subsidiary, RTDA Acquisition Corporation, into Runtime pursuant to the terms of the agreement and plan of merger under which we acquired Runtime.

The issuances of the securities described in Items 1 through 8 above were exempt from registration under the Securities Act pursuant to Section 4(a)(2) of the Securities Act. We relied on the written representation of the recipients of the shares as to their statuses as “accredited investors” as defined in Rule 501(a) of Regulation D in the issuances described in items 1 through 8 above. In addition, we relied on an exemption under Rule 506(b) of Regulation D in the issuance described in item 8 above.

None of the foregoing transactions involved any underwriters, underwriting discounts or commissions, or any public offering. We believe these transactions were exempt from registration under the Securities Act in reliance upon Section 4(a)(2) of the Securities Act (or Regulation D or Regulation S promulgated thereunder), or Rule 701 promulgated under Section 3(b) of the Securities Act as transactions by an issuer not involving any public offering or pursuant to benefit plans and contracts relating to compensation as provided under Rule 701. The recipients of the securities in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed upon the stock certificates issued in these transactions. All recipients had adequate access, through their relationships with us, to information about us. The sales of these securities were made without any general solicitation or advertising.

Item 16. Exhibits and financial statement schedules.

(a) Exhibits:

The exhibit index attached hereto is incorporated herein by reference.

(b) Financial statement schedules.

All schedules have been omitted because the information required to be set forth therein is not applicable or is shown in the financial statements or notes thereto.

Item 17. Undertakings.

(a) The undersigned Registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

(b) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

(c) The undersigned Registrant hereby undertakes that:

(1)	For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.
(2)	For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Exhibit index

Exhibit No.	Description
1.1*	Form of Underwriting Agreement
3.1	Certificate of Incorporation, as amended and as currently in effect
3.2*	Form of Certificate of Incorporation to be effective immediately prior to the effectiveness of this registration statement
3.3	Third Amended and Restated Bylaws, as currently in effect
3.4*	Form of Bylaws to be effective immediately prior to the effectiveness of this registration statement
4.1*	Specimen Stock Certificate of the Registrant
5.1*	Opinion of Lowenstein Sandler LLP
10.1	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers
10.2+	2001 Incentive and Non-Qualified Stock Option Plan
10.3+	Form of 2001 Incentive and Non-Qualified Stock Option Plan Incentive Stock Option Agreement
10.4+	Form of 2001 Incentive and Non-Qualified Stock Option Plan Stock Restriction and Repurchase Agreement
10.5+	2001 Non-Qualified Stock Option Plan
10.6+	Form of 2001 Non-Qualified Stock Option Plan Non-Qualified Stock Option Agreement
10.7+	Form of 2001 Non-Qualified Stock Option Plan Stock Restriction Agreement
10.8+	2012 Incentive and Non-Qualified Stock Option Plan
10.9+	Form of 2012 Incentive and Non-Qualified Stock Option Plan Option Agreement
10.10+	Form of 2012 Incentive and Non-Qualified Stock Option Plan Stock Restriction and Repurchase Agreement
10.11+	Form of 2012 Incentive and Non-Qualified Stock Option Plan Stock Restriction and Repurchase Agreement (Directors)
10.12+*	2017 Equity Incentive Plan and forms of equity agreements thereunder
10.13+	Employment Letter, dated January 10, 2013, by and between the Registrant and Howard N. Morof as amended on July 19, 2017
10.14	2017 Second Amended and Restated Credit Agreement, dated June 14, 2017, by and among the Registrant, the foreign subsidiary borrowers, the Lenders named therein and JP Morgan Chase Bank, N.A. as administrative agent, as last amended September 28, 2017
10.15+	Consulting Agreement, effective as of January 1, 2017, by and between the Registrant and Advanced Studies Holding Future SRL, an Italian Company, as amended
21.1	List of Subsidiaries of the Registrant
23.1	Consent of Independent Registered Public Accounting Firm
23.2*	Consent of Lowenstein Sandler LLP (contained in Exhibit 5.1)
24.1	Power of Attorney (contained in the signature page of this registration statement)

*	To be filed by amendment.
+	Indicates management contract or compensatory plan.

Signatures

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Troy, State of Michigan, on the 29th day of September, 2017.

ALTAIR ENGINEERING INC.	
By:	/s/ James R. Scapa
	James R. Scapa
	Chairman and Chief Executive Officer

Power of Attorney (contained in the signature page of this registration statement)

Power of Attorney KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints James R. Scapa and Howard N. Morof, and each of them, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign this Registration Statement and any or all amendments (including post-effective amendments) thereto and any new registration statement with respect to the offering contemplated thereby filed pursuant to Rule 462(b) of the Securities Act, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite or necessary to be done in connection therewith, as fully for all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or his or her or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	**Title**	**Date**
/s/ James R. Scapa James R. Scapa	Chairman, Chief Executive Officer and Director (Principal Executive Officer)	September 29, 2017
/s/ Howard N. Morof Howard N. Morof	Chief Financial Officer (Principal Financial and Accounting Officer)	September 29, 2017
/s/ James E. Brancheau James E. Brancheau	Director	September 29, 2017
/s/ Steve Earhart Steve Earhart	Director	September 29, 2017
/s/ Jan Kowal Jan Kowal	Director	September 29, 2017
/s/ Trace Harris Trace Harris	Director	September 29, 2017
/s/ Richard Hart Richard Hart	Director	September 29, 2017