As filed with the Securities and Exchange Commission on June 4, 2018.

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)

Delaware	7372	38-2591828
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(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)

Copies to:

Peter Ehrenberg, Esq. Meredith Prithviraj, Esq. Lowenstein Sandler LLP 1251 Avenue of the Americas New York, NY 10020 (212) 262-6700	William J. Schnoor, Esq. Edwin M. O'Connor, Esq. Goodwin Procter LLP 100 Northern Avenue Boston, MA 02210 (617) 570-1000

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	Amount to be Registered(1)	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price(2)	Amount of Registration Fee
Class A common stock, par value $0.0001 per share	6,440,000	$35.49(2)	$228,555,600	$28,456

(1) Includes shares of Class A common stock that may be purchased by the underwriters under their option to purchase additional shares of Class A common stock. See "Underwriting."

(2) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) under the Securities Act of 1933, as amended, on the basis of the average of the high and low prices of the Registrant's Class A common stock as reported on the NASDAQ Global Select Market on May 31, 2018.

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.

Table of Contents

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 June 4, 2018

Prospectus

5,600,000 Shares

Altair

Class A common stock

$ per share

We are offering 3,292,580 shares of our Class A common stock and the selling stockholders identified in this prospectus are offering 2,307,420 shares of our Class A common stock. We will not receive any of the proceeds from the shares of Class A common stock sold by the selling stockholders.

Our Class A common stock is listed on the NASDAQ Global Select Market under the symbol "ALTR." On May 31, 2018, the last reported sale price of our Class A common stock as reported on the NASDAQ Global Select Market was $35.19 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 91% 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 92% of the voting power.

We are an "emerging growth company" as defined under federal securities laws. We anticipate that following the completion of this offering, our chairman and chief executive officer will continue to control a majority of the combined voting power of our common stock. While under NASDAQ rules we may be deemed a "controlled company," we do not intend to take advantage of the corporate governance exemptions afforded to a "controlled company" under NASDAQ rules.

Investing in our Class A common stock involves a high degree of risk. Please see the section titled "Risk factors" starting on page 18 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.

	Public offering price	Underwriting discounts and commissions(1)	Proceeds to the Company, before expenses	Proceeds to the selling stockholders, before expenses
Per share	$	$	$	$
Total	$	$	$	$

(1) See the section titled "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 840,000 shares of Class A common stock at the public offering price, less the underwriting discount.

The underwriters expect to deliver the shares on or about , 2018.

J.P. Morgan **RBC Capital Markets** **Deutsche Bank Securities**

Canaccord Genuity **William Blair** **Needham & Company** **Berenberg Capital Markets LLC**

The date of this prospectus is , 2018

Table of Contents

Table of contents

Neither we, the selling stockholders, nor the underwriters have authorized anyone to provide any information or to make any representations other than those contained or incorporated by reference in this prospectus or in any free writing prospectuses we have prepared. We and the selling stockholders take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We and the selling stockholders are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The information contained or incorporated by reference in this prospectus is accurate only as of the date of this prospectus or the date of the applicable document incorporated by reference, regardless of the time of delivery of this prospectus or any sale of shares of our common stock. Our business, financial condition, results of operations, and prospects may have changed since that date.

For investors outside the United States: Neither we, the selling stockholders, nor the underwriters have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of our common stock and the distribution of this prospectus outside of the United States.

Prospectus summary

This summary provides a brief overview of information contained elsewhere in this prospectus and in the documents incorporated by reference. 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 and the documents incorporated by reference in their entirety including "Risk factors" included in this prospectus and incorporated by reference and "Management's discussion and analysis of financial condition and results of operations" and the financial statements and the notes to those financial statements incorporated by reference in this prospectus before investing in our Class A common stock.

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 190 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 71 offices in 24 countries, and over 2,000 engineers, scientists and creative thinkers. As of March 31, 2018, we had tens of thousands of users across over 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 in the section titled "Selected historical consolidated financial and other data—Key metrics" in our Annual Report on Form 10-K for the year ended December 31, 2017, which is incorporated by reference in 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

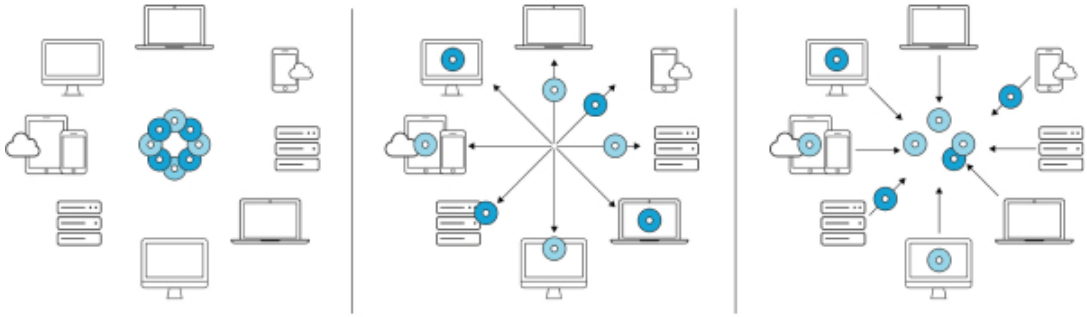
As a technology and product driven company, we believe Altair's culture of innovation creates engagement and loyalty among our employees and customers.

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 2017, customers accessed an average of 14.5 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.



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.

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 PBScloud.io, complemented by our 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 PBScloud.io 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, PBScloud.io, 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 22 companies or strategic technologies since 1996, including 11 since January 1, 2015. These acquisitions brought strategic IP assets, and over 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, PBS Professional, RADIOSS, Evolve, Acusolve, SimLab, Embed, Click2Cast, Multi-scale Designer, FEKO, Flux, WinProp, Thea Render, Modeliis, Carriots, ESAComp, nanoFluidX and ultraFluidX.

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.

Risks affecting us

Investing in our Class A common stock involves risk. You should carefully consider all of the information in this prospectus and in the documents incorporated by reference prior to investing in our Class A common stock. These risks are discussed more fully in the section titled “Risk Factors” beginning on page 18 immediately following this prospectus summary and in our Annual Report on Form 10-K for the year ended December 31, 2017, as updated by our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, which are incorporated by reference in this prospectus. These risks and uncertainties 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 91% 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 92% 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 initially in Michigan in 1985 and reincorporated in Delaware in connection with our initial public 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."

In November 2017, we completed our initial public offering, in which we sold 9,865,004 shares of Class A common stock, and certain stockholders sold 3,934,996 shares of Class A common stock, at a public offering price of $13.00 per share. We received net proceeds of $114.4 million after deducting underwriting discounts and offering expenses. Our Class A common stock began trading on the NASDAQ Global Select Market on November 1, 2017.

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," "Evolve," "Thea Render," "Click2Cast," "Click2Extrude," "Click2Form," "Carriots," "Carriots Analytics," "Compose," "Activate," "Embed," "PBS Professional," "PBScloud.io," "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.

References to the "selling stockholders" refer to the selling stockholders named in this prospectus.

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.

Emerging growth companies may take advantage of these provisions for up to five years after their initial public offerings or such earlier time that they 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.

Principal Stockholder

James R. Scapa, our chairman and chief executive officer, will continue to control a majority of the combined voting power of our company upon completion of this offering. For purposes of the corporate governance rules of the NASDAQ Stock Market, we are a "controlled company" and will continue to be a "controlled company" upon completion of this offering. Controlled companies under those rules are companies of which more than 50% of the voting power for the election of directors is held by an individual, a group or another company. Accordingly, we are eligible for, and expect to continue to be eligible for, but since our initial public offering we have not taken advantage of, and we do not currently intend to take advantage of, certain exemptions from NASDAQ's corporate governance requirements. Specifically, as a "controlled company," we are not required to have (1) a majority of independent directors, (2) a nominating and corporate governance committee composed entirely of independent directors with a written charter addressing the committee's purpose and responsibilities, or (3) a compensation committee composed entirely of independent directors with a written charter addressing the committee's purpose and responsibilities. In the event we choose to rely on some or all of these exemptions in the future, you would not have the same protections as are afforded to stockholders of companies that are subject to all of the applicable corporate governance rules of NASDAQ. We have, however, no intention to rely on any of these exemptions.

The offering

Class A common stock offered by us	3,292,580 shares
Class A common stock offered by the selling stockholders	2,307,420 shares
Option to purchase offered by us	840,000 shares
Class A common stock to be outstanding after this offering	32,582,012 shares (33,422,012 shares, if the underwriters exercise their option to purchase additional shares in full)
Class B common stock to be outstanding after this offering	34,832,256 shares
Total Class A and Class B common stock to be outstanding after this offering	67,414,268 shares (68,254,268 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 3,292,580 shares of Class A common stock in this offering at an assumed public offering price of $35.19 per share, the last reported sale price of our common stock on the NASDAQ Global Select Market on May 31, 2018, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, will be approximately $109.9 million, or $138.1 million if the underwriters' option is exercised in full. We intend to use the net proceeds we receive from this offering for general corporate purposes, including real estate development, working capital, sales and marketing activities, general and administrative matters, capital expenditures, and acquisitions of, or investments in, technologies, solutions 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 titled "Use of proceeds."
NASDAQ 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 certificate of incorporation. The holders of our outstanding Class B common stock will hold approximately 91% 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.

The total number of shares of our common stock to be outstanding following this offering is based on 27,357,012 shares of our Class A common stock and 36,507,676 shares of our Class B common stock, outstanding as of March 31, 2018, and excludes:

- 8,104,971 shares of our Class A common stock reserved for future equity awards under our 2017 Equity Incentive Plan, or our 2017 Plan, including shares subject to restricted stock units awards, or RSUs, that we plan to issue in early 2019 to senior executives, sales team and other designated employees based upon a combination of factors, including individual and corporate performance related to fiscal 2018 (based upon current expectations, potential dilution is expected to be below 1% for this future award of RSUs) ;
- 6,072,464 shares of our Class A common stock issuable upon exercise of stock options outstanding as of March 31, 2018, with an exercise price of $ 0.000025, under our 2001 Non-Qualified Stock Option Plan, or our 2001 NQSO Plan;
- 684,780 shares of our Class A common stock issuable upon exercise of stock options outstanding as of March 31, 2018, with a weighted average exercise price of $0.68, 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);
- 2,119,792 shares of our Class A common stock issuable upon exercise of stock options outstanding as of March 31, 2018, with a weighted average exercise price of $3.76, under our 2012 Plan;
- 58,295 shares of our Class A common stock issuable upon the vesting and settlement of RSUs outstanding as of March 31, 2018 under our 2017 Plan; and
- any automatic increases in the number of shares of our Class A common stock reserved for future issuance under our 2017 Plan.

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

- no exercise or cancellations of outstanding stock options and no settlement of restricted stock units after March 31, 2018 (except for the shares of our common stock to be issued upon the exercise of options by some of the selling stockholders and sold in this offering, as disclosed elsewhere in this prospectus); and
- no exercise by the underwriters of their option to purchase up to an additional 840,000 shares of our Class A common stock.

Summary historical consolidated financial and other data

The following tables summarize our historical consolidated financial data. We have derived the historical consolidated statements of operations data for the years ended December 31, 2015, 2016, and 2017 from our audited consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2017, which is incorporated by reference in this prospectus. The consolidated statement of operations data for the three months ended March 31, 2017 and 2018, and the consolidated balance sheet data as of March 31, 2018, are derived from our unaudited consolidated financial statements included in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, which is incorporated by reference in this prospectus. The following summary consolidated financial data should be read in conjunction with the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Report on Form 10-K for the year ended December 31, 2017 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, which are incorporated by reference in this prospectus, and our consolidated financial statements and related notes incorporated by reference in this prospectus. Our historical results are not necessarily indicative of the results that may be expected in the future.

	Years ended December 31,			Three months ended March 31,	
(in thousands, except share data)	**2015**	**2016**	**2017**	**2017**	**2018**
Consolidated statements of operations data:					
Revenue:					
Software	$205,567	$223,818	$244,817	$54,097	$68,143
Software related services	37,294	35,770	35,397	8,971	9,473
Total software	242,861	259,588	280,214	63,068	77,616
Client engineering services	45,075	47,702	46,510	12,229	12,080
Other	6,193	5,950	6,609	1,585	2,035
Total revenue	294,129	313,240	333,333	76,882	91,731
Cost of revenue:					
Software	27,406	31,962	36,360	8,904	10,922
Software related services	30,079	27,653	26,888	6,659	6,709
Total software	57,485	59,615	63,248	15,563	17,631
Client engineering services	36,081	38,106	38,121	10,141	10,200
Other	5,642	4,879	5,212	1,050	1,211
Total cost of revenue	99,208	102,600	106,591	26,754	29,042
Gross profit	194,921	210,640	226,742	50,128	62,689

(continued)

(in thousands, except share data)	Years ended December 31, 2015	2016	2017	Three months ended March 31, 2017	2018
Operating expenses:					
Research and development	62,777	71,325	93,234	18,770	22,703
Sales and marketing	63,080	66,086	79,958	16,910	18,977
General and administrative	54,069	57,202	87,979	16,089	16,990
Amortization of intangible assets	2,624	3,322	5,448	943	1,940
Other operating income	(2,576)	(2,742)	(6,620)	(594)	(2,191)
Total operating expense	179,974	195,193	259,999	52,118	58,419
Operating income (loss)	14,947	15,447	(33,257)	(1,990)	4,270
Interest expense	2,416	2,265	2,160	611	16
Other expense (income), net	782	(520)	994	359	(900)
Income (loss) before income taxes	11,749	13,702	(36,411)	(2,960)	5,154
Income tax expense (benefit)	818	3,539	62,996	(772)	1,234
Net income (loss)	$ 10,931	$ 10,163	$ (99,407)	$ (2,188)	$ 3,920
Net income (loss) per share attributable to common stockholders, basic	$ 0.23	$ 0.21	$ (1.89)	$ (0.04)	$ 0.06
Net income (loss) per share attributable to common stockholders, diluted	$ 0.19	$ 0.18	$ (1.89)	$ (0.04)	$ 0.05
Weighted average number of shares used in computing net income (loss) per share, basic	46,609	48,852	52,466	50,132	63,638
Weighted average number of shares used in computing net income (loss) per share, diluted	58,709	57,856	52,466	50,132	72,390

(in thousands)	As of March 31, 2018 Actual	As adjusted(1)(2)
Consolidated balance sheet data:		
Cash and cash equivalents	$ 63,196	$ 173,583
Working capital	$ (51,036)	$ 59,351
Total assets	$310,822	$ 421,209
Deferred revenue, current and non-current	$162,624	$ 162,624
Debt	$ 820	$ 820
Total stockholders' equity	$ 65,125	$ 175,512

(1) The as adjusted column in the consolidated balance sheet data table above reflects the receipt of (i) $109.9 million in net proceeds from our sale of 3,292,580 shares of common stock in this offering at an assumed public offering price of $35.19 per share, the last reported sale price of our common stock on the NASDAQ Global Select Market on May 31, 2018, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us and (ii) $0.5 million in aggregate net proceeds received by us in connection with the exercise of options to purchase an aggregate of 257,000 shares of our Class A common stock by certain of the selling stockholders in order to sell those shares in this offering.

(2) Each $1.00 increase or decrease in the assumed public offering price of $35.19 per share, the last reported sale price of our common stock on the NASDAQ Global Select Market on May 31, 2018, would increase or decrease, as applicable, the as adjusted amount of each of cash and cash equivalents, working capital, total assets, and total stockholders' equity by $3.1 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 payable by us from this offering. Each 1,000,000 share increase or decrease in the number of shares offered by us would increase or decrease the as adjusted amount of each of cash and cash equivalents, working capital, total assets, and total stockholders' equity by approximately $33.6 million, assuming that the assumed offering price of $35.19 remains the same, and after deducting estimated underwriting discounts and commissions payable by us.

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, as well as those set forth under the heading "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2017, as updated by our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, which are incorporated by reference in this prospectus. Our business, operating results, financial condition or prospects could be materially and adversely affected by any of these risks and uncertainties. In that case, the trading price of our Class A common stock could decline and you might lose all or part of your investment. In addition, the risks and uncertainties discussed below and in the documents incorporated by reference are not the only ones we face. Our business, operating results, financial condition or prospects could also be harmed by risks and uncertainties not currently known to us or that we currently do not believe are material, and these risks and uncertainties could result in a complete loss of your investment. In assessing the risks and uncertainties described below, you should also refer to the other information contained in this prospectus (as supplemented or amended) and the documents incorporated by reference in this prospectus, including our consolidated financial statements and the related notes thereto, before making a decision to invest in our Class A common stock.

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

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 the net proceeds to us from this offering for general corporate purposes, including working capital, sales and marketing activities, general and administrative matters, real estate development, including developing and building an addition adjacent to our corporate headquarters facilities, 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. While we do not have agreements or binding commitments for any specific acquisitions at this time, 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.

As a new investor, you will experience immediate and substantial dilution in the book value of the shares that you purchase in this offering.

The assumed public offering price is substantially higher than the net tangible book value per share of our Class A common stock immediately following this offering based on the total value of our tangible assets less our total liabilities. Therefore, if you purchase shares of our Class A common stock in this offering, at the assumed public offering price of $35.19 per share, the last reported sale price of our Class A common stock on the NASDAQ Global Select Market on May 31, 2018, you will experience immediate dilution of $33.84 per share, the difference between the price per share you pay for our Class A common stock and our net tangible book value per share as of March 31, 2018, after giving effect to the issuance of shares of our common stock in this offering. See the section titled "Dilution" for more information.

Our Class A common stock has only recently become publicly traded, and the market price of our Class A common stock may be volatile.

The market price of our Class A common stock may fluctuate substantially depending 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 for our Class A common stock. 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;
- additional shares of our Class A common stock being sold into the market by our existing stockholders, or the anticipation of such sales, including sales of our Class A common stock upon exercise of outstanding options or upon conversion of our Class B common stock into shares of Class A common stock;
- 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.

Sales of substantial amounts of our Class A common stock could cause the market price of our common stock to decline and 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 March 31, 2018, upon completion of this offering, we will have an aggregate of 32,582,012 shares of Class A common stock and 34,832,256 shares of Class B common stock outstanding, assuming no exercise of our outstanding stock options or settlement of restricted stock units after March 31, 2018 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. 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, as of March 31, 2018, there were 8,877,036 shares of Class A common stock subject to outstanding options and 58,295 shares of Class A common stock to be issued upon the vesting and settlement of outstanding RSUs. We have registered an aggregate of 17,845,247 shares of Class A common stock issuable (i) upon exercise of outstanding options, (ii) upon the vesting and settlement of outstanding RSUs and (iii) upon exercise or settlement of any options or other equity incentives we may grant in the future for public resale under the Securities Act. Accordingly, these shares may be freely sold in the public market upon issuance as permitted by any applicable vesting requirements, subject to the lock-up agreements described below and compliance with applicable securities laws.

In connection with this offering, we, the selling stockholders and our directors and executive officers have agreed with J.P. Morgan Securities LLC and RBC Capital Markets, LLC on behalf of the underwriters in this offering, that for 90 days after the date of this prospectus (in the case of us and the selling stockholders) or 60 days after the date of this prospectus (in the case of our directors and executive officers who are not selling stockholders), subject to certain exceptions, we and they will not, directly or indirectly, dispose of any of our common stock or securities convertible into or exercisable or exchangeable for our common stock. See the section entitled "Shares eligible for future sale" for more information.

Sales of a substantial number of such shares upon expiration of the 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 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, our employee incentive compensation plan or otherwise. Any such issuance could result in substantial dilution to our existing stockholders and cause the market price of our Class A common stock to decline.

We are a "controlled company" within the meaning of the rules of the NASDAQ Stock Market and, as a result, we qualify for, but do not currently intend to rely on, exemptions from certain corporate governance requirements. In the event that we were to rely on these exemptions in the future, you would not have the same protections as are afforded to stockholders of companies that are subject to such requirements.

Upon completion of this offering, James R. Scapa, our chairman and chief executive officer, will continue to control a majority of the combined voting power of our company. As a result, we will continue to be a "controlled company" within the meaning of the NASDAQ corporate governance standards. Under the NASDAQ rules, a company of which more than 50% of the voting power is held by an individual, group or another company is a "controlled company" and need not comply with certain requirements, including the requirement that a majority of the Board consist of independent directors and the requirements that our compensation and nominating and governance committees be composed entirely of independent directors. Since our initial public offering, we have not taken advantage of, and following this offering we do not intend to take advantage of, these exemptions. However, for so long as we qualify as a "controlled company," we have the authority to utilize some or all of these exemptions. If we utilize these exemptions, among other things, we may not have a majority of independent directors and our compensation and nominating and governance committees may not consist entirely of independent directors. Thus, in the event that we were to rely on these exemptions in the future, you would not have the same protections as are afforded to stockholders of companies that are subject to all of the corporate governance requirements of NASDAQ.

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 91% 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.

Our Class B common stock has 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 91% 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 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 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 bylaws designate courts in the State of Delaware as the sole and exclusive forums for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders’ ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

Our bylaws provide that, subject to limited exceptions, a state or federal court located within the State of Delaware will be the sole and exclusive forums for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, or other employees to us or our stockholders;
- any action asserting a claim against us arising pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or bylaws; or
- certain other actions asserting a claim against us or our directors, officers, or employees relating to our internal affairs.

Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock are deemed to have notice of and to have consented to these provisions. These provisions may limit a stockholder’s ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees, which may discourage such lawsuits against us and our directors, officers, and employees. Alternatively, if a court were to find these provisions of our bylaws inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business and financial condition.

Special note regarding forward looking statements

This prospectus and the documents incorporated by reference in this prospectus, particularly in the sections titled “Prospectus Summary” and “Risk Factors” in this prospectus and the sections titled “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Business” in our Annual Report on Form 10-K for the year ended December 31, 2017 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, include forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities and Exchange Act of 1934, as amended. All statements other than statements of historical facts contained in this prospectus, including statements regarding our future results of operations and financial position, 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. These forward-looking statements are subject to a number of risks, uncertainties and assumptions described under the section titled “Risk Factors” in this prospectus and in our Annual Report on Form 10-K for the year ended December 31, 2017, as updated by our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, which are incorporated by reference in this prospectus, and elsewhere in this prospectus and in the documents incorporated by reference in this prospectus, regarding, among other things:

- our ability to acquire new customers because of the difficulty in predicting our software sales cycles;
- reduced spending on product design and development activities by our customers;
- our dependence on annual renewals of our software licenses;
- our ability to maintain or protect our intellectual property;
- our ability to retain key executive members;
- our ability to internally develop new inventions and intellectual property;
- our ability to successfully integrate and realize the benefits of our past or future strategic acquisitions or investments;
- demand for our software by customers other than simulation engineering specialists and in additional industry verticals;
- acceptance of our business model by investors;
- our susceptibility to factors affecting the automotive industry where we derive a substantial portion of our revenues;
- the accuracy of our estimates regarding expenses and capital requirements; and
- the significant quarterly fluctuations of our results.

These risks are not exhaustive. Other sections of this prospectus and the documents incorporated by reference in this prospectus may include additional factors that could adversely impact our business and financial performance. New risk factors emerge from time to time and it is not possible for our management to predict

all risk factors, 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, or implied by, any 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 future results, levels of activity, performance or achievements. Except as required by law, we undertake no obligation to publicly update any forward-looking statements for any reason.

You should read this prospectus, the documents incorporated by reference in this prospectus and the documents that we have filed as exhibits to the registration statement on Form S-1, of which this prospectus is a part, that we have filed with the SEC with the understanding that our actual future results, levels of activity, performance and achievements may be materially different from what we expect.

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” in this prospectus and in the documents incorporated by reference in this prospectus. 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 or in documents incorporated by reference 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 referenced herein (the “Gartner Report”) represents research opinions 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 or in the documents incorporated by reference in this prospectus 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

We estimate that the net proceeds from our sale of 3,292,580 shares of Class A common stock in this offering at an assumed public offering price of $35.19 per share, the last reported sale price of our common stock on the NASDAQ Global Select Market on May 31, 2018, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, will be approximately $109.9 million, or $138.1 million if the underwriters' option to purchase additional shares is exercised in full. A $1.00 increase (decrease) in the assumed public offering price would increase (decrease) the net proceeds to us from this offering by $3.1 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 payable by us. We will not receive any proceeds from the sale of Class A common stock by the selling stockholders; however we will receive net proceeds of $0.5 million from certain selling stockholders upon the exercise of stock options in order to sell such shares in this offering.

We intend to use the net proceeds to us from this offering for general corporate purposes, including working capital, sales and marketing activities, general and administrative matters, real estate development, including developing and building an addition adjacent to our corporate headquarters facilities, 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 do not have any agreements or binding commitments for any such acquisitions or investments at this time.

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.

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.

Market price of common stock

Shares of our Class A common stock commenced trading on the NASDAQ Global Select Market under the symbol “ALTR” on November 1, 2017. Prior to that date, there was no public market for our Class A common stock. The following table summarizes the high and low sale prices of our common stock as reported by the NASDAQ Global Select Market:

	Low	High
Fiscal Year 2017		
Fourth Quarter (beginning November 1, 2017)	$16.55	$25.59
Fiscal Year 2018		
First Quarter	$23.77	$33.38
Second Quarter (through May 31, 2018)	$27.75	$37.19

On May 31, 2018, the last reported sale price of our Class A common stock on the NASDAQ Global Select Market was $35.19 per share. As of March 31, 2018, there were approximately 465 registered stockholders of record of our Class A common stock and 5 registered stockholders of record of our Class B common stock. This figure does not reflect the beneficial ownership or shares held in nominee name.

Capitalization

The following table shows our cash and cash equivalents and our capitalization as of March 31, 2018 on:

- an actual basis; and
- an as adjusted basis to give effect to (i) the sale and issuance of 3,292,580 shares of our Class A common stock offered by us in this offering based on the assumed public offering price of $35.19 per share, the last reported sale price of our Class A common stock on the NASDAQ Global Select Market on May 31, 2018, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, and (ii) the issuance of 257,000 shares of our Class A common stock to certain selling stockholders upon the exercise of stock options in order to sell such shares in this offering, including net proceeds of $0.5 million received by us in connection with the exercise of such options.

You should read this table together with the sections of this prospectus titled " Summary Historical Consolidated Financial and Other Data," and "Description of Capital Stock" and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our unaudited consolidated financial statements and related notes in our Quarterly Report on 10-Q for the quarter ended March 31, 2018, which is incorporated by reference in this prospectus.

	As of March 31, 2018	
(In thousands, except share and per share data)	**Actual**	**As adjusted(1)**
Cash and cash equivalents	$ 63,196	$ 173,583
Credit Agreement:		
Revolving credit facility(2)	$ —	$ —
Stockholders' equity:		
Preferred stock, $0.0001 par value per share: 45,000,000 shares authorized, no shares issued or outstanding, actual and as adjusted	—	—
Class A common stock, $0.0001 par value per share: 513,796,572 shares authorized, 27,357,012 shares issued and outstanding, actual; 513,796,572 shares authorized, 32,582,012 shares issued and outstanding, as adjusted	3	3
Class B common stock, $0.0001 par value per share: 41,203,428 shares authorized, 36,507,676 shares issued and outstanding, actual; 41,203,428 shares authorized, 34,832,256 shares issued and outstanding, as adjusted	4	4
Additional paid-in capital	232,576	342,963
Accumulated deficit	(162,579)	(162,579)
Accumulated other comprehensive loss	(4,879)	(4,879)
Total stockholders' equity	65,125	175,512
Total capitalization	$ 65,125	$ 175,512

(1) The 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 public offering price of $35.19 per share, the last reported sale price on the NASDAQ Global Market Select on May 31, 2018, would increase (decrease) each of our as adjusted cash and cash equivalents, additional paid-in capital, total stockholders' equity and total capitalization by approximately $3.1 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. We may also increase or decrease the number of shares we are offering. Each 1,000,000 share increase or decrease in the number of shares offered by us would increase or decrease the as adjusted amount of each of cash and cash equivalents, additional paid-in capital, total stockholders' equity and total capitalization by approximately $33.6 million, assuming that the assumed offering price of $35.19 remains the same, and after deducting estimated underwriting discounts and commissions payable by us.

(2) Our credit facility consists of an initial aggregate commitment amount of $100.0 million, with a sublimit for the issuance of letters of credit of up to $5.0 million and a sublimit for swingline loans of up to $5.0 million, of which $0 was outstanding as of March 31, 2018.

The total number of shares of our common stock to be outstanding set forth in the table above is based on 27,357,012 shares of our Class A common stock and 36,507,676 shares of our Class B common stock, outstanding as of March 31, 2018, and excludes:

- 8,104,971 shares of our Class A common stock reserved for future equity awards under our 2017 Equity Incentive Plan, or our 2017 Plan, including shares subject to restricted stock units awards, or RSUs, that we plan to issue in early 2019 to senior executives, sales team and other designated employees based upon a combination of factors, including individual and corporate performance related to fiscal 2018 (based upon current expectations, potential dilution is expected to be below 1% for this future award of RSUs);
- 6,072,464 shares of our Class A common stock issuable upon exercise of stock options outstanding as of March 31, 2018, with an exercise price of $ 0.000025, under our 2001 NQSO Plan;
- 684,780 shares of our Class A common stock issuable upon exercise of stock options outstanding as of March 31, 2018, with a weighted average exercise price of $0.68, under our 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);
- 2,119,792 shares of our Class A common stock issuable upon exercise of stock options outstanding as of March 31, 2018, with a weighted average exercise price of $3.76, under our 2012 Plan;
- 58,295 shares of our Class A common stock issuable upon the vesting and settlement of RSUs outstanding as of March 31, 2018 under our 2017 Plan; and
- any automatic increases in the number of shares of our Class A common stock reserved for future issuance under our 2017 Plan.

Dilution

If you invest in our Class A common stock in this offering, your ownership interest will be diluted immediately to the extent of the difference between the public offering price per share of our Class A common stock and the as adjusted net tangible book value per share of our Class A common stock immediately after this offering.

Net tangible book value per share is determined by dividing our total tangible assets less our total liabilities by the number of shares of our common stock outstanding. Our historical net tangible negative book value as of March 31, 2018, was $(19.1) million, or $(0.30) per share. After giving effect to (i) the sale and issuance of 3,292,580 shares of our Class A common stock offered by us in this offering based on the assumed public offering price of $35.19 per share, the last reported sale price of our common stock on the NASDAQ Global Select Market on May 31, 2018, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, and (ii) the issuance of 257,000 shares of our Class A common stock to certain selling stockholders upon the exercise of stock options in order to sell such shares in this offering, including net proceeds of $0.5 million received by us in connection with the exercise of such options, our as adjusted net tangible book value as of March 31, 2018, would have been $91.3 million, or $1.35 per share. This represents an immediate increase in net tangible book value of $1.65 per share to our existing stockholders and an immediate dilution in net tangible book value of $33.84 per share to investors purchasing shares of our Class A common stock in this offering at the assumed public offering price.

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

Assumed public offering price per share		$35.19
Net tangible negative book value per share as of March 31, 2018	$(0.30)	
Increase in net tangible book value per share as of March 31, 2018	1.65	
As adjusted net tangible book value per share immediately after this offering		1.35
Dilution per share to new investors in this offering		$33.84

A $1.00 increase (decrease) in the assumed public offering price of $35.19 per share, the last reported sale price of our Class A common stock on the NASDAQ Global Select Market on May 31, 2018 would increase (decrease) our as adjusted net tangible book value per share immediately after this offering by $0.05 per share and the dilution per share to new investors in this offering by $0.95 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 payable by us. Similarly, each increase of one million shares in the number of shares of Class A common stock offered by us would increase our as adjusted net tangible book value per share immediately after this offering by $0.47 per share and decrease the dilution per share to new investors by $0.47 per share, assuming the assumed public offering price remains the same and after deducting underwriting discounts and commissions payable by us. Further, each decrease of one million shares in the number of shares of Class A common stock offered by us would decrease our as adjusted net tangible book value per share immediately after this offering by $0.49 per share and increase the dilution per share to new investors by $0.49 per share, assuming the assumed public offering price remains the same and after deducting underwriting discounts payable by us.

The total number of shares of our common stock to be outstanding set forth in the table above is based on 27,357,012 shares of our Class A common stock and 36,507,676 shares of our Class B common stock, outstanding as of March 31, 2018, and excludes:

- 8,104,971 shares of our Class A common stock reserved for future equity awards under our 2017 Equity Incentive Plan, or our 2017 Plan, including shares subject to restricted stock units awards, or RSUs, that we

plan to issue in early 2019 to senior executives, sales team and other designated employees based upon a combination of factors, including individual and corporate performance related to fiscal 2018 (based upon current expectations, potential dilution is expected to be below 1% for this future award of RSUs);

- 6,072,464 shares of our Class A common stock issuable upon exercise of stock options outstanding as of March 31, 2018, with an exercise price of $ 0.000025, under our 2001 NQSO Plan;
- 684,780 shares of our Class A common stock issuable upon exercise of stock options outstanding as of March 31, 2018, with a weighted average exercise price of $0.68, under our 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);
- 2,119,792 shares of our Class A common stock issuable upon exercise of stock options outstanding as of March 31, 2018, with a weighted average exercise price of $3.76, under our 2012 Plan;
- 58,295 shares of our Class A common stock issuable upon the vesting and settlement of RSUs outstanding as of March 31, 2018 under our 2017 Plan; and
- any automatic increases in the number of shares of our Class A common stock reserved for future issuance under our 2017 Plan.

Principal and selling stockholders

The following table sets forth certain information with respect to the beneficial ownership of our common stock as of May 15, 2018, which is referred to as the Beneficial Ownership Date, and as adjusted to reflect the sale of our Class A common stock offered by us and the selling stockholders in this offering assuming no and full exercise of the underwriters' option to purchase additional shares from us, for:

- 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 executive officers;
- all executive officers and directors as a group; and
- each of 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, we have deemed shares of our Class A common stock subject to options that are currently exercisable or exercisable within 60 days of May 15, 2018, and shares of our Class A common stock that are reserved for settlement of RSUs that are vested or will be vested within 60 days of May 15, 2018, to be outstanding and to be beneficially owned by the person holding the option for the purpose of computing the percentage ownership of that person but have not treated them as outstanding for the purpose of computing the percentage ownership of any other person.

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 29,049,457 shares of our Class A common stock and 35,846,152 shares of our Class B common stock outstanding as of the Beneficial Ownership Date. We have based percentage ownership of our common stock after this offering assuming no exercise of the underwriters' option to purchase additional shares of Class A common stock from us on 34,443,005 shares of our Class A common stock outstanding as of the Beneficial Ownership Date and on 34,170,732 shares of our Class B common stock outstanding as of the Beneficial Ownership Date, assuming the sale of 5,600,000 shares of our Class A common stock by us and the selling stockholders in this offering (including the shares to be issued upon the exercise of options to purchase shares of our Class A common stock and sold in this offering).

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 Road, Troy MI 48083.

	Beneficial ownership of common stock prior to the offering						Beneficial ownership of common stock after the offering				
	Class A		Class B		% of Total voting power (pre-Offering)	Class A shares being offered	Class A		Class B		% of Total voting power (post-Offering)
Name of beneficial owner	Shares	%	Shares	%	%	Shares	Shares	%	Shares	%	
5% Stockholders:											
George J. Christ[1]	—	—	13,770,732	38.42%	35.54%	600,000	—	—	13,170,732	38.54%	35.01%
Mark E. Kistner[2]	661,524	2.28%	2,000,000	5.58%	5.33%	—	661,524	1.92%	2,000,000	5.85%	5.49%
Entities affiliated with Bamco Inc.[3]	2,100,528	7.23%	—	—	*	—	2,100,528	6.10%	—	—	*
Executive Officers and Directors:											
James R. Scapa[4]	30,000	*	20,075,420	56.00%	51.81%	1,075,420	30,000	*	19,000,000	55.60%	50.52%
Howard N. Morof[5]	712,849	2.42%	—	—	*	210,000	502,849	1.46%	—	—	*
Massimo Fariello[6]	403,524	1.39%	—	—	*	22,000	381,524	1.11%	—	—	*
Brett Chouinard[7]	148,114	*	—	—	*	75,000	73,114	*	—	—	*
James P. Dagg[8]	744,274	2.50%	—	—	*	25,000	719,274	2.05%	—	—	*
Dr. Uwe Schramm[9]	108,037	*	—	—	*	26,000	82,037	*	—	—	*
Mahalingam Srikanth[10]	56,762	*	—	—	*	—	56,762	*	—	—	*
Jeffrey M. Brennan[11]	256,984	*	—	—	*	40,000	216,984	*	—	—	*
Martin Nichols[12]	102,800	*	—	—	*	10,000	92,800	*	—	—	*
Tom M. Perring[13]	488,907	1.68%	—	—	*	100,000	388,907	1.13%	—	—	*
Nelson Dias[14]	41,329	*	—	—	*	4,000	37,329	*	—	—	*
Mary C. Boyce[15]	—	—	—	—	—	—	—	—	—	—	—
James E. Brancheau[16]	1,263,168	4.35%	—	—	*	120,000	1,143,168	3.32%	—	—	*
Steve Earhart[17]	41,000	*	—	—	*	—	41,000	*	—	—	*
Jan Kowal[18]	21,000	*	—	—	*	—	21,000	*	—	—	*
Trace Harris[19]	11,000	*	—	—	*	—	11,000	*	—	—	*
Richard Hart[20]	6,000	*	—	—	*	—	6,000	*	—	—	*
All executive officers and directors as a group (17 individuals)[21]	4,435,748	14.45%	20,075,420	56.00%	52.73%	1,707,420	3,803,748	10.67%	19,000,000	55.60%	51.30%

(*) Represents beneficial ownership of less than 1%

(1) Consists of (i) 8,146,728 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) 5,024,004 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.

(2) Consists of (i) 661,524 shares of Class A common stock held of record by Mark E. Kistner, and (ii) 2,000,000 shares of Class B common stock held of record by Mark E. Kistner.

(3) Based on Schedule 13G filed with the SEC on February 14, 2018. The address of the shareholder is 767 Fifth Avenue, 49th Floor, New York, NY 10153. BAMCO, Inc. (“BAMCO”) and Baron Capital Management, Inc. (“BCM”) are subsidiaries of Baron Capital Group, Inc. (“BCG”) and Ronald Baron owns a controlling interest in BCG. The advisory clients of BAMCO and BCM have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, Altair’s Class A common stock in their accounts. To the best of the filing persons’ knowledge, no such person has such interest relating to more than 5% of the outstanding class of securities.

(4) Consists of (i) 11,675,996 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) 7,324,004 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. Includes 30,000 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date. Excludes 90,000 shares subject to options for Class A common stock and 20,000 shares of Class A common stock subject to a restricted stock unit award which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(5) Consists of (i) 160,372 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) 141,080 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) 411,397 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, 403,623 of which are vested as of such date, 968 of which vested on May 17, 2018 and 6,806 of which will vest on June 9, 2018. Of the 403,623 shares subject to options which are vested as of the Beneficial Ownership Date, 378,548 will be exercised in connection with this offering and 210,000 will be sold in this offering. Excludes 24,731 options for Class A common stock, and 2,070 shares of Class A common stock subject to a restricted stock unit award, which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(6) Consists of (i) 332,000 shares of Class A common stock held of record by Advanced Studies Holding Future Srl, an Italian company, and (ii) 71,524 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, 65,753 of which are vested as of such date, 951 of which vested on May 17, 2018 and 4,820 of which will vest on June 9, 2018. Of the 65,753 shares subject to options which are vested as of the Beneficial

Ownership Date, 22,000 will be exercised in connection with and sold in this offering. Excludes 18,780 options for Class A common stock, and 2,070 shares of Class A common stock subject to a restricted stock unit award, which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(7) Includes 31,070 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, 17,247 of which are vested as of such date, 1,003 of which vested on May 17, 2018 and 12,820 of which will vest on June 9, 2018. Excludes 43,214 options for Class A common stock, and 2,070 shares of Class A common stock subject to a restricted stock unit award, which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(8) Consists of 744,274 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, 738,503 of which are vested as of such date, 951 of which vested on May 17, 2018 and 4,820 of which will vest on June 9, 2018. Of the 738,503 shares subject to options exercisable for Class A common stock which are vested as of the Beneficial Ownership Date, 25,000 will be exercised in connection with and sold in this offering. Excludes 16,362 options for Class A common stock, and 2,070 shares of Class A common stock subject to a restricted stock unit award, which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(9) Includes 22,037 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, 12,269 of which are vested as of such date, 934 of which vested on May 17, 2018 and 8,834 of which will vest on June 9, 2018. Excludes 33,899 options for Class A common stock, and 2,070 shares of Class A common stock subject to a restricted stock unit award, which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(10) Includes of 48,762 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, of which 39,019 are vested as of such date, 951 of which vested on May 17, 2018 and 8,792 of which will vest on June 9, 2018. Excludes 33,346 options for Class A common stock, and 2,070 shares of Class A common stock subject to a restricted stock unit award, which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(11) Includes of 193,140 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, of which 191,443 are vested as of such date, 934 of which vested on May 17, 2018 and 763 of which will vest on June 9, 2018. Excludes 6,576 options for Class A common stock, and 2,070 shares of Class A common stock subject to a restricted stock unit award, which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(12) Includes of 12,800 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, of which 7,057 are vested as of such date, 951 of which vested on May 17, 2018 and 4,792 of which will vest on June 9, 2018. Excludes 26,455 options for Class A common stock, and 2,070 shares of Class A common stock subject to a restricted stock unit award, which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(13) Includes of 12,519 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, of which 10,822 are vested as of such date, 934 of which vested on May 17, 2018 and 763 of which will vest on June 9, 2018. Excludes 6,461 options for Class A common stock, and 2,070 shares of Class A common stock subject to a restricted stock unit award, which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(14) Includes of 19,329 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, of which 18,451 are vested as of such date, 510 of which vested on May 17, 2018 and 368 of which will vest on June 9, 2018. Excludes 3,303 options for Class A common stock, and 1,035 shares of Class A common stock subject to a restricted stock unit award, which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(15) Excludes 10,000 shares of Class A common stock subject to a restricted stock unit award, which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(16) Includes 3,168 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, all of which are vested as of such date.

(17) Excludes 3,000 options for Class A common stock which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(18) Consists of 21,000 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, all of which are vested as of such date. Excludes 3,000 options for Class A common stock which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(19) Consists of 11,000 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, all of which are vested as of such date. Excludes 13,000 options for Class A common stock which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(20) Consists of 6,000 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date, all of which are vested as of such date. Excludes 18,000 options for Class A common stock which vest subject to time-based vesting conditions that will not be satisfied within 60 days of the Beneficial Ownership Date.

(21) Consists of (i) 2,590,276 shares of Class A common stock beneficially owned by our executive officers and directors, (ii) 19,000,000 shares of Class B common stock beneficially owned by our executive officers and directors, and (iii) 1,213,472 shares subject to options exercisable for Class A common stock within 60 days of the Beneficial Ownership Date. A total of 425,548 shares subject to options exercisable for Class A common stock will be exercised in connection with this offering; of that amount, 257,000 shares will be sold in this offering. Excludes 340,127 shares subject to options exercisable for Class A common stock, and 49,665 shares of Class A common stock subject to restricted stock unit awards, which vest subject to time-based vesting conditions and that will not be satisfied within 60 days of the Beneficial Ownership Date.

Certain relationships and related party transactions

In addition to the executive officer and director compensation arrangements discussed in the sections titled “Executive compensation” and “Director Compensation” in our definitive proxy statement on Schedule 14A, which is incorporated by reference in this prospectus, the following is a description of each transaction since January 1, 2015 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 525,600 shares of our 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 525,600 shares of our 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 200,000 shares of our common stock held by Upali Fonseka, who prior to our initial public offering held more than 5% of our outstanding capital stock, for an aggregate purchase price of $711,000 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 175,200 shares of our 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 175,200 shares of our 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 137,268 shares of our common stock held by Dennis Zuccaro, Trustee of the Dennis & Kathleen Zuccaro Trust dated January 19, 1987, which prior to our initial public offering held more than 5% of our outstanding capital stock, for an aggregate purchase price of $499,998, which was paid in two installments of $250,000 and $249,998, on August, 1, 2016 and December 1, 2016, respectively.

On December 1, 2016, we redeemed 113,388 shares of our 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 was paid in nine equal monthly installments commencing on January 10, 2017.

On December 1, 2016, we redeemed 59,108 shares of our common stock held by James E. Brancheau & Paula M. Brancheau JTWROS for an aggregate purchase price of $267,316, which was payable in 11 installments and accrued interest at a rate of 1% per month. We paid the first installment of $22,464 on January 10, 2017 and paid the remainder of the purchase price, plus interest, in ten equal monthly installments beginning on 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.

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.

Indemnification of officers and directors

We have entered into indemnification agreements with each of our current directors and executive officers. These agreements require us to indemnify these individuals to the fullest extent permitted under Delaware law against liabilities that may arise by reason of their service to us, and to advance expenses incurred as a result of any proceeding against them as to which they could be indemnified. We also intend to enter into indemnification agreements with our future directors and executive officers.

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.

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 certificate of incorporation and bylaws. This summary does not purport to be complete and is qualified in its entirety by the provisions of our certificate of incorporation and bylaws, copies of which are filed as exhibits to the registration statement of which this prospectus is a part.

Our authorized capital stock consists of 600,000,000 shares, with a par value of $0.0001 per share, of which:

- 513,796,572 shares are designated as Class A common stock;
- 41,203,428 shares are designated as Class B common stock; and
- 45,000,000 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 March 31, 2018, we had 27,357,012 shares of our Class A common stock and 36,507,676 shares of our Class B common outstanding, held by approximately 470 stockholders of record and no shares of preferred stock outstanding.

Class A and Class B common stock

Voting rights

Holders of our Class A common stock and Class B common stock have identical rights, provided however that, except as otherwise expressly provided in our 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 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 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 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 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 filing of the certificate of incorporation with the Secretary of State of the State of Delaware 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 certificate of incorporation. Our 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 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 certificate of incorporation upon the occurrence of certain events. With respect to all beneficial owners, as defined in our 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 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 certificate of incorporation in connection with our initial public 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 certificate of incorporation, including, without limitation, transfers from a founder, as defined in our 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 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

Pursuant to our 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 45,000,000 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 and restricted stock unit awards

Our compensation committee has general administrative authority with respect to our equity compensation plans. Although stock options granted under our 2001 NQSO Plan, our 2001 ISO and NQSO Plan and 2012 Plan remain outstanding, no options or other awards are available for issuance under those plans. Instead, any subsequent grants of RSU's, stock options or other awards will be made under our 2017 Plan.

As of March 31, 2018, under our 2017 Plan, we had outstanding RSUs covering an aggregate of 58,295 shares of our Class A common stock and 8,104,971 shares of our Class A common stock were available for future grant. 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 in an amount not to exceed three percent of the outstanding shares of all classes of common stock as of the last day of our immediately preceding fiscal year. We plan to issue RSU awards in early 2019 to senior executives, sales team members and other designated employees based upon a combination of factors, including individual and corporate performance related to fiscal 2018. The determination of the actual number of the individual and aggregate number of RSUs to be awarded and subject to a four-year vesting period is expected to be finalized in early 2019, and remains subject to compensation committee approval at that time. Based upon current expectations, potential dilution is expected to be below 1% for this future award of RSUs. This program is targeted to specific groups of employees identified above. The anticipated dilution from that program does not include RSU's and stock options that may be granted to our chief executive officer, to employees of entities we may acquire, as retention grants to existing employees or as grants to new employees.

As of March 31, 2018:

- under our 2001 NQSO Plan, we had outstanding options to purchase an aggregate of 6,072,464 shares of our Class A common stock with an exercise price of $0.000025 per share;
- under our 2001 ISO and NQSO Plan, we had outstanding options to purchase an aggregate of 684,780 shares of our Class A common stock with an exercise price of $0.68 per share; and
- under our 2012 Plan, we had outstanding options to purchase an aggregate of 2,119,792 shares of our Class A common stock with an exercise price of $3.76 per share.

Our board of directors generally has the power to amend or terminate our equity compensation plans, subject to limitations on the extent to which previously granted awards may be impacted. In the event of a change of control, our board of directors has authority, that varies from plan-to-plan, to provide for limited or full vesting. With respect to awards granted under the 2017 Plan, in the event of a change of control, 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.

Anti-takeover effects of Delaware law and our certificate of incorporation and bylaws

Our certificate of incorporation and bylaws contains 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 certificate of incorporation provides for a dual class common stock structure, which provides 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 has 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 certificate of incorporation provides 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 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 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 certificate of incorporation provides that our board of directors is divided into three classes, one class of which is elected each year by our stockholders. The directors in each class serve for a three-year term. 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.

Choice of Forum

Our bylaws provide that, subject to limited exceptions, a state or federal court located within the State of Delaware will be the sole and exclusive forums for any derivative action or proceeding brought on our behalf,

any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, or other employees to us or our stockholders, any action asserting a claim against us or any of our directors, officers, or employees arising pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our bylaws, or certain other actions asserting a claim against us or our directors, officers, or employees relating to our internal affairs.

Transfer agent and registrar

American Stock Transfer & Trust Company, LLC is the transfer agent and registrar for our common stock. The transfer agent's address is Operations Center, 6201 15th Avenue Brooklyn, NY 11219, and its telephone number is (800) 937-5449.

Exchange listing

Our Class A common stock is listed on the Nasdaq Global Select Market under the symbol "ALTR."

Shares eligible for future sale

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 shares will be available for sale shortly after this offering due to contractual and legal restrictions on resale. Nonetheless, sales of substantial amounts of our common stock, or the perception that these sales could occur, could adversely affect prevailing market prices for our common stock and could impair our future ability to raise equity capital.

Sales of restricted shares

Based on the number of shares outstanding on March 31, 2018, upon completion of this offering, we will have outstanding an aggregate of 32,582,012 shares of Class A common stock and 34,832,256 shares of Class B common stock. Of these shares, all of the 13,800,000 shares of Class A common stock sold in our initial public offering and all of the 5,600,000 shares of Class A common stock to be sold in this offering (or 6,440,000 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, which shares will be subject to the volume limitations and other restrictions of Rule 144 described below.

Subject to the terms of the lock-up agreements with the underwriters, the remaining outstanding shares of our common stock will be deemed restricted securities as defined under Rule 144. Restricted securities may be sold in the public market only if registered or if they qualify for an exemption from registration under Rule 144 or Rule 701 promulgated under the Securities Act of 1933, as amended, or the Securities Act, which rules are summarized below. In addition, the selling stockholders in this offering and the other executive officers and directors of our company have entered lock-up agreements with the underwriters under which they agreed, subject to specific exceptions, not to sell any of their stock as described below. Subject to the provisions of Rule 144 or Rule 701, shares are or will be available for sale in the public market as follows:

- on the date of this prospectus, 19,400,000 shares of our common stock (including all 5,600,000 shares of our common stock sold in this offering and all 13,800,000 shares of our Class A common stock sold in our initial public offering) are available for sale in the public market, except for the shares held by affiliates which are subject to the volume and other restrictions of Rule 144;
- 49,000 additional shares will be eligible for sale in the public market 60 days from the date of the final prospectus relating to this offering upon the expiration of certain lock-up agreements entered into in connection with this offering;
- 34,713,008 additional shares will be eligible for sale in the public market 90 days from the date of the final prospectus relating to this offering upon the expiration of certain other lock-up agreements entered into in connection with this offering ; and
- the remainder of the shares will be eligible for sale in the public market from time to time, subject in some cases to the volume and other restrictions of Rule 144, as described below.

Lock-up agreements

We, and each of the selling stockholders have agreed that, we and they will not, during the period ending 90 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, each of our other current directors and executive officers have agreed that they will not during the period ending 60 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.”

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 March 31, 2018, we have issued and outstanding an aggregate of 990,000 Consideration Shares of which 160,000 shares were released on August 17, 2017, 50,000 shares were released on March 12, 2018, 100,000 shares will be released on March 12, 2019, 200,000 shares will be released on March 28, 2019, 280,000 shares will be released on May 5, 2020 and 200,000 shares will be released on September 28, 2020.

Rule 144

In general, persons who have beneficially owned restricted shares of our common stock for at least six months, and any affiliate of the company who owns either restricted or unrestricted shares of our common stock, are entitled to sell their securities without registration with the SEC under an exemption from registration provided by Rule 144 under the Securities Act.

In general, a person who has beneficially owned restricted shares of our common stock for at least six months would be entitled to sell their securities provided that (i) such person is not deemed to have been one of our affiliates at the time of, or at any time during the 90 days preceding, a sale and (ii) we have been subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Persons who have beneficially owned restricted shares of our common stock for at least six months, but who are our affiliates at the time of, or any time during the 90 days preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of either of the following:

- 1% of the number of shares of Class A common stock then outstanding, which will equal approximately 325,820 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 under the Securities Act, as in effect on the date of this prospectus, permits resales of shares in reliance upon Rule 144 but without compliance with certain restrictions of Rule 144, including the holding period requirement. Most of our employees, executive officers or directors who purchased shares under a written compensatory plan or contract may be entitled to rely on the resale provisions of Rule 701, although a portion of these shares have been registered on Form S-8 as described below.

Stock issued under employee benefit plans

We have filed and may in the future file with the SEC registration statements on Form S-8 under the Securities Act covering all of the shares of our common stock issuable under our equity plans. Shares covered by these registration statements will thereupon be eligible for sale in the public markets, subject to vesting restrictions, the lock-up agreements described above and Rule 144 limitations applicable to affiliates.

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 Internal Revenue Code, or 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. 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 federal income 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 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 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 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 24%) 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

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, RBC Capital Markets, LLC and Deutsche Bank Securities Inc. are acting as book-running managers of the offering, and J.P. Morgan Securities LLC and RBC Capital Markets, LLC are acting as representatives of each of the underwriters named below. 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.	
Canaccord Genuity LLC	
William Blair & Company, L.L.C.	
Needham & Company, LLC	
Berenberg Capital Markets LLC	
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 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 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 840,000 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 to purchase additional shares exercise	With full option to purchase additional 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 $800,000.

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. The underwriters have agreed to reimburse us and the selling stockholders for certain expenses incurred by us and the selling stockholders in connection with this offering upon closing of this 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 90 days after the date of this prospectus, other than the shares of our common stock to be sold hereunder, any shares of our common stock issued upon the exercise of options granted under our existing equity compensation plans or shares of our common stock and securities convertible into our common stock, in an amount not to exceed five percent of our outstanding securities, calculated as of the closing of this offering, in connection with business combinations and other comparable corporate transactions.

The selling stockholders and our directors and executive officers 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 90 days (in the case of the selling stockholders) and 60 days (in the case of our directors and executive officers who are not selling stockholders) 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.

Our Class A common stock is listed 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.

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. 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.

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

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

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements and schedule included in our Annual Report on Form 10-K for the year ended December 31, 2017, as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements and schedule are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

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 our SEC filings and 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. Each statement in this prospectus relating to a contract or document filed as an exhibit is qualified in all respects by the filed exhibit. 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.

We are subject to the information reporting requirements of the Exchange Act, and we file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information are available for inspection and copying at the public reference room and website of the SEC referred to above. We also maintain a website at http://altair.com, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The information contained in, or that can be accessed through, our website is not part of, and is not incorporated into, this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Incorporation of certain information by reference

The SEC allows us to "incorporate by reference" information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus. We

incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below that we have filed with the SEC (File No. 001-38263):

- our Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC on March 21, 2018;
- our Proxy Statement on Schedule 14A, filed with the SEC on April 26, 2018;
- our Quarterly Report on Form 10-Q for the period ended March 31, 2018, filed with the SEC on May 14, 2018; and
- our Current Report on Form 8-K filed with the SEC on April 3, 2018 (only with respect to Item 5.02).

Notwithstanding the statements in the preceding paragraphs, no document, report or exhibit (or portion of any of the foregoing) or any other information that we have "furnished" to the SEC pursuant to the Exchange Act shall be incorporated by reference into this prospectus.

We will furnish without charge to you, on written or oral request, a copy of any or all of the documents incorporated by reference in this prospectus, including exhibits to these documents. You should direct any requests for documents to Altair Engineering Inc., Attn: Investor Relations, ir@altair.com.

You also may access these filings on our website at *http://altair.com*. We do not incorporate the information on our website into this prospectus or any supplement to this prospectus and you should not consider any information on, or that can be accessed through, our website as part of this prospectus or any supplement to this prospectus (other than those filings with the SEC that we specifically incorporate by reference into this prospectus or any supplement to this prospectus).

Any statement contained in a document incorporated or deemed to be incorporated by reference in this prospectus will be deemed modified, superseded or replaced for purposes of this prospectus to the extent that a statement contained in this prospectus modifies, supersedes or replaces such statement.

Table of Contents

5,600,000 shares

ALTAIR ENGINEERING INC.

Class A common stock

J.P. Morgan **RBC Capital Markets** **Deutsche Bank Securities**

Canaccord Genuity **William Blair** **Needham & Company** **Berenberg Capital Markets LLC**

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, and the FINRA filing fee.

	Amount to be paid
SEC registration fee	28,456
FINRA filing fee	34,784
Printing and engraving expenses	50,000
Legal fees and expenses	400,000
Accounting fees and expenses	230,000
Transfer agent and registrar fees and expenses	10,000
Miscellaneous	46,760
Total	$ 800,000

Item 14. Indemnification of directors and officers.

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.

As permitted by Section 145 of the DGCL, our certificate of incorporation and bylaws 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 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.

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

From January 1, 2015, to November 3, 2017, the date of the filing of our registration statement on Form S-8 (File No. 333- 221312) we have made sales of the following unregistered securities:

(1) From September 30, 2014 through November 3, 2017, we granted to our directors, officers, employees, consultants and other service providers options to purchase an aggregate of 1,504,668 shares of our old Class B Common Stock with per share exercise prices ranging from $3.56 to $5.18 under our 2012 Stock Plan.

(2) From September 30, 2014 through November 3, 2017, we issued to our directors, officers, employees, consultants and other service providers an aggregate of 342,672 shares of our old Class B Common Stock with per share exercise prices ranging from $2.48 to $4.52 pursuant to exercises of options granted under our 2012 Stock Plan.

(3) From September 30, 2014 through November 3, 2017, we issued to our directors, officers, employees, consultants and other service providers an aggregate of 4,179,484 shares of our old Class B Common Stock with a per share exercise price of $0.000025 pursuant to exercises of options granted under our 2001 Nonqualified Stock Option Plan.

(4) From September 30, 2014 through November 3, 2017, we issued to our directors, officers, employees, consultants and other service providers an aggregate of 989,048 shares of our old Class B Common Stock with per share exercise prices ranging from $0.23 to $1.29 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 contracts 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

Since January 1, 2015, we have made the following issuances of unregistered securities in connection with acquisitions:

(1) On March 12, 2015, we issued 200,000 shares of our old Class B 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.

(2) On May 5, 2017, we issued 80,000 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.

(3) On May 5, 2017, we issued 200,000 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.

(4) On September 28, 2017, we issued 708,000 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 4 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 4 above. In addition, we relied on an exemption under Rule 506(b) of Regulation D in the issuance described in item 4 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	Incorporated by reference				Filed herewith
		Form	File no.	Exhibit	Filing date	
1.1	Form of Underwriting Agreement					X
3.1	Certificate of Incorporation, as amended and as currently in effect	S-1/A	333-220710	3.1	10/6/2017	
3.2	Bylaws, as currently in effect	S-1/A	333-220710	3.2	10/6/2017	
5.1	Opinion of Lowenstein Sandler LLP					X
10.1	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers	S-1	333-220710	10.1	9/29/2017	
10.2+	2001 Incentive and Non-Qualified Stock Option Plan	S-1	333-220710	10.2	9/29/2017	
10.3+	Form of 2001 Incentive and Non-Qualified Stock Option Plan Incentive Stock Option Agreement	S-1	333-220710	10.3	9/29/2017	
10.4+	Form of 2001 Incentive and Non-Qualified Stock Option Plan Stock Restriction and Repurchase Agreement	S-1	333-220710	10.4	9/29/2017	
10.5+	2001 Non-Qualified Stock Option Plan	S-1	333-220710	10.5	9/29/2017	
10.6+	Form of 2001 Non-Qualified Stock Option Plan Non-Qualified Stock Option Agreement	S-1	333-220710	10.6	9/29/2017	
10.7+	Form of 2001 Non-Qualified Stock Option Plan Stock Restriction Agreement	S-1	333-220710	10.7	9/29/2017	
10.8+	2012 Incentive and Non-Qualified Stock Option Plan	S-1	333-220710	10.8	9/29/2017	
10.9+	Form of 2012 Incentive and Non-Qualified Stock Option Plan Option Agreement	S-1	333-220710	10.9	9/29/2017	
10.10+	Form of 2012 Incentive and Non-Qualified Stock Option Plan Stock Restriction and Repurchase Agreement	S-1	333-220710	10.10	9/29/2017	
10.11+	Form of 2012 Incentive and Non-Qualified Stock Option Plan Stock Restriction and Repurchase Agreement (Directors)	S-1	333-220710	10.11	9/29/2017	
10.12+	2017 Equity Incentive Plan and forms of equity agreements thereunder	S-1/A	333-220710	10.12	10/6/2017	
10.13+	Employment Letter, dated January 10, 2013, by and between the Registrant and Howard N. Morof as amended on July 19, 2017	S-1	333-220710	10.13	9/29/2017	

Exhibit no.	Description	Incorporated by reference				
		Form	File no.	Exhibit	Filing date	Filed herewith
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	S-1	333-220710	10.14	9/29/2017	
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	S-1	333-220710	10.15	9/29/2017	
10.16	2017 Third Amended and Restated Credit Agreement, dated October 18, 2017, by and among the Registrant, the foreign subsidiary borrowers, the Lenders named therein and JP Morgan Chase Bank, N.A. as administrative agent	S-1/A	333-220710	10.16	10/19/17	
21.1	List of Subsidiaries of the Registrant	10-K	001-38263	21.1	3/21/18	
23.1	Consent of Independent Registered Public Accounting Firm					X
23.2	Consent of Lowenstein Sandler LLP (included in Exhibit 5.1)					X
24.1	Power of Attorney (contained in the signature page of this registration statement)					X

+ 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 4th day of June, 2018.

ALTAIR ENGINEERING INC.

By: /s/ James R. Scapa
James R. Scapa
Chairman and Chief Executive Officer

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)	June 4, 2018
/s/ Howard N. Morof Howard N. Morof	Chief Financial Officer (Principal Financial and Accounting Officer)	June 4, 2018
/s/ Mary C. Boyce Mary C. Boyce	Director	June 4, 2018
/s/ James E. Brancheau James E. Brancheau	Director	June 4, 2018
/s/ Steve Earhart Steve Earhart	Director	June 4, 2018
/s/ Trace Harris Trace Harris	Director	June 4, 2018

Signature	Title	Date
/s/ Richard Hart Richard Hart	Director	June 4, 2018
/s/ Jan Kowal Jan Kowal	Director	June 4, 2018

Exhibit 1.1

ALTAIR ENGINEERING INC.

Shares of Class A Common Stock, par value $0.0001 per share

Underwriting Agreement

June , 2018

J. P. Morgan Securities LLC
RBC Capital Markets, LLC

As Representatives of the
several Underwriters listed
in Schedule 1 hereto

c/o J. P. Morgan Securities LLC
383 Madison Avenue
New York, New York 10179

c/o RBC Capital Markets, LLC
Three World Financial Center
200 Vesey Street
New York, NY 10281

Ladies and Gentlemen:

Altair Engineering Inc., a Delaware corporation (the "Company"), proposes to issue and sell to the several underwriters listed in Schedule 1 hereto (the "Underwriters"), for whom you are acting as representatives (the "Representatives"), an aggregate of shares of Class A Common Stock, par value $0.0001 per share, of the Company ("Class A Common Stock"), and certain stockholders of the Company named in Schedule 2 hereto (the "Selling Stockholders"), severally and not jointly, propose to sell to the several Underwriters an aggregate of shares of Class A Common Stock (collectively, the "Underwritten Shares"). In addition, the Company proposes to issue and sell, at the option of the Underwriters, up to an additional shares of Class A Common Stock of the Company (the "Option Shares"). The Underwritten Shares and the Option Shares are herein referred to as the "Shares". The shares of Class B Common Stock, par value $0.0001 per share, of the Company are hereinafter referred to as the "Class B Common Stock". The shares of Class A Common Stock and Class B Common Stock to be outstanding after giving effect to the sale of the Shares are referred to herein as the "Stock".

The Company and the Selling Stockholders hereby confirm their agreement with the several Underwriters concerning the purchase and sale of the Shares, as follows:

1. Registration Statement. The Company has prepared and filed with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended, and the rules and regulations of the Commission thereunder (collectively, the "Securities Act"), a registration statement on Form S-1 (File No. 333-), including a prospectus, relating to the Shares. Such registration statement, as amended at the time it became effective, including the information, if any, deemed pursuant

to Rule 430A, 430B or 430C under the Securities Act to be part of the registration statement at the time of its effectiveness ("Rule 430 Information"), is referred to herein as the "Registration Statement"; and as used herein, the term "Preliminary Prospectus" means each prospectus included in such registration statement (and any amendments thereto) before effectiveness, any prospectus filed with the Commission pursuant to Rule 424(a) under the Securities Act and the prospectus included in the Registration Statement at the time of its effectiveness that omits Rule 430 Information, and the term "Prospectus" means the prospectus in the form first used (or made available upon request of purchasers pursuant to Rule 173 under the Securities Act) in connection with confirmation of sales of the Shares. If the Company has filed an abbreviated registration statement pursuant to Rule 462(b) under the Securities Act (the "Rule 462 Registration Statement"), then any reference herein to the term "Registration Statement" shall be deemed to include such Rule 462 Registration Statement. Any reference in this underwriting agreement (this "Agreement") to the Registration Statement, any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include the documents incorporated by reference therein pursuant to Item 12 of Form S-1 under the Securities Act, as of the effective date of the Registration Statement or the date of such Preliminary Prospectus or the Prospectus, as the case may be. Capitalized terms used but not defined herein shall have the meanings given to such terms in the Registration Statement and the Prospectus.

At or prior to the Applicable Time (as defined below), the Company had prepared the following information (collectively with the pricing information set forth on Annex A, the "Pricing Disclosure Package"): a Preliminary Prospectus dated June , 2018 and each "free-writing prospectus" (as defined pursuant to Rule 405 under the Securities Act) listed on Annex A hereto.

"Applicable Time" means : P.M., New York City time, on June , 2018.

2. Purchase of the Shares.

(a) On the basis of the respective Company and Selling Stockholder representations, warranties and agreements set forth herein and subject to the conditions set forth herein, the Company agrees to issue and sell, and each of the Selling Stockholders agrees, severally and not jointly, to sell, the respective Underwritten Shares to the several Underwriters as provided in this Agreement, and each Underwriter agrees, severally and not jointly, to purchase at a price per share (the "Purchase Price") of $ (i) from the Company the respective number of Underwritten Shares set forth opposite such Underwriter's name in Schedule 1 hereto and (ii) from each of the Selling Stockholders the number of Underwritten Shares (to be adjusted by you so as to eliminate fractional shares) determined by multiplying the aggregate number of Underwritten Shares to be sold by each of the Selling Stockholders as set forth opposite their respective names in Schedule 2 hereto by a fraction, the numerator of which is the aggregate number of Underwritten Shares to be purchased by such Underwriter as set forth opposite the name of such Underwriter in Schedule 1 hereto and the denominator of which is the aggregate number of Underwritten Shares to be purchased by all the Underwriters from all of the Selling Stockholders hereunder.

In addition, on the basis of the respective Company and Selling Stockholder representations, warranties and agreements set forth herein and subject to the conditions set forth herein, the Company agrees to issue and sell the Option Shares to the several Underwriters as provided in this Agreement, and the Underwriters shall have the option to purchase the Option Shares from the Company as provided in this Agreement, at the Purchase Price.

If any Option Shares are to be purchased, the number of Option Shares to be purchased by each Underwriter shall be the number of Option Shares which bears the same ratio to the aggregate number of Option Shares being purchased as the number of Underwritten Shares set forth opposite the name of such

Underwriter in Schedule 1 hereto (or such number increased as set forth in Section 13 hereof) bears to the aggregate number of Underwritten Shares being purchased from the Company by the several Underwriters, subject, however, to such adjustments to eliminate any fractional Shares as the Representatives in their sole discretion shall make. Any such election to purchase Option Shares shall be made in proportion to the maximum number of Option Shares to be sold by the Company as set forth in Schedule 2 hereto.

The Underwriters may exercise the option to purchase Option Shares at any time in whole, or from time to time in part, on or before the thirtieth day following the date of the Prospectus, by written notice from the Representatives to the Company. Such notice shall set forth the aggregate number of Option Shares as to which the option is being exercised and the date and time when the Option Shares are to be delivered and paid for, which may be the same date and time as the Closing Date (as hereinafter defined) but shall not be earlier than the Closing Date nor later than the tenth full business day (as hereinafter defined) after the date of such notice (unless such time and date are postponed in accordance with the provisions of Section 13 hereof). Any such notice shall be given at least two business days prior to the date and time of delivery specified therein.

(b) The Company and the Selling Stockholders understand that the Underwriters intend to make a public offering of the Shares as soon after the effectiveness of this Agreement as in the judgment of the Representatives is advisable, and initially to offer the Shares on the terms set forth in the Pricing Disclosure Package. The Company and the Selling Stockholders acknowledge and agree that the Underwriters may offer and sell Shares to or through any affiliate of an Underwriter.

(c) Payment for the Shares shall be made by wire transfer in immediately available funds to the accounts specified by the Company and the Attorneys-in-Fact or any of them (as defined below) (with regard to payment to the Selling Stockholders) to the Representatives in the case of the Underwritten Shares, at the offices of Goodwin Procter LLP, 620 Eighth Avenue, New York, New York 10018 at 10:00 A.M., New York City time, on June , 2018, or at such other time or place on the same or such other date, not later than the fifth business day thereafter, as the Representatives, the Company and the Attorneys-in-Fact may agree upon in writing or, in the case of the Option Shares, on the date and at the time and place specified by the Representatives in the written notice of the Underwriters' election to purchase such Option Shares. The time and date of such payment for the Underwritten Shares is referred to herein as the "Closing Date", and the time and date for such payment for the Option Shares, if other than the Closing Date, is herein referred to as the "Additional Closing Date".

Payment for the Shares to be purchased on the Closing Date or the Additional Closing Date, as the case may be, shall be made against delivery to the Representatives for the respective accounts of the several Underwriters of the Shares to be purchased on such date or the Additional Closing Date, as the case may be, with any transfer taxes payable in connection with the sale of such Shares duly paid by the Company and the Selling Stockholders, as applicable. Delivery of the Shares shall be made through the facilities of The Depository Trust Company ("DTC") unless the Representatives shall otherwise instruct. The certificates for the Shares will be made available for inspection and packaging by the Representatives at the office of DTC or its designated custodian not later than 1:00 P.M., New York City time, on the business day prior to the Closing Date or the Additional Closing Date, as the case may be.

(d) Each of the Company and each Selling Stockholder acknowledges and agrees that the Underwriters are acting solely in the capacity of an arm's length contractual counterparty to the Company and the Selling Stockholders with respect to the offering of Shares contemplated hereby (including in connection with determining the terms of the offering) and not as a financial advisor or a fiduciary to, or an agent of, the Company, the Selling Stockholders or any other person. Additionally, neither the Representatives nor any other Underwriter is advising the Company, the Selling Stockholders or any other person as to any legal, tax, investment, accounting or regulatory matters in any jurisdiction. The

Company and the Selling Stockholders shall consult with their own advisors concerning such matters and each shall be responsible for making its own independent investigation and appraisal of the transactions contemplated hereby, and the Underwriters shall have no responsibility or liability to the Company or the Selling Stockholders with respect thereto. Any review by the Underwriters of the Company, the transactions contemplated hereby or other matters relating to such transactions will be performed solely for the benefit of the Underwriters and shall not be on behalf of the Company or the Selling Stockholders.

3. Representations and Warranties of the Company. The Company represents and warrants to each Underwriter and to each of the Selling Stockholders that:

(a) *Preliminary Prospectus.* No order preventing or suspending the use of any Preliminary Prospectus has been issued by the Commission, and each Preliminary Prospectus included in the Pricing Disclosure Package, at the time of filing thereof, complied in all material respects with the Securities Act, and no Preliminary Prospectus, at the time of filing thereof, contained any untrue statement of a material fact or omitted to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation or warranty with respect to any statements or omissions made in reliance upon and in conformity with information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in any Preliminary Prospectus, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 10(c) hereof; provided further that the Company makes no representation or warranty with respect to any statements or omissions made in reliance upon and in conformity with information relating to any Selling Stockholder furnished to the Company in writing by or on behalf of such Selling Stockholder expressly for use in any Preliminary Prospectus, it being understood and agreed that the only such information furnished by any Selling Stockholder consists of the Selling Stockholder Information (as defined below).

(b) *Pricing Disclosure Package*. The Pricing Disclosure Package as of the Applicable Time did not, and as of the Closing Date and as of the Additional Closing Date, as the case may be, will not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation or warranty with respect to any statements or omissions made in reliance upon and in conformity with (i) information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in such Pricing Disclosure Package, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 10(c) hereof or (ii) information relating to any Selling Stockholder that is not a Chief Officer of the Company furnished to the Company in writing by or on behalf of such Selling Stockholder expressly for use in the Pricing Disclosure Package, it being understood and agreed that the only such information furnished by and on behalf of any Selling Stockholder consists of the Selling Stockholder Information. Each Underwriter, the Company and each Selling Stockholder agree that the "Chief Officers" of the Company shall consist solely of the Company's chief executive officer, chief financial officer and chief operating officer as of the date hereof (each, a "Chief Officer").

(c) *Issuer Free Writing Prospectus.* Other than the Registration Statement, the Preliminary Prospectus and the Prospectus, the Company (including its agents and representatives, other than the Underwriters in their capacity as such) has not prepared, used, authorized, approved or referred to and will not prepare, use, authorize, approve or refer to any "written communication" (as defined in Rule 405 under the Securities Act) that constitutes an offer to sell or solicitation of an offer to buy the Shares (each such communication by the Company or its agents and representatives (other than a communication referred to in clause (i) below) an "Issuer Free Writing Prospectus") other than (i) any document not constituting a

prospectus pursuant to Section 2(a)(10)(a) of the Securities Act or Rule 134 under the Securities Act or any document not constituting an offer pursuant to Rule 135 under the Securities Act and (ii) the documents listed on Annex A hereto, each electronic road show and any other written communications approved in writing in advance by the Representatives, which approval shall not be unreasonably withheld or delayed. Each such Issuer Free Writing Prospectus complies in all material respects with the applicable requirements of the Securities Act, has been or will be (within the time period specified in Rule 433) filed in accordance with the Securities Act (to the extent required thereby) and does not conflict with the information contained in the Registration Statement or the Pricing Disclosure Package, and, when taken together with the Preliminary Prospectus accompanying, or delivered prior to delivery of, such Issuer Free Writing Prospectus, did not, and as of the Closing Date and as of the Additional Closing Date, as the case may be, will not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation or warranty with respect to any statements or omissions made in each such Issuer Free Writing Prospectus or Preliminary Prospectus in reliance upon and in conformity with (i) information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in such Issuer Free Writing Prospectus or Preliminary Prospectus and any amendment or supplement thereto, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 10(c) hereof or (ii) information relating to any Selling Stockholder that is not a Chief Officer of the Company furnished to the Company in writing by or on behalf of such Selling Stockholder expressly for use in the such Issuer Free Writing Prospectus or Preliminary Prospectus and any amendment or supplement thereto, it being understood and agreed that the only such information furnished by and on behalf of any Selling Stockholder consists of the Selling Stockholder Information.

(d) *Emerging Growth Company*. From the time of initial confidential submission of the Registration Statement to the Commission (or, if earlier, the first date on which the Company engaged directly or through any person authorized to act on its behalf in any Testing-the-Waters Communication) through the date hereof, the Company has been and is an "emerging growth company," as defined in Section 2(a) of the Securities Act (an "Emerging Growth Company"). "Testing-the-Waters Communication" means any oral or written communication with potential investors undertaken in reliance on Section 5(d) of the Securities Act.

(e) *Testing-the-Waters Materials.* The Company (i) has not alone engaged in any Testing-the-Waters Communications other than Testing-the-Waters Communications with the consent of the Representatives with entities that are qualified institutional buyers within the meaning of Rule 144A under the Securities Act or institutions that are accredited investors within the meaning of Rule 501 under the Securities Act and (ii) has not authorized anyone other than the Representatives to engage in Testing-the-Waters Communications. The Company reconfirms that the Representatives have been authorized to act on its behalf in undertaking Testing-the-Waters Communications by virtue of a writing substantially in the form of Exhibit A hereto. The Company has not distributed or approved for distribution any Written Testing-the-Waters Communications other than those listed on Annex B hereto. "Written Testing-the-Waters Communication" means any Testing-the-Waters Communication that is a written communication within the meaning of Rule 405 under the Securities Act. Any individual Written Testing-the-Waters Communication does not conflict with the information contained in the Registration Statement or the Pricing Disclosure Package, complied in all material respects with the Securities Act, and when taken together with the Pricing Disclosure Package as of the Applicable Time, did not, and as of the Closing Date and as of the Additional Closing Date, as the case may be, will

not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation or warranty with respect to any statements or omissions made in reliance upon and in conformity with (i) information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in such Written Testing-the-Waters Communications and any amendment or supplement thereto, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 10(c) hereof or (ii) information relating to any Selling Stockholder that is not a Chief Officer of the Company furnished to the Company in writing by or on behalf of such Selling Stockholder expressly for use in the such Written Testing-the-Waters Communications and Pricing Disclosure Package and any amendment or supplement thereto, it being understood and agreed that the only such information furnished by and on behalf of any Selling Stockholder consists of the Selling Stockholder Information.

(f) *Registration Statement and Prospectus.* The Registration Statement has been declared effective by the Commission. No order suspending the effectiveness of the Registration Statement has been issued by the Commission, and, to the knowledge of the Company, no proceeding for that purpose or pursuant to Section 8A of the Securities Act against the Company or related to the offering of the Shares has been initiated or threatened by the Commission; as of the applicable effective date of the Registration Statement and any post-effective amendment thereto, the Registration Statement and any such post-effective amendment complied and will comply in all material respects with the applicable requirements of the Securities Act, and did not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein not misleading; and as of the date of the Prospectus and any amendment or supplement thereto and as of the Closing Date and as of the Additional Closing Date, as the case may be, the Prospectus will not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation or warranty with respect to any statements or omissions made in reliance upon and in conformity with (i) information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in the Registration Statement and the Prospectus and any amendment or supplement thereto, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 10(c) hereof or (ii) information relating to any Selling Stockholder other than a Chief Officer of the Company furnished to the Company in writing by or on behalf of such Selling Stockholder expressly for use in the Registration Statement and the Prospectus and any amendment or supplement thereto, it being understood and agreed that the only such information furnished by and on behalf of any Selling Stockholder consists of the Selling Stockholder Information.

(g) *Incorporated Documents*. The documents incorporated by reference in the Registration Statement, the Prospectus and the Pricing Disclosure Package, when they were filed with the Commission conformed in all material respects to the requirements of the Securities Exchange Act of 1934, as amended, and the rules and regulations of the Commission thereunder (collectively, the "Exchange Act"), and none of such documents contained any untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(h) *Financial Statements.* The financial statements (including the related notes thereto) of the Company and its consolidated subsidiaries included or incorporated by reference

in the Registration Statement, the Pricing Disclosure Package and the Prospectus comply in all material respects with the applicable requirements of the Securities Act and the Exchange Act, as applicable, and present fairly, in all material respects, the financial position of the Company and its consolidated subsidiaries as of the dates indicated and the results of their operations and the changes in their cash flows for the periods specified; such financial statements have been prepared in conformity with generally accepted accounting principles in the United States ("GAAP") applied on a consistent basis throughout the periods covered thereby, except in the case of the unaudited financial statements, which are subject to normal year-end adjustments and do not contain certain footnotes permitted by the applicable rules of the Commission; and any supporting schedules included or incorporated by reference in the Registration Statement present fairly, in all material respects, the information required to be stated therein; and the other historical financial information of the Company and its consolidated subsidiaries included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus has been derived from the accounting records of the Company and its consolidated subsidiaries and presents fairly in all material respects the information shown thereby. The pro forma financial information and the related notes, if any, included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus have been properly compiled and prepared in all material respects in accordance with the applicable requirements of the Securities Act and present fairly the information shown therein, and the assumptions used in the preparation thereof are reasonable and the adjustments used therein are appropriate to give effect to the transactions and circumstances referred to therein.

(i) *No Material Adverse Change.* Since the date of the most recent financial statements of the Company included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, (i) there has not been any change in the capital stock (other than the issuance of shares of Class A Common Stock upon the conversion of shares of Class B Common Stock and the issuance of shares of Class A Common Stock or Class B Common Stock upon exercise of stock options and warrants described as outstanding in, and the grant of options and awards and settlement of awards under existing equity incentive plans described in, the Registration Statement, the Pricing Disclosure Package and the Prospectus), any material change in short-term debt or long-term debt of the Company or any of its subsidiaries, or any dividend or distribution of any kind declared, set aside for payment, paid or made by the Company on any class of capital stock, or any material adverse change, or any development involving a prospective material adverse change, in or affecting the business, properties, management, financial position, stockholders' equity or results of operations or prospects of the Company and its subsidiaries taken as a whole; (ii) neither the Company nor any of its subsidiaries has entered into any transaction or agreement (whether or not in the ordinary course of business) that is material to the Company and its subsidiaries taken as a whole or incurred any liability or obligation, direct or contingent, that is material to the Company and its subsidiaries taken as a whole; and (iii) neither the Company nor any of its subsidiaries has sustained any loss or interference with its business that is material to the Company and its subsidiaries taken as a whole and that is either from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor disturbance or dispute or any action, order or decree of any court or arbitrator or governmental or regulatory authority, except in each case as otherwise disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

(j) *Organization and Good Standing.* The Company and each of its Significant Subsidiaries have been duly organized and are validly existing and in good standing under the laws of their respective jurisdictions of organization, are duly qualified to do business and are in good standing in each jurisdiction in which their respective ownership or lease of property or the conduct of their respective businesses requires such qualification, and have all power and

authority necessary to own or hold their respective properties and to conduct the businesses in which they are engaged, except where the failure to be so organized, existing, qualified or in good standing or have such power or authority would not reasonably be expected to, individually or in the aggregate, have a material adverse effect on the business, properties, management, financial position, stockholders' equity or results of operations or prospects of the Company and its subsidiaries taken as a whole or on the performance by the Company of its obligations under this Agreement (a "Material Adverse Effect"). The Company does not own or control, directly or indirectly, any corporation, association or other entity other than the subsidiaries listed in Exhibit 21 to the Registration Statement (the "Significant Subsidiaries"), except for subsidiaries that, considered in the aggregate as a single subsidiary, would not constitute a "significant subsidiary" (as defined in Rule 1.02 of Regulation S-X under the Exchange Act).

(k) *Capitalization.* The Company has an authorized capitalization as set forth in the Registration Statement, the Pricing Disclosure Package and the Prospectus under the heading "Capitalization"; all the outstanding shares of capital stock of the Company (including the Shares to be sold by the Selling Stockholders) have been duly authorized and validly issued and are fully paid and non-assessable and are not subject to any pre-emptive or similar rights; except as described in or expressly contemplated by the Pricing Disclosure Package and the Prospectus, there are no outstanding rights (including, without limitation, pre-emptive rights), warrants or options to acquire, or instruments convertible into or exchangeable for, any shares of capital stock or other equity interest in the Company or any of its subsidiaries, or any contract, commitment, agreement, understanding or arrangement of any kind relating to the issuance of any capital stock of the Company or any such subsidiary, any such convertible or exchangeable securities or any such rights, warrants or options; the capital stock of the Company conforms in all material respects to the description thereof contained in the Registration Statement, the Pricing Disclosure Package and the Prospectus; and all the outstanding shares of capital stock or other equity interests of each subsidiary owned, directly or indirectly, by the Company have been duly authorized and validly issued, are fully paid and non-assessable (except as otherwise described in the Registration Statement, the Pricing Disclosure Package and the Prospectus), and are owned directly or indirectly by the Company, free and clear of any lien, charge, encumbrance, security interest, restriction on voting or transfer or any other claim of any third party, other than as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, including liens, encumbrances and restrictions imposed in connection with or permitted under the debt instruments described under the heading "Management's discussion and analysis of financial condition and results of operations – Liquidity and capital resources" as set forth in the Company's annual report on form 10-K for the fiscal year 2017 and the Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2018 and in Note 7 to the Company's consolidated financial statements as set forth in the Company's annual report on form 10-K for the fiscal year 2017.

(l) *Stock Options.* With respect to the stock options (the "Stock Options") granted pursuant to the stock-based compensation plans of the Company and its subsidiaries (the "Company Stock Plans"), (i) each Stock Option intended to qualify as an "incentive stock option" under Section 422 of the Code so qualifies, (ii) each grant of a Stock Option was duly authorized no later than the date on which the grant of such Stock Option was by its terms to be effective (the "Grant Date") by all necessary corporate action, including, as applicable, approval by the board of directors of the Company (or a duly constituted and authorized committee thereof) and any required stockholder approval by the necessary number of votes or written consents, and the award agreement governing such grant (if any) was duly executed and delivered by each party thereto, (iii) each such grant was made in accordance with the terms of the Company Stock Plans, the Exchange Act and all other applicable laws and regulatory rules or requirements, and (iv) each such grant was properly accounted for in accordance with GAAP in the financial statements (including the related notes) of the Company.

(m) *Due Authorization.* The Company has full right, power and authority to execute and deliver this Agreement and to perform its obligations hereunder; and all action required to be taken for the due and proper authorization, execution and delivery by it of this Agreement and the consummation by it of the transactions contemplated hereby has been duly and validly taken.

(n) *Underwriting Agreement.* This Agreement has been duly authorized, executed and delivered by the Company.

(o) *The Shares.* The Shares to be issued and sold by the Company hereunder have been duly authorized by the Company and, when issued and delivered and paid for as provided herein, will be duly authorized and validly issued, will be fully paid and nonassessable and will conform in all material respects to the descriptions thereof in the Registration Statement, the Pricing Disclosure Package and the Prospectus; and the issuance of the Shares is not subject to any preemptive or similar rights.

(p) *No Violation or Default.* Neither the Company nor any of its subsidiaries is (i) in violation of its charter or by-laws or similar organizational documents; (ii) in default, and no event has occurred that, with notice or lapse of time or both, would constitute such a default, in the due performance or observance of any term, covenant or condition contained in any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any property or asset of the Company or any of its subsidiaries is subject; or (iii) in violation of any law or statute applicable to the Company or any subsidiary or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority having jurisdiction over the Company or any of its subsidiaries, except, in the case of clauses (ii) and (iii) above, for any such default or violation that would not reasonably be expected to, individually or in the aggregate, have a Material Adverse Effect.

(q) *No Conflicts.* The execution, delivery and performance by the Company of this Agreement, the issuance and sale of the Shares by the Company, the issuance by the Company of the Shares to be issued upon the exercise of the Options (as hereinafter defined) and the consummation by the Company of the transactions contemplated by this Agreement or the Pricing Disclosure Package and the Prospectus will not (i) conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, result in the termination, modification or acceleration of, or result in the creation or imposition of any lien, charge or encumbrance upon any property, right or asset of the Company or any of its subsidiaries pursuant to, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any property, right or asset of the Company or any of its subsidiaries is subject, (ii) result in any violation of the provisions of the charter or by-laws or similar organizational documents of the Company or any of its subsidiaries or (iii) result in the violation of any law or statute applicable to the Company or any subsidiary or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority having jurisdiction over the Company or any of its subsidiaries, except, in the case of clauses (i) and (iii) above, for any such conflict, breach, violation, default, lien, charge or encumbrance that would not reasonably be expected to, individually or in the aggregate, have a Material Adverse Effect.

(r) *No Consents Required.* No consent, approval, authorization, order, registration or qualification of or with any court or arbitrator or governmental or regulatory authority is required for the execution, delivery and performance by the Company of this Agreement, the issuance and sale of the Shares and the consummation of the transactions contemplated by this Agreement, except for (i) the registration of the Shares under the Securities Act, (ii) such consents, approvals, authorizations, orders and registrations or qualifications as may be required by the Nasdaq Global Market (the "Exchange"), the Financial Industry Regulatory Authority, Inc. ("FINRA") and under applicable state securities laws in connection with the purchase and distribution of the Shares by the Underwriters or (iii) such consents, approvals, authorizations, orders, licenses, registrations or qualifications as shall have been obtained or made prior to the Closing Date.

(s) *Legal Proceedings.* Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, there are no legal, governmental or regulatory investigations, actions, demands, claims, suits, arbitrations or proceedings ("Actions") pending to which the Company or any of its subsidiaries is a party or to which any property of the Company or any of its subsidiaries is the subject that, individually or in the aggregate, if determined adversely to the Company or any of its subsidiaries, would reasonably be expected to have a Material Adverse Effect; no such Actions are, to the knowledge of the Company, threatened or contemplated by any governmental or regulatory authority or threatened by others; and (i) there are no current or pending Actions that are required under the Securities Act to be described in the Registration Statement, the Pricing Disclosure Package or the Prospectus that are not so described in the Registration Statement, the Pricing Disclosure Package and the Prospectus and (ii) there are no statutes, regulations or contracts or other documents that are required under the Securities Act to be filed as exhibits to the Registration Statement or described in the Registration Statement, the Pricing Disclosure Package or the Prospectus that are not so filed as exhibits to the Registration Statement or described in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

(t) *Independent Accountants*. Ernst & Young LLP, who have certified certain financial statements of the Company and its subsidiaries, is an independent registered public accounting firm with respect to the Company and its subsidiaries within the applicable rules and regulations adopted by the Commission and the Public Company Accounting Oversight Board (United States) and as required by the Securities Act.

(u) *Title to Real and Personal Property*. The Company and its subsidiaries have good and marketable title in fee simple (in the case of real property) to, or have valid rights to lease or otherwise use, all items of real and personal property that are material to the respective businesses of the Company and its subsidiaries, in each case free and clear of all liens, encumbrances, claims and defects and imperfections of title except those that (i) are otherwise disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, (ii) do not materially interfere with the use made and proposed to be made of such property by the Company and its subsidiaries or (iii) could not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect.

(v) *Intellectual Property.* The Company and its subsidiaries each own or possess the right to use all material patents, patent rights, trademarks, trade names, service marks and service names (including all goodwill associated with use of the same), copyrights, license rights, inventions, know-how (including trade secrets and other unpatented and unpatentable proprietary or confidential information, systems or procedures) and other technology and intellectual property rights, including the right to sue for past, present and future infringement, misappropriation or

dilution of any of the same ("Intellectual Property") necessary for the conduct of their business as currently conducted and as proposed to be conducted in the Registration Statement, the Pricing Disclosure Package and the Prospectus ("Company Intellectual Property"). Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, (i) there are no third parties who have or will be able to establish rights to any Company Intellectual Property, except for the retained rights of the owners of Company Intellectual Property which is licensed to the Company or its subsidiaries, and neither the Company nor any of its subsidiaries is aware of any facts which could form a reasonable basis for any such action, suit, proceeding or claim; (ii) there is no pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by others challenging the Company's rights or any of its subsidiaries' rights in or to any Company Intellectual Property, and neither the Company nor any of its subsidiaries is aware of any facts which could form a reasonable basis for any such action, suit, proceeding or claim; (iii) there is no pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by others challenging the validity, enforceability or scope of any Company Intellectual Property, and neither the Company nor any of its subsidiaries is aware of any facts which could form a reasonable basis for any such action, suit, proceeding or claim; (iv) there is no pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by others that the Company or any of its subsidiaries infringes or misappropriates any Intellectual Property or other proprietary rights of others, and neither the Company nor any of its subsidiaries is aware of any facts which could form a reasonable basis for any such action, suit, proceeding or claim; (v) there is no patent or patent application that contains claims that interfere with or otherwise challenged the issued or pending claims of any Company Intellectual Property; and (vi) no Company Intellectual Property has been obtained or is being used by the Company or any of its subsidiaries in violation of any contractual obligation binding on the Company or any of its subsidiaries, or otherwise in violation of the rights of any persons. The Company and its subsidiaries have taken all steps necessary to secure interests in the Company Intellectual Property from their employees, consultants, agents and contractors. There are no outstanding options, licenses or agreements of any kind relating to the Company Intellectual Property owned by the Company or any of its subsidiaries that are required to be described in the Registration Statement, the General Disclosure Package and the Prospectus and are not described in all material respects. The Company and its subsidiaries are not a party to or bound by any options, licenses or agreements with respect to the Intellectual Property of any other person or entity that are required to be set forth in the Prospectus and are not described in all material respects. No government funding, facilities or resources of a university, college, other educational institution or research center or funding from third parties was used in the development of any Company Intellectual Property that is owned or purported to be owned by the Company or any of its subsidiaries, and no governmental agency or body, university, college, other educational institution or research center has any claim or right in or to any Company Intellectual Property that is owned or purported to be owned by the Company or any of its subsidiaries. The Company and its subsidiaries have used all software and other materials distributed under a "free," "open source," or similar licensing model (including but not limited to the GNU General Public License, GNU Lesser General Public License and GNU Affero General Public License) ("Open Source Materials") in compliance with all license terms applicable to such Open Source Materials. Neither the Company nor any of its subsidiaries has used or distributed any Open Source Materials in a manner that requires or has required (i) the Company or any of its subsidiaries to permit reverse-engineering of any products or services of the Company or any of its subsidiaries, or any software code or other technology owned by the Company or any of its subsidiaries; or (ii) any products or services of the Company or any of its subsidiaries, or any software code or other technology owned by the Company or any of its subsidiaries, to be (A) disclosed or distributed in source code form, (B) licensed for the purpose of making derivative works, or (C) redistributable at no charge.

(w) *No Undisclosed Relationships*. No relationship, direct or indirect, exists between or among the Company or any of its subsidiaries, on the one hand, and the directors, officers, stockholders, customers, suppliers or other affiliates of the Company or any of its subsidiaries, on the other, that is required by the Securities Act to be described in each of the Registration Statement and the Prospectus and that is not so described in such documents and in the Pricing Disclosure Package.

(x) *Investment Company Act*. The Company is not and, after giving effect to the offering and sale of the Shares and the application of the proceeds thereof received by the Company as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, will not be required to register as an "investment company" or an entity "controlled" by an "investment company" within the meaning of the Investment Company Act of 1940, as amended, and the rules and regulations of the Commission thereunder (collectively, the "Investment Company Act").

(y) *Taxes.* The Company and its subsidiaries have paid all federal, state, local and foreign taxes and filed all tax returns required to be paid or filed through the date hereof (except in any case in which failure to pay or file (as applicable) would not reasonably be expected to have a Material Adverse Effect, and except for any taxes being contested in good faith); and except as otherwise disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, there is no tax deficiency that has been asserted against the Company or any of its subsidiaries or any of their respective properties or assets (except for any tax deficiency that is currently being contested in good faith or as would not reasonably be expected to have a Material Adverse Effect).

(z) *Licenses and Permits.* The Company and its subsidiaries possess all licenses, sub-licenses, certificates, permits and other authorizations issued by, and have made all declarations and filings with, the appropriate federal, state, local or foreign governmental or regulatory authorities that are necessary for the ownership or lease of their respective properties or the conduct of their respective businesses as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, except where the failure to possess or make the same would not, individually or in the aggregate, have a Material Adverse Effect; and except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, neither the Company nor any of its subsidiaries has received notice of any revocation or modification of any such license, sub-license, certificate, permit or authorization or has any reason to believe that any such license, sub-license, certificate, permit or authorization will not be renewed in the ordinary course, in each case, except where such revocation or modification would not reasonably be expected to have a Material Adverse Effect.

(aa) *No Labor Disputes.* No labor disturbance by or dispute with employees of the Company or any of its subsidiaries exists or, to the knowledge of the Company, is contemplated or threatened, and the Company is not aware of any existing or imminent labor disturbance by, or dispute with, the employees of any of its or its subsidiaries' principal suppliers, contractors or customers, except in each case as would not reasonably be expected to have a Material Adverse Effect. Neither the Company nor any of its subsidiaries has received any notice of cancellation or termination with respect to any collective bargaining agreement to which it is a party.

(bb) *Certain Environmental Matters*. (i) The Company and its subsidiaries (x) are, and have at all times been, in compliance with all, and have not violated any, applicable federal, state, local and foreign laws (including common law), rules, regulations, requirements, decisions, judgments, decrees, orders and other legally enforceable requirements relating to pollution or the

protection of human health or safety, the environment, natural resources, hazardous or toxic substances or wastes, pollutants or contaminants (collectively, "Environmental Laws"); (y) have received and are, and have at all times been, in compliance with all, and have not violated any, applicable permits, licenses, certificates or other authorizations or approvals required of them under any Environmental Laws to conduct their respective businesses; and (z) have not received notice of any actual or potential liability or obligation under or relating to, or any actual or potential violation of, any Environmental Laws, including for the investigation or remediation of any disposal or release of hazardous or toxic substances or wastes, pollutants or contaminants, and have no knowledge of any event or condition that would reasonably be expected to result in any such notice, and (ii) there are no costs or liabilities associated with Environmental Laws, or concerning hazardous or toxic substances or wastes, pollutants or contaminants, of or relating to the Company or its subsidiaries, except in the case of each of (i) and (ii) above, for any such matter as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect; and (iii) except as described in each of the Pricing Disclosure Package and the Prospectus, (x) there is no proceeding that is pending, or that is known to be contemplated, against the Company or any of its subsidiaries under any Environmental Laws in which a governmental entity is also a party, other than such proceeding regarding which it is reasonably believed no monetary sanctions of $100,000 or more will be imposed, (y) the Company and its subsidiaries are not aware of any facts or issues regarding compliance with Environmental Laws, or liabilities or other obligations under Environmental Laws or concerning hazardous or toxic substances or wastes, pollutants or contaminants, that could reasonably be expected to have a material effect on the capital expenditures, earnings or competitive position of the Company and its subsidiaries, and (z) none of the Company or its subsidiaries anticipates material capital expenditures relating to any Environmental Laws.

(cc) *Compliance with ERISA.* (i) Each employee benefit plan, within the meaning of Section 3(3) of the Employee Retirement Income Security Act of 1974, as amended ("ERISA"), for which the Company or any member of its "Controlled Group" (defined as any entity, whether or not incorporated, that is under common control with the Company within the meaning of Section 4001(a)(14) of ERISA or any entity that would be regarded as a single employer with the Company under Section 414(b),(c),(m) or (o) of the Internal Revenue Code of 1986, as amended (the "Code")) would have any liability (each, a "Plan") has been maintained in compliance with its terms and the requirements of any applicable statutes, orders, rules and regulations, including but not limited to ERISA and the Code; (ii) no prohibited transaction, within the meaning of Section 406 of ERISA or Section 4975 of the Code, has occurred with respect to any Plan, excluding transactions effected pursuant to a statutory or administrative exemption; (iii) for each Plan that is subject to the funding rules of Section 412 of the Code or Section 302 of ERISA, no Plan has failed (whether or not waived), or is reasonably expected to fail, to satisfy the minimum funding standards (within the meaning of Section 302 of ERISA or Section 412 of the Code) applicable to such Plan; (iv) no Plan is, or is reasonably expected to be, in "at risk status" (within the meaning of Section 303(i) of ERISA) and no Plan that is a "multiemployer plan" within the meaning of Section 4001(a)(3) of ERISA is in "endangered status" or "critical status" (within the meaning of Sections 304 and 305 of ERISA) (v) the fair market value of the assets of each Plan exceeds the present value of all benefits accrued under such Plan (determined based on those assumptions used to fund such Plan); (vi) no "reportable event" (within the meaning of Section 4043(c) of ERISA and the regulations promulgated thereunder) has occurred or is reasonably expected to occur; (vii) each Plan that is intended to be qualified under Section 401(a) of the Code has received a favorable determination letter or is comprised of a master or prototype plan that has received an opinion letter from the Internal Revenue Service covering all tax law changes (or has submitted, or is within the remedial amendment period for submitting, an application for a determination letter and is awaiting a response from the Internal Revenue Service), and, to the

knowledge of the Company, no event has occurred that would result in the revocation or failure to issue any such determination letter or opinion letter; (viii) neither the Company nor any member of the Controlled Group has incurred, nor reasonably expects to incur, any liability under Title IV of ERISA (other than contributions to the Plan or premiums to the Pension Benefit Guarantee Corporation, in the ordinary course and without default) in respect of a Plan (including a "multiemployer plan" within the meaning of Section 4001(a)(3) of ERISA); and (ix) none of the following events has occurred or is reasonably likely to occur: (A) a material increase in the aggregate amount of contributions required to be made to all Plans by the Company or its Controlled Group affiliates in the current fiscal year of the Company and its Controlled Group affiliates compared to the amount of such contributions made in the Company's and its Controlled Group affiliates' most recently completed fiscal year; or (B) a material increase in the Company and its subsidiaries' "accumulated post-retirement benefit obligations" (within the meaning of Accounting Standards Codification Topic 715-60) compared to the amount of such obligations in the Company and its subsidiaries' most recently completed fiscal year, except in each case with respect to the events or conditions set forth in (i) through (ix) hereof, as would not, individually or in the aggregate, have a Material Adverse Effect.

(dd) *Disclosure Controls*. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company and its subsidiaries maintain an effective system of "disclosure controls and procedures" (as defined in Rule 13a-15(e) of the Exchange Act). Such disclosure controls and procedures are designed to comply with the applicable requirements of the Exchange Act and to ensure that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Commission's rules and forms, including controls and procedures designed to ensure that such information is accumulated and communicated to the Company's management as appropriate to allow timely decisions regarding required disclosure. The Company and its subsidiaries have carried out evaluations of the effectiveness of their disclosure controls and procedures as required by Rule 13a-15 of the Exchange Act.

(ee) *Accounting Controls.* The Company and its subsidiaries maintain systems of "internal control over financial reporting" (as defined in Rule 13a-15(f) of the Exchange Act) that are designed to comply with the applicable requirements of the Exchange Act and have been designed by, or under the supervision of, their respective principal executive and principal financial officers, or persons performing similar functions, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. The Company and its subsidiaries maintain internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, there are no material weaknesses in the Company's internal controls. The Company's auditors and the Audit Committee of the Board of Directors of the Company have been advised of: (i) all significant deficiencies and material weaknesses in the design or operation of internal controls over financial reporting which have adversely affected or are reasonably likely to adversely affect the Company's ability to record, process, summarize and report financial information; and (ii) any fraud, whether or not material, that involves management or other employees who have a significant role in the Company's internal controls over financial reporting.

(ff) *Insurance.* The Company and its subsidiaries have insurance covering their respective properties, operations, personnel and businesses, including business interruption insurance, which insurance is in amounts and insures against such losses and risks as are customary for businesses such as the Company's and its subsidiaries and their respective businesses; and neither the Company nor any of its subsidiaries has (i) received notice from any insurer or agent of such insurer that capital improvements or other expenditures are required or necessary to be made in order to continue such insurance or (ii) any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage at reasonable cost from similar insurers as may be necessary to continue its business in all material respects.

(gg) *Cyber Security; Data Protection*. The Company and its subsidiaries' information technology assets and equipment, computers, systems, networks, hardware, software, websites, applications, and databases (collectively, "IT Systems") are adequate for, and operate and perform in all material respects as required in connection with, the operation of the business of the Company and the subsidiaries as currently conducted, to the Company's knowledge, free and clear of all material bugs, errors, defects, Trojan horses, time bombs, malware and other corruptants. The Company and its subsidiaries have implemented and maintained commercially reasonable controls, policies, procedures, and safeguards to maintain and protect their material confidential information and the integrity, continuous operation, redundancy and security of all IT Systems and data (including all personal, personally identifiable, sensitive, confidential or regulated data ("Personal Data")) used in connection with their businesses, and there have been no breaches, violations, outages or unauthorized uses of or accesses to same, except for those that have been remedied without material cost or liability or the duty to notify any other person, nor any incidents under internal review or investigations relating to the same. The Company and its subsidiaries are presently in compliance with all applicable laws or statutes and all judgments, orders, rules and regulations of any court or arbitrator or governmental or regulatory authority, internal policies and contractual obligations relating to the privacy and security of IT Systems and Personal Data and to the protection of such IT Systems and Personal Data from unauthorized use, access, misappropriation or modification, except as would not, individually or in the aggregate, have a Material Adverse Effect.

(hh) *No Unlawful Payments.* Neither the Company nor any of its subsidiaries nor any director or officer of the Company nor, to the knowledge of the Company, any employee of the Company or any director or officer of its subsidiaries or any agent, affiliate or other person acting on behalf of the Company or any of its subsidiaries has (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made or taken an act in furtherance of an offer, promise or authorization of any direct or indirect unlawful payment or benefit to any foreign or domestic government official or employee, including of any government-owned or controlled entity or of a public international organization, or any person acting in an official capacity for or on behalf of any of the foregoing, or any political party or party official or candidate for political office; (iii) violated or is in violation of any applicable provision of the Foreign Corrupt Practices Act of 1977, as amended, or any applicable law or regulation implementing the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, or committed an offence under the Bribery Act 2010 of the United Kingdom or any other applicable anti-bribery or anti-corruption law; or (iv) made, offered, agreed, requested or taken an act in furtherance of any unlawful bribe or other unlawful benefit, including, without limitation, any rebate, payoff,

influence payment, kickback or other unlawful or improper payment or benefit. The Company and its subsidiaries have instituted, maintain and enforce policies and procedures designed to promote and ensure compliance with all applicable anti-bribery and anti-corruption laws.

(ii) *Compliance with Anti-Money Laundering Laws*. The operations of the Company and its subsidiaries are and have been conducted at all times in compliance with applicable financial recordkeeping and reporting requirements, including those of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the applicable money laundering statutes of all jurisdictions where the Company or any of its subsidiaries conducts business, the rules and regulations thereunder and any related or similar rules, regulations or guidelines issued, administered or enforced by any governmental agency (collectively, the "Anti-Money Laundering Laws") and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Anti-Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(jj) *No Conflicts with Sanctions Laws.* Neither the Company nor any of its subsidiaries, directors or officers, nor, to the knowledge of the Company, any employee of the Company or any subsidiary or any agent, affiliate or other person acting on behalf of the Company or any of its subsidiaries is currently the subject or the target of any sanctions administered or enforced by the U.S. government, (including, without limitation, the Office of Foreign Assets Control of the U.S. Department of the Treasury ("OFAC") or the U.S. Department of State and including, without limitation, the designation as a "specially designated national" or "blocked person"), the United Nations Security Council ("UNSC"), the European Union, Her Majesty's Treasury ("HMT") or other relevant sanctions authority (collectively, "Sanctions"), nor is the Company or any of its subsidiaries located, organized or resident in a country or territory that is the subject or the target of Sanctions, including Cuba, Iran, North Korea, Sudan, Syria and Crimea (each, a "Sanctioned Country"); and the Company will not directly or indirectly use the proceeds of the offering of the Shares hereunder, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other person or entity (i) to fund or facilitate any activities of or business with any person that, at the time of such funding or facilitation, is the subject or target of Sanctions, (ii) to fund or facilitate any activities of or business in any Sanctioned Country or (iii) in any other manner that will result in a violation by any person (including any person participating in the transaction, whether as underwriter, advisor, investor or otherwise) of applicable Sanctions. For the past five years, the Company and its subsidiaries have not knowingly engaged in and are not now knowingly engaged in any dealings or transactions with any person that at the time of the dealing or transaction is or was the subject or the target of Sanctions or with any Sanctioned Country in violation of applicable Sanctions.

(kk) *No Restrictions on Subsidiaries*. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, no subsidiary of the Company is currently prohibited, directly or indirectly, under any agreement or other instrument to which it is a party or is subject, from paying any dividends to the Company, from making any other distribution on such subsidiary's capital stock or similar ownership interest, from repaying to the Company any loans or advances to such subsidiary from the Company or from transferring any of such subsidiary's properties or assets to the Company or any other subsidiary of the Company.

(ll) *No Broker's Fees.* Neither the Company nor any of its subsidiaries is a party to any contract, agreement or understanding with any person (other than this Agreement) that would give rise to a valid claim against any of them or any Underwriter for a brokerage commission, finder's fee or like payment in connection with the offering and sale of the Shares.

(mm) *No Registration Rights*. No person has the right to require the Company or any of its subsidiaries to register any securities for sale under the Securities Act by reason of the filing of the Registration Statement with the Commission, the issuance and sale of the Shares by the Company or, to the knowledge of the Company, the sale of the Shares to be sold by the Selling Stockholders hereunder.

(nn) *No Stabilization.* The Company has not taken, directly or indirectly, without giving effect to activities of the Underwriters, any action designed to or that would reasonably be expected to cause or result in any stabilization or manipulation of the price of the Shares.

(oo) *Margin Rules*. The application of the proceeds received by the Company from the issuance, sale and delivery of the Shares by the Company as described in each of the Registration Statement, the Pricing Disclosure Package and the Prospectus will not violate Regulation T, U or X of the Board of Governors of the Federal Reserve System or any other regulation of such Board of Governors.

(pp) *Forward-Looking Statements.* No forward-looking statement (within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act) included in any of the Registration Statement, the Pricing Disclosure Package or the Prospectus has been made or reaffirmed without a reasonable basis or has been disclosed other than in good faith.

(qq) *Statistical and Market Data.* Nothing has come to the attention of the Company that has caused the Company to believe that the statistical and market-related data included in each of the Registration Statement, the Pricing Disclosure Package and the Prospectus is not based on or derived from sources that are reliable and accurate in all material respects.

(rr) *The Options*. The unissued Shares issuable upon the exercise of options (the "Options") to be exercised by certain of the Selling Stockholders (the "Optionholders") have been duly authorized by the Company and validly reserved for issuance, and at the time of delivery to the Underwriters with respect to such Shares, such Shares will be issued and delivered in all material respects in accordance with the provisions of the Stock Option Agreements between the Company and such Selling Stockholders pursuant to which such Options were granted (the "Option Agreements") and such Shares will be validly issued, fully paid and non-assessable and will conform to the description thereof in the Pricing Disclosure Package and the Prospectus.

(ss) *The Option Agreements.* The Options were duly authorized and issued pursuant to the Option Agreements and constitute valid and binding obligations of the Company and the Optionholders are entitled to the benefits provided by the Option Agreements; the Option Agreements were duly authorized, executed and delivered and constitute valid and legally binding agreements enforceable against the Company in accordance with their terms except as enforceability may be limited by applicable bankruptcy, insolvency or similar laws affecting creditors' rights generally or by equitable principles relating to enforceability; and the Options and the Option Agreements conform to the descriptions thereof in the Pricing Disclosure Package and the Prospectus.

(tt) *Sarbanes-Oxley Act*. There is and has been no failure on the part of the Company or, to the knowledge of the Company, any of the Company's directors or officers, in their capacities as such, to comply in all material respects with any provision of the Sarbanes-Oxley Act of 2002, as amended and the rules and regulations promulgated in connection therewith (the "Sarbanes-Oxley Act"), applicable as of the effective date of the Registration Statement, including Section 402 related to loans and Sections 302 and 906 related to certifications.

(uu) *Status under the Securities Act*. At the time of filing the Registration Statement and any post-effective amendment thereto, at the earliest time thereafter that the Company or any offering participant made a *bona fide* offer (within the meaning of Rule 164(h)(2) under the Securities Act) of the Shares and at the date hereof, the Company was not and is not an "ineligible issuer," as defined in Rule 405 under the Securities Act.

(vv) *No Ratings*. There are (and prior to the Closing Date, will be) no debt securities or preferred stock issued or guaranteed by the Company or any of its subsidiaries that are rated by a "nationally recognized statistical rating organization", as such term is defined under Section 3(a)(62) under the Exchange Act.

(ww) *Exchange Listing*. The Class A Common Stock is listed on the Exchange.

4. Representations and Warranties of the Selling Stockholders. Each of the Selling Stockholders, severally and not jointly, represents and warrants to each Underwriter and the Company that:

(a) *Required Consents; Authority*. All consents, approvals, authorizations and orders necessary for the execution and delivery by such Selling Stockholder of this Agreement and the Power of Attorney (the "Power of Attorney") and the Custody Agreement (the "Custody Agreement") hereinafter referred to, and for the sale and delivery of the Shares to be sold by such Selling Stockholder hereunder, have been obtained, except (i) such as has been obtained or will be obtained prior to the Closing Date, (ii) such as may be required by the Securities Act, the Exchange Act, the rules of the Exchange, FINRA or the securities or Blue Sky laws of the various states in connection with the offer and sale of the Shares or (iii) such that would not have a material adverse effect on the ability of such Selling Stockholder to consummate the transactions contemplated by this Agreement; such Selling Stockholder has full right, power and authority to enter into this Agreement, the Power of Attorney and the Custody Agreement and to sell, assign, transfer and deliver the Shares to be sold by such Selling Stockholder hereunder; and this Agreement, the Power of Attorney and the Custody Agreement have each been duly authorized, executed and delivered by such Selling Stockholder.

(b) *No Conflicts*. The execution, delivery and performance by such Selling Stockholder of this Agreement, the Power of Attorney and the Custody Agreement, the sale of the Shares to be sold by such Selling Stockholder and the consummation by such Selling Stockholder of the transactions contemplated herein or therein will not (i) conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, result in the termination, modification or acceleration of, or result in the creation or imposition of any lien, charge or encumbrance upon any property, right or asset of such Selling Stockholder pursuant to, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which such Selling Stockholder is a party or by which such Selling Stockholder is bound or to which any of the property, right or asset of such Selling Stockholder is subject, (ii) result in any violation of the provisions of the charter or by-laws or similar organizational documents of such Selling Stockholder or (iii) result in the violation of any law or statute or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory agency except in the case of clauses (i) and (iii) where such conflict, breach, violation, default, lien, charge or encumbrance would not, singly or in the aggregate, have a material adverse effect on such Selling Stockholder's ability to perform its obligations under this Agreement.

(c) *Title to Shares.* Such Selling Stockholder has good and valid title to the Shares to be sold at the Closing Date by such Selling Stockholder hereunder (other than the Shares to be

issued upon exercise of Options), free and clear of all liens, encumbrances, equities or adverse claims; such Selling Stockholder will have, immediately prior to the Closing Date, assuming due issuance of any Shares to be issued upon exercise of Options, good and valid title to the Shares to be sold at the Closing Date by such Selling Stockholder, free and clear of all liens, encumbrances, equities or adverse claims; and, upon delivery of the certificates representing such Shares and payment therefor pursuant hereto, good and valid title to such Shares, free and clear of all liens, encumbrances, equities or adverse claims, will pass to the several Underwriters.

(d) *No Stabilization.* Such Selling Stockholder has not taken and will not take, directly or indirectly, any action designed to or that would reasonably be expected to cause or result in any stabilization or manipulation of the price of the Shares.

(e) *Pricing Disclosure Package*. The Pricing Disclosure Package, at the Applicable Time did not, and as of the Closing Date and as of the Additional Closing Date, as the case may be, will not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the representations and warranties set forth in this Section 4(e) are limited solely to those statements or omissions made in reliance upon and in conformity with the Selling Stockholder Information (as defined below) furnished by such Selling Stockholder. Each Underwriter, the Company and each Selling Stockholder agree that the "Selling Stockholder Information" consists solely of the information furnished by such Selling Stockholder for use in connection with the offering in the Registration Statement, the Pricing Disclosure Package and the Prospectus, which solely consists of (i) the name and address of such Selling Stockholder, (ii) the number of shares of Class A Common Stock and Class B Common Stock owned before and after the offering, the number of Shares proposed to be offered, (iii) the information set forth in the applicable footnote relating to such Selling Stockholder under the beneficial ownership table and (iv) any biographical information, if any, furnished under the caption "*Executive Officers*" in the Company's proxy statement on Schedule 14A (as filed on April 26, 2018) by such Selling Stockholder or persons employed by or affiliated with such Selling Stockholder (such information with respect to each Selling Stockholder, the "Selling Stockholder Information").

(f) *Issuer Free Writing Prospectus and Written Testing-the-Waters Communication.* Other than the Registration Statement, the Preliminary Prospectus and the Prospectus, such Selling Stockholder (including its agents and representatives, other than the Underwriters in their capacity as such) has not prepared, used, authorized, approved or referred to and will not prepare, use, authorize, approve or refer to any Issuer Free Writing Prospectus or Written Testing-the-Waters Communication, other than (i) any document not constituting a prospectus pursuant to Section 2(a)(10)(a) of the Securities Act or Rule 134 under the Securities Act or (ii) the documents listed on Annex A or Annex B hereto, each electronic road show and any other written communications approved in writing in advance by the Company and the Representative.

(g) *Registration Statement and Prospectus.* As of the applicable effective date of the Registration Statement and any post-effective amendment thereto, the Registration Statement and any such post-effective amendment complied and will comply in all material respects with the applicable requirements of the Securities Act, and did not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein not misleading; and as of the date of the Prospectus and any amendment or supplement thereto and as of the Closing Date and as of the Additional Closing Date, as the case may be, the Prospectus will not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein,

in the light of the circumstances under which they were made, not misleading; provided that such Selling Stockholder's representations and warranties set forth in this Section 4(g) are limited solely to statements or omissions made in reliance upon and in conformity with the Selling Stockholder Information furnished by such Selling Stockholder.

(h) *Preliminary Prospectus*. Each Preliminary Prospectus included in the Pricing Disclosure Package, at the time of filing thereof, complied in all material respects with the Securities Act, and no Preliminary Prospectus, at the time of filing thereof, contained any untrue statement of material fact or omitted to state a fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading; provided that such Selling Stockholder's representations and warranties set forth in this Section 4(h) are limited solely to statements or omissions made in reliance upon and in conformity with the Selling Stockholder Information furnished by such Selling Stockholder.

(i) *Material Information*. As of the date hereof, as of the Closing Date and as of the Additional Closing Date, as the case may be, the sale of the Shares by such Selling Stockholder is not and will not be prompted by any material information concerning the Company which is not set forth in the Registration Statement, the Pricing Disclosure Package or the Prospectus.

(j) *Delivery.* Each of the Selling Stockholders (i) who is selling Shares to be issued upon the automatic conversion of the Class B Common Stock upon sale hereunder, represents and warrants that duly completed and executed irrevocable assignments separate from certificates in negotiable form representing all of the Shares to be sold by such Selling Stockholders, and (ii) who is selling Shares to be issued upon the exercise of Options, represents and warrants that duly completed and executed irrevocable Option exercise notices, in the forms specified by the relevant Option Agreement, with respect to all of the Shares to be sold by such Selling Stockholders hereunder have been, placed in custody under a Custody Agreement relating to such Shares, in the form heretofore furnished to you, duly executed and delivered by such Selling Stockholder to American Stock Transfer & Trust Company, LLC, as custodian (the "Custodian"), and that such Selling Stockholder has duly executed and delivered Powers of Attorney, in the form heretofore furnished to you, appointing the person or persons indicated in Schedule 2 hereto, and each of them, as such Selling Stockholder's Attorneys-in-fact (the "Attorneys-in-Fact" or any one of them the "Attorney-in Fact") with authority to execute and deliver this Agreement on behalf of such Selling Stockholder, to determine the purchase price to be paid by the Underwriters to the Selling Stockholders as provided herein, to authorize the surrender and transfer of Class B Common Stock and the delivery of the corresponding number of Shares to be sold by such Selling Stockholder hereunder, to authorize (if applicable) the exercise of the Options to be exercised with respect to the Shares to be sold by such Selling Stockholder hereunder and otherwise to act on behalf of such Selling Stockholder in connection with the transactions contemplated by this Agreement and the Custody Agreement.

Each of the Selling Stockholders specifically agrees that the Shares represented by the assignments separate from certificates or the irrevocable Option exercise notice, in either case held in custody for such Selling Stockholder under the Custody Agreement, are subject to the interests of the Underwriters hereunder, and that the arrangements made by such Selling Stockholder for such custody, and the appointment by such Selling Stockholder of the Attorneys-in-Fact by the Power of Attorney, are to that extent irrevocable. Each of the Selling Stockholders specifically agrees that the obligations of such Selling Stockholder hereunder shall not be terminated by operation of law, whether by the death or incapacity of any individual Selling Stockholder, or, in the case of an estate or trust, by the death or incapacity of any executor or trustee or the termination of such estate or trust, or in the case of a partnership, corporation or similar organization, by the

dissolution of such partnership, corporation or organization, or by the occurrence of any other event. If any individual Selling Stockholder or any such executor or trustee should die or become incapacitated, or if any such estate or trust should be terminated, or if any such partnership, corporation or similar organization should be dissolved, or if any other such event should occur, before the delivery of the Shares hereunder, such Shares represented by the assignments separate from certificates or the irrevocable Option exercise notice shall be delivered by or on behalf of such Selling Stockholder in accordance with the terms and conditions of this Agreement and the Custody Agreement, and actions taken by the Attorneys-in-Fact pursuant to the Powers of Attorney shall be as valid as if such death, incapacity, termination, dissolution or other event had not occurred, regardless of whether or not the Custodian, the Attorneys-in-Fact, or any of them, shall have received notice of such death, incapacity, termination, dissolution or other event.

(k) *Compliance with ERISA*. The Selling Stockholder represents and warrants that it is not (1) an employee benefit plan subject to Title I of ERISA, (2) a plan or account subject to Section 4975 of the Code or (3) an entity deemed to hold "plan assets" of any such plan or account under Section 3(42) of ERISA, 29 C.F.R. 2510.3-101, or otherwise.

5. Representations and Warranties of the Selling Stockholders that are Chief Officers. Each of the Selling Stockholders that is a Chief Officer of the Company, severally and not jointly, represents and warrants to each Underwriter and the Company that:

(a) *No Unlawful Payments*. Neither such Selling Stockholder nor, to the knowledge of such Selling Stockholder, any agent, affiliate or other person associated with or acting on behalf of such Selling Stockholder has (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made or taken an act in furtherance of an offer, promise or authorization of any direct or indirect unlawful payment or benefit to any foreign or domestic government official or employee, including of any government-owned or controlled entity or of a public international organization, or any person acting in an official capacity for or on behalf of any of the foregoing, or any political party or party official or candidate for political office; (iii) violated or is in violation of any provision of the Foreign Corrupt Practices Act of 1977, as amended, or any applicable law or regulation implementing the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, or committed an offence under the Bribery Act 2010 of the United Kingdom, or any other applicable anti-bribery or anti-corruption law; or (iv) made, offered, agreed, requested or taken an act in furtherance of any unlawful bribe or other unlawful benefit, including, without limitation, any rebate, payoff, influence payment, kickback or other unlawful or improper payment or benefit.

(b) *Compliance with Anti-Money Laundering Laws*. The operations of such Selling Stockholder are and have been conducted at all times in compliance with applicable financial recordkeeping and reporting requirements, including those of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the applicable money laundering statutes of all jurisdictions where such Selling Stockholder conducts business, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the "Anti-Money Laundering Laws"), and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving such Selling Stockholder with respect to the Anti-Money Laundering Laws is pending or, to the knowledge of such Selling Stockholder, threatened.

(c) *No Conflicts with Sanctions Laws*. Neither such Selling Stockholder nor, to the knowledge of such Selling Stockholder, any agent, affiliate or other person associated with or

acting on behalf of such Selling Stockholder is currently the subject or the target of any sanctions administered or enforced by the U.S. government (including, without limitation, the Office of Foreign Assets Control of the U.S. Department of the Treasury ("OFAC") or the U.S. Department of State and including, without limitation, the designation as a "specially designated national" or "blocked person"), the United Nations Security Council ("UNSC"), the European Union, Her Majesty's Treasury ("HMT") or other relevant sanctions authority (collectively, "Sanctions"), nor is such Selling Stockholder located, organized or resident in a country or territory that is the subject or target of Sanctions, including, without limitation, Cuba, Iran, North Korea, Sudan, Syria and Crimea (each, a "Sanctioned Country"); and such Selling Stockholder will not directly or indirectly use the proceeds of the offering of the Shares hereunder, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other person or entity (i) to fund or facilitate any activities of or business with any person that, at the time of such funding or facilitation, is the subject or target of Sanctions, (ii) to fund or facilitate any activities of or business in any Sanctioned Country or (iii) in any other manner that will result in a violation by any person (including any person participating in the transaction, whether as underwriter, advisor, investor or otherwise) of Sanctions. For the past five years, such Selling Stockholder has not knowingly engaged in, and is not now knowingly engaged in, any dealings or transactions with any person that at the time of the dealing or transaction is or was the subject or the target of Sanctions or with any Sanctioned Country.

6. Further Agreements of the Company. The Company covenants and agrees with each Underwriter that:

(a) *Required Filings.* The Company will file the final Prospectus with the Commission within the time periods specified by Rule 424(b) and Rule 430A under the Securities Act; the Company will file any Issuer Free Writing Prospectus to the extent required by Rule 433 under the Securities Act; and the Company will furnish copies of the Prospectus and each Issuer Free Writing Prospectus (to the extent not previously delivered) to the Underwriters in New York City prior to 10:00 A.M., New York City time, on the business day next succeeding the date of this Agreement in such quantities as the Representatives may reasonably request.

(b) *Delivery of Copies.* The Company will deliver, if requested by the Representatives, without charge, (i) to the Representatives, two signed copies of the Registration Statement as originally filed and each amendment thereto, in each case including all exhibits and consents filed therewith and documents incorporated by reference therein; and (ii) to each Underwriter (A) a conformed copy of the Registration Statement as originally filed and each amendment thereto (without exhibits) and (B) during the Prospectus Delivery Period (as defined below), as many copies of the Prospectus (including all amendments and supplements thereto and documents incorporated by reference therein and each Issuer Free Writing Prospectus) as the Representatives may reasonably request. As used herein, the term "Prospectus Delivery Period" means such period of time after the first date of the public offering of the Shares as in the opinion of counsel for the Underwriters a prospectus relating to the Shares is required by law to be delivered (or required to be delivered but for Rule 172 under the Securities Act) in connection with sales of the Shares by any Underwriter or dealer.

(c) *Amendments or Supplements, Issuer Free Writing Prospectuses.* Before using, authorizing, approving, referring to or filing any Issuer Free Writing Prospectus, and before filing any amendment or supplement to the Registration Statement or the Prospectus, the Company will furnish to the Representatives and counsel for the Underwriters a copy of the proposed Issuer Free Writing Prospectus, amendment or supplement for review and will not use, authorize, approve, refer to or file any such Issuer Free Writing Prospectus or file any such proposed amendment or supplement to which the Representatives reasonably object in a timely manner.

(d) *Notice to the Representatives.* The Company will advise the Representatives promptly, and confirm such advice in writing (which may be by electronic mail), (i) when the Registration Statement has become effective; (ii) when any amendment to the Registration Statement has been filed or becomes effective; (iii) when any supplement to the Prospectus, any Issuer Free Writing Prospectus or any Written Testing-the-Waters Communication or any amendment to the Prospectus has been filed or distributed; (iv) of any request by the Commission for any amendment to the Registration Statement or any amendment or supplement to the Prospectus or the receipt of any comments from the Commission relating to the Registration Statement or any other request by the Commission for any additional information including, but not limited to, any request for information concerning any Testing-the-Waters Communication; (v) of the issuance by the Commission or any other governmental or regulatory authority of any order suspending the effectiveness of the Registration Statement or preventing or suspending the use of any Preliminary Prospectus, any of the Pricing Disclosure Package, the Prospectus or any Written Testing-the-Waters Communication or the initiation or threatening of any proceeding, if the Company gains knowledge of such proceeding, for that purpose or pursuant to Section 8A of the Securities Act; (vi) of the occurrence of any event or development within the Prospectus Delivery Period as a result of which the Prospectus, any of the Pricing Disclosure Package, any Issuer Free Writing Prospectus or any Written Testing-the-Waters Communication as then amended or supplemented would include any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing when the Prospectus, the Pricing Disclosure Package, or any such Issuer Free Writing Prospectus or any Written Testing-the-Waters Communication is delivered to a purchaser, not misleading; and (vii) of the receipt by the Company of any notice with respect to any suspension of the qualification of the Shares for offer and sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose, if the Company gains knowledge of such proceeding; and the Company will use its reasonable best efforts to prevent the issuance of any such order suspending the effectiveness of the Registration Statement, preventing or suspending the use of any Preliminary Prospectus, any of the Pricing Disclosure Package or the Prospectus or any Written Testing-the-Waters Communication or suspending any such qualification of the Shares and, if any such order is issued, will use its reasonable best efforts to obtain as soon as possible the withdrawal thereof.

(e) *Ongoing Compliance.* (1) If during the Prospectus Delivery Period (i) any event or development shall occur or condition shall exist as a result of which the Prospectus as then amended or supplemented would include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances existing when the Prospectus is delivered to a purchaser, not misleading or (ii) it is necessary to amend or supplement the Prospectus to comply with applicable law, the Company will promptly notify the Underwriters thereof and forthwith prepare and, subject to paragraph (c) above, file with the Commission and furnish to the Underwriters and to such dealers as the Representatives may designate, such amendments or supplements to the Prospectus (or any document to be filed with the Commission and incorporated by reference therein) as may be necessary so that the statements in the Prospectus (or any document to be filed with the Commission and incorporated by reference therein) as so amended or supplemented will not, in the light of the circumstances existing when the Prospectus is delivered to a purchaser, be misleading or so that the Prospectus will comply with applicable law and (2) if at any time prior to the Closing Date (i) any event or development shall occur or condition shall exist as a result of which the Pricing Disclosure Package as then amended or supplemented would include any

untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances existing when the Pricing Disclosure Package is delivered to a purchaser, not misleading or (ii) it is necessary to amend or supplement the Pricing Disclosure Package to comply with applicable law, the Company will promptly notify the Underwriters thereof and forthwith prepare and, subject to paragraph (c) above, file with the Commission (to the extent required) and furnish to the Underwriters and to such dealers as the Representatives may designate, such amendments or supplements to the Pricing Disclosure Package as may be necessary so that the statements in the Pricing Disclosure Package as so amended or supplemented will not, in the light of the circumstances existing when the Pricing Disclosure Package (or any document to be filed with the Commission and incorporated by reference therein) is delivered to a purchaser, be misleading or so that the Pricing Disclosure Package will comply with applicable law.

(f) *Blue Sky Compliance.* If required by applicable law, the Company will qualify the Shares for offer and sale under the securities or Blue Sky laws of such jurisdictions as the Representatives shall reasonably request and will continue such qualifications in effect so long as required for distribution of the Shares; provided that the Company shall not be required to (i) qualify as a foreign corporation or other entity or as a dealer in securities in any such jurisdiction where it would not otherwise be required to so qualify, (ii) file any general consent to service of process in any such jurisdiction or (iii) subject itself to taxation in any such jurisdiction if it is not otherwise so subject.

(g) *Earning Statement.* The Company will make generally available to its security holders and the Representatives as soon as practicable an earnings statement that satisfies the provisions of Section 11(a) of the Securities Act and Rule 158 of the Commission promulgated thereunder covering a period of at least twelve months beginning with the first fiscal quarter of the Company occurring after the "effective date" (as defined in Rule 158) of the Registration Statement.

(h) *Clear Market.* For a period of 90 days after the date of the Prospectus, the Company 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 Commission a registration statement under the Securities Act relating to, any shares of Stock or any securities convertible into or exercisable or exchangeable for Stock, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing, or (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Stock or any such other securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Stock or such other securities, in cash or otherwise, without the prior written consent of the Representatives, other than (1) the Shares to be sold hereunder, (2) any shares of Stock of the Company awarded, issued upon the exercise of options or purchase rights, issued upon vesting of equity awards and/or settlement of other awards granted under the Company Stock Plans, (3) the grant of stock options, restricted stock awards, restrictive stock units or any other awards under the Company Stock Plans, (4) the filing by the Company of registration statements on Form S-8 with respect to benefit plans described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, (5) the issuance of shares of Class A Common Stock upon the conversion of shares of Class B Common Stock and (6) the issuance by the Company of Common Stock and securities convertible or exercisable or exchangeable for Common Stock, in an aggregate amount not to exceed five percent (5%) of the Company's outstanding securities, determined as of the Closing Date, in connection with one or more acquisitions of a company or a business, securities, property or assets of another person or entity, joint ventures, commercial relationships or strategic alliances.

If the Representatives, in their sole discretion, agree to release or waive the restrictions set forth in Section 7(a) or a lock-up letter described in Section 9(m) hereof for an officer or director of the Company and provide the Company with notice of the impending release or waiver substantially in the form of Exhibit B hereto at least three business days before the effective date of the release or waiver, the Company agrees to announce the impending release or waiver by a press release substantially in the form of Exhibit C hereto through a major news service at least two business days before the effective date of the release or waiver.

(i) *Use of Proceeds.* The Company intends to apply the net proceeds from the sale of the Shares as described in each of the Registration Statement, the Pricing Disclosure Package and the Prospectus under the heading "Use of Proceeds".

(j) *No Stabilization.* The Company will not take, directly or indirectly, without giving effect to activities by the Underwriters, any action designed to or that would reasonably be expected to cause or result in any stabilization or manipulation of the price of the Stock.

(k) *Exchange Listing.* The Company will use its best efforts to maintain the listing of the Shares on the Exchange.

(l) *Reports.* For a period of one year from the date of this Agreement, so long as the Company is subject to the reporting requirements of either Section 13 or Section 15(d) of the Exchange Act, the Company will furnish to the Representatives, as soon as commercially reasonable after they are available, copies of all reports or other communications (financial or other) furnished to holders of the Shares, and copies of any reports and financial statements furnished to or filed with the Commission or any national securities exchange or automatic quotation system; provided the Company will be deemed to have furnished such reports and financial statements to the Representatives to the extent they are filed on the Commission's Electronic Data Gathering, Analysis, and Retrieval system or any successor system.

(m) *Record Retention*. The Company will, pursuant to reasonable procedures developed in good faith, retain copies of each Issuer Free Writing Prospectus that is not filed with the Commission in accordance with Rule 433 under the Securities Act.

(n) *Filings.* The Company will file with the Commission such reports as may be required by Rule 463 under the Securities Act.

(o) *Emerging Growth Company*. The Company will promptly notify the Representatives if the Company ceases to be an Emerging Growth Company at any time prior to the later of (i) completion of the distribution of Shares within the meaning of the Securities Act and (ii) completion of the 90-day restricted period referred to in Section 6(h) hereof.

(p) *FIRPTA Certificate*. The Company will deliver to each Underwriter, on or before the Closing Date, (i) a certificate with respect to the Company's status as a "United States real property holding corporation," dated not more than thirty (30) days prior to the Closing Date, as described in Treasury Regulations Sections 1.897-2(h) and 1.1445-2(c)(3), and (ii) proof of delivery to the Internal Revenue Service of the required notice, as described in Treasury Regulations Section 1.897-2(h)(2).

7. Further Agreements of the Selling Stockholders. Each of the Selling Stockholders covenants and agrees with each Underwriter that:

(a) *Lock-Up Agreements*. Such Selling Stockholder has duly executed and delivered to the Representatives a lock-up agreement substantially in the form of Exhibit D hereto.

(b) *No Stabilization.* Such Selling Stockholder will not take, directly or indirectly, any action designed to or that would reasonably be expected to cause or result in any stabilization or manipulation of the price of the Stock.

(c) *Tax Form.* Such Selling Stockholder will deliver to the Representatives prior to or at the Closing Date a properly completed and executed United States Treasury Department Form W-9 (or other applicable form or statement specified by the Treasury Department regulations in lieu thereof) in order to facilitate the Underwriters' documentation of their compliance with the reporting and withholding provisions of the Code with respect to the transactions herein contemplated.

(d) *Use of Proceeds*. It will not knowingly directly or indirectly use the proceeds of the offering of the Shares hereunder, or knowingly lend, contribute or otherwise make available such proceeds to a subsidiary, joint venture partner or other person or entity (i) to fund or facilitate any activities of or business with any person that, at the time of such funding or facilitation, is the subject or target of Sanctions, (ii) to fund or facilitate any activities of or business in any Sanctioned Country, (iii) in any other manner that will result in a violation by any person (including any person participating in the transaction, whether as underwriter, advisor, investor or otherwise) of Sanctions or (iv) in furtherance of an offer, payment, promise to pay, or authorization of payment or giving of money, or anything else of value, to any person in violation of applicable anti-corruption laws.

8. Certain Agreements of the Underwriters. Each Underwriter hereby represents and agrees that:

(a) It has not and will not use, authorize use of, refer to or participate in the planning for use of, any "free writing prospectus", as defined in Rule 405 under the Securities Act (which term includes use of any written information furnished to the Commission by the Company and not incorporated by reference into the Registration Statement and any press release issued by the Company) other than (i) a free writing prospectus that contains no "issuer information" (as defined in Rule 433(h)(2) under the Securities Act) that was not included (including through incorporation by reference) in the Preliminary Prospectus or a previously filed Issuer Free Writing Prospectus, (ii) any Issuer Free Writing Prospectus listed on Annex A or prepared pursuant to Section 3(c) or Section 4(c) above (including any electronic road show approved in advance by the Company), or (iii) any free writing prospectus prepared by such underwriter and approved by the Company in advance in writing (each such free writing prospectus referred to in clauses (i) or (iii), an "Underwriter Free Writing Prospectus").

(b) It has not used, and will not use without the prior written consent of the Company, any free writing prospectus that contains the final terms of the Shares unless such terms have previously been included in a free writing prospectus filed with the Commission; *provided* that Underwriters may use a term sheet substantially in the form of Annex C hereto without the consent of the Company; *provided further* that any Underwriter using such term sheet shall notify the Company, and provide a copy of such term sheet to the Company, prior to, or substantially concurrently with, the first use of such term sheet.

(c) It is not subject to any pending proceeding under Section 8A of the Securities Act with respect to the offering (and will promptly notify the Company and the Selling Stockholders if any such proceeding against it is initiated during the Prospectus Delivery Period).

9. Conditions of Underwriters' Obligations. The obligation of each Underwriter to purchase the Underwritten Shares on the Closing Date or the Option Shares on the Additional Closing Date, as the case may be, as provided herein is subject to the performance by the Company and each of the Selling Stockholders of their respective covenants and other obligations hereunder and to the following additional conditions:

(a) *Registration Compliance; No Stop Order.* No order suspending the effectiveness of the Registration Statement shall be in effect, and no proceeding for such purpose or pursuant to Section 8A under the Securities Act shall be pending before or threatened by the Commission; the Prospectus and each Issuer Free Writing Prospectus shall have been timely filed with the Commission under the Securities Act (in the case of an Issuer Free Writing Prospectus, to the extent required by Rule 433 under the Securities Act) and in accordance with Section 6(a) hereof; and all requests by the Commission for additional information shall have been complied with to the reasonable satisfaction of the Representatives.

(b) *Representations and Warranties.* The respective representations and warranties of the Company and the Selling Stockholders contained herein shall be true and correct on the date hereof and on and as of the Closing Date or the Additional Closing Date, as the case may be; and the statements of the Company and its officers and of each of the Selling Stockholders made in any certificates delivered pursuant to this Agreement shall be true and correct on and as of the Closing Date or the Additional Closing Date, as the case may be.

(c) *No Material Adverse Change.* No event or condition of a type described in Section 3(h) hereof shall have occurred or shall exist, which event or condition is not described in the Pricing Disclosure Package (excluding any amendment or supplement thereto) and the Prospectus (excluding any amendment or supplement thereto) and the effect of which in the judgment of the Representatives makes it impracticable or inadvisable to proceed with the offering, sale or delivery of the Shares on the Closing Date or the Additional Closing Date, as the case may be, on the terms and in the manner contemplated by this Agreement, the Pricing Disclosure Package and the Prospectus.

(d) *Officer's Certificate.* The Representatives shall have received on and as of the Closing Date or the Additional Closing Date, as the case may be, (x) a certificate, on behalf of the Company, of the chief financial officer or chief accounting officer of the Company and one additional senior executive officer of the Company who is satisfactory to the Representatives (i) confirming that such officers have carefully reviewed the Registration Statement, the Pricing Disclosure Package and the Prospectus and, to the knowledge of such officers, the representations of the Company set forth in Sections 3(b) and 3(d) hereof are true and correct, (ii) confirming that the other representations and warranties of the Company in this Agreement are true and correct and that the Company has complied with all agreements and satisfied all conditions on its part to be performed or satisfied hereunder at or prior to the Closing Date or the Additional Closing Date, as the case may be, and (iii) to the effect set forth in paragraphs (a) and (c) above and (y) a certificate of each of the Selling Stockholders, in form and substance reasonably satisfactory to the Representatives, (A) confirming that the representations of such Selling Stockholder set forth in Sections 4(e), 4(f) and 4(g) hereof are true and correct and (B) confirming that the other representations and warranties of such Selling Stockholder in this agreement are true and correct and that such Selling Stockholder has complied with all agreements and satisfied all conditions on its part to be performed or satisfied hereunder at or prior to such Closing Date.

(e) *Comfort Letters.* (i) On the date of this Agreement and on the Closing Date or the Additional Closing Date, as the case may be, Ernst & Young LLP shall have furnished to the Representatives, at the request of the Company, letters, dated the respective dates of delivery thereof and addressed to the Underwriters, in form and substance reasonably satisfactory to the Representatives, containing statements and information of the type customarily included in accountants' "comfort letters" to underwriters with respect to the financial statements and certain financial information contained or incorporated by reference in each of the Registration Statement, the Pricing Disclosure Package and the Prospectus; provided, that the letter delivered on the Closing Date or the Additional Closing Date, as the case may be, shall use a "cut-off" date no more than three business days prior to such Closing Date or such Additional Closing Date, as the case may be.

(f) On the date of this Agreement and on the Closing Date or the Additional Closing Date, as the case may be, the Company shall have furnished to the Representatives a certificate, dated the respective dates of delivery thereof and addressed to the Underwriters, of its chief financial officer with respect to certain financial data contained in the Pricing Disclosure Package and the Prospectus providing "management comfort" with respect to such information, in form and substance reasonably satisfactory to the Representatives.

(g) *Opinion and 10b-5 Statement of Counsel for the Company.* Lowenstein Sandler LLP, counsel for the Company, shall have furnished to the Representatives, at the request of the Company, their written opinion and 10b-5 statement, dated the Closing Date or the Additional Closing Date, as the case may be, and addressed to the Underwriters, in form and substance reasonably satisfactory to the Representatives.

(h) *Opinion and 10b-5 Statement of Counsel for the Selling Stockholders.* Jaffe Raitt Heuer & Weiss, P.C., counsel for the Selling Stockholders, shall have furnished to the Representative, at the request of the Selling Stockholders, their written opinion and 10b-5 statement, dated the Closing Date, and addressed to the Underwriters, in form and substance reasonably satisfactory to the Representative.

(i) *Opinion and 10b-5 Statement of Counsel for the Underwriters.* The Representatives shall have received on and as of the Closing Date or the Additional Closing Date, as the case may be, an opinion and 10b-5 statement of Goodwin Procter LLP, counsel for the Underwriters, with respect to such matters as the Representatives may reasonably request, and such counsel shall have received such documents and information as they may reasonably request to enable them to pass upon such matters.

(j) *No Legal Impediment to Issuance and/or Sale.* No action shall have been taken and no statute, rule, regulation or order shall have been enacted, adopted or issued by any federal, state or foreign governmental or regulatory authority that would, as of the Closing Date or the Additional Closing Date, as the case may be, prevent the issuance or sale of the Shares by the Company or the sale of the Shares by the Selling Stockholders; and no injunction or order of any federal, state or foreign court shall have been issued that would, as of the Closing Date or the Additional Closing Date, as the case may be, prevent the issuance or sale of the Shares by the Company or the sale of the Shares by the Selling Stockholders.

(k) *Good Standing*. The Representatives shall have received on and as of the Closing Date or the Additional Closing Date, as the case may be, satisfactory evidence of the good standing of the Company and its subsidiaries in their respective jurisdictions of organization and their good standing in such other jurisdictions as the Representatives may reasonably request, in each case in writing or any standard form of telecommunication from the appropriate governmental authorities of such jurisdictions.

(l) *Exchange Listing.* The Shares to be delivered on the Closing Date or the Additional Closing Date, as the case may be, shall be duly listed on the Exchange.

(m) *Lock-up Agreements*. The "lock-up" agreements, each substantially in the form of Exhibit D hereto, between you and certain shareholders, officers and directors of the Company relating to sales and certain other dispositions of shares of Stock or certain other securities, delivered to you on or before the date hereof, shall be in full force and effect on the Closing Date or the Additional Closing Date, as the case may be.

(n) *Additional Documents.* On or prior to the Closing Date or the Additional Closing Date, as the case may be, the Company and the Selling Stockholders shall have furnished to the Representatives such further certificates and documents as the Representatives may reasonably request.

All opinions, letters, certificates and evidence mentioned above or elsewhere in this Agreement shall be deemed to be in compliance with the provisions hereof only if they are in form and substance reasonably satisfactory to counsel for the Underwriters.

10. Indemnification and Contribution.

(a) *Indemnification of the Underwriters by the Company.* The Company agrees to indemnify and hold harmless each Underwriter, its affiliates, directors and officers and each person, if any, who controls such Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, from and against any and all losses, claims, damages and liabilities (including, without limitation, out-of-pocket legal fees and other expenses reasonably incurred in connection with any suit, action or proceeding or any claim asserted, as such fees and expenses are incurred), joint or several, that arise out of, or are based upon, (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement or caused by any omission or alleged omission to state therein a material fact required to be stated therein or necessary in order to make the statements therein, not misleading, or (ii) any untrue statement or alleged untrue statement of a material fact contained in the Prospectus (or any amendment or supplement thereto), any Issuer Free Writing Prospectus, any "issuer information" filed or required to be filed pursuant to Rule 433(d) under the Securities Act, any Written Testing-the-Waters Communication, any road show as defined in Rule 433(h) under the Securities Act (a "road show") or any Pricing Disclosure Package (including any Pricing Disclosure Package that has subsequently been amended), or caused by any omission or alleged omission to state therein a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading, in each case except insofar as such losses, claims, damages or liabilities arise out of, or are based upon, any untrue statement or omission or alleged untrue statement or omission made in reliance upon and in conformity with (x) any information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use therein, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in subsection (c) below and (y) any information relating to any Selling Stockholder other than a Chief Officer of the Company furnished to the Company in writing by and on behalf of such Selling Stockholder expressly for use therein, it being understood and agreed that the only such information furnished by any Selling Stockholder consists of the Selling Stockholder Information.

(b) *Indemnification of the Underwriters by the Selling Stockholders.* Each of the Selling Stockholders severally and not jointly in proportion to the number of Shares to be sold by such Selling Stockholder hereunder agrees to indemnify and hold harmless each Underwriter, its affiliates, directors and officers and each person, if any, who controls such Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act to the same extent as the indemnity set forth in paragraph (a) above, in each case only insofar as such losses, claims, damages or liabilities arise out of, or are based upon, any untrue statement or omission or alleged untrue statement or omission made in reliance upon and in conformity with the Selling Stockholder Information furnished by such Selling Stockholder. The liability of each Selling Stockholder under the indemnity and contribution agreements contained in this Section 10 shall be limited to an amount equal to (i) the number of Shares sold by such Selling Stockholder under this Agreement multiplied by (ii) the Public Offering Price (minus related underwriting discounts and commissions) (the "Selling Stockholder Net Proceeds").

(c) *Indemnification of the Company and the Selling Stockholders.* Each Underwriter agrees, severally and not jointly, to indemnify and hold harmless the Company, its directors, its officers who signed the Registration Statement and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act and each of the Selling Stockholders to the same extent as the indemnity set forth in paragraph (a) above, but only with respect to any losses, claims, damages or liabilities that arise out of, or are based upon, any untrue statement or omission or alleged untrue statement or omission made in reliance upon and in conformity with any information relating to such Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in the Registration Statement, the Prospectus (or any amendment or supplement thereto), any Issuer Free Writing Prospectus, any Written Testing-the-Waters Communication, any road show or any Pricing Disclosure Package (including any Pricing Disclosure Package that has subsequently been amended), it being understood and agreed upon that the only such information furnished by any Underwriter consists of the following information in the Prospectus furnished on behalf of each Underwriter: the concession and reallowance figures appearing in the third paragraph under the caption "Underwriting", the information contained in the thirteenth paragraph relating to stabilizing transactions under the caption "Underwriting", and the information in the fourteenth paragraph under the caption "Underwriting".

(d) *Notice and Procedures.* If any suit, action, proceeding (including any governmental or regulatory investigation), claim or demand shall be brought or asserted against any person in respect of which indemnification may be sought pursuant to the preceding paragraphs of this Section 10, such person (the "Indemnified Person") shall promptly notify the person against whom such indemnification may be sought (the "Indemnifying Person") in writing; provided that the failure to notify the Indemnifying Person shall not relieve it from any liability that it may have under the preceding paragraphs of this Section 10 except to the extent that it has been materially prejudiced (through the forfeiture of substantive rights or defenses) by such failure; and provided further that the failure to notify the Indemnifying Person shall not relieve it from any liability that it may have to an Indemnified Person otherwise than under the preceding paragraphs of this Section 10. If any such proceeding shall be brought or asserted against an Indemnified Person and it shall have notified the Indemnifying Person thereof, the Indemnifying Person shall be entitled to participate therein, and to the extent it wishes, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel reasonably satisfactory to the Indemnified Person (who shall not, without the consent of the Indemnified Person, be counsel to the Indemnifying Person) to represent the Indemnified Person in such proceeding and shall pay the reasonable fees and expenses of such counsel related to such proceeding promptly and, after notice from the Indemnifying Person to such Indemnified Person of its election so to assume the defense thereof,

the Indemnifying Person shall not be liable to such Indemnified Person under the preceding paragraphs of this Section 10, as the case may be, for any legal expenses of other counsel or any other expenses, in each case subsequently incurred by such Indemnified Person, in connection with the defense thereof other than reasonable costs of investigation. In any such proceeding, any Indemnified Person shall have the right to retain its own counsel, but the reasonably incurred fees and expenses of such counsel shall be at the expense of such Indemnified Person unless (i) the Indemnifying Person and the Indemnified Person shall have mutually agreed to the contrary; (ii) the Indemnifying Person has failed within a reasonable time to retain counsel reasonably satisfactory to the Indemnified Person; (iii) the Indemnified Person shall have reasonably concluded that there may be legal defenses available to it that are different from or in addition to those available to the Indemnifying Person; or (iv) the named parties in any such proceeding (including any impleaded parties) include both the Indemnifying Person and the Indemnified Person and representation of both parties by the same counsel would be inappropriate due to actual or potential differing interest between them. It is understood and agreed that the Indemnifying Person shall not, in connection with any proceeding or related proceedings in the same jurisdiction, be liable for the fees and expenses of more than one separate firm (in addition to any local counsel) for all Indemnified Persons, and that all such fees and expenses shall be paid or reimbursed promptly. Any such separate firm for any Underwriter, its affiliates, directors and officers and any control persons of such Underwriter shall be designated in writing by the Representatives and any such separate firm for the Company, its directors, its officers who signed the Registration Statement and any control persons of the Company shall be designated in writing by the Company and any such separate firm for the Selling Stockholders shall be designated in writing by the Attorneys-in-Fact or any one of them. The Indemnifying Person shall not be liable for any settlement of any proceeding effected without its written consent (which shall not be unreasonably withheld, delayed or conditioned), but if settled with such consent or if there be a final judgment for the plaintiff, the Indemnifying Person agrees to indemnify each Indemnified Person from and against any loss or liability by reason of such settlement or judgment. No Indemnifying Person shall, without the written consent of the Indemnified Person (which shall not be unreasonably withheld, delayed or conditioned), effect any settlement of any pending or threatened proceeding in respect of which any Indemnified Person is or could have been a party and indemnification could have been sought hereunder by such Indemnified Person, unless such settlement (x) includes an unconditional release of such Indemnified Person, in form and substance reasonably satisfactory to such Indemnified Person, from all liability on claims that are the subject matter of such proceeding and (y) does not include any statement as to or any admission of fault, culpability or a failure to act by or on behalf of any Indemnified Person.

(e) *Contribution.* If the indemnification provided for in paragraphs (a), (b) and (c) above is unavailable to an Indemnified Person or insufficient in respect of any losses, claims, damages or liabilities referred to therein, then each Indemnifying Person under such paragraph, in lieu of indemnifying such Indemnified Person thereunder, shall contribute to the amount paid or payable by such Indemnified Person as a result of such losses, claims, damages or liabilities (i) in such proportion as is appropriate to reflect the relative benefits received by the Company and the Selling Stockholders, on the one hand, and the Underwriters, on the other, from the offering of the Shares or (ii) if the allocation provided by clause (i) is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) but also the relative fault of the Company and the Selling Stockholders, on the one hand, and the Underwriters, on the other, in connection with the statements or omissions that resulted in such losses, claims, damages or liabilities, as well as any other relevant equitable considerations. The relative benefits received by the Company and the Selling Stockholders, on the one hand, and the Underwriters, on the other, shall be deemed to be in the same respective proportions as the net proceeds (after deducting underwriting discounts and commission but before deducting expenses) received by the Company and the Selling Stockholders from the sale of the Shares and the total underwriting discounts and commissions received by the Underwriters in connection therewith, in each case as set forth in the table on the cover of the Prospectus, bear to the aggregate offering price of the Shares. The relative fault of the Company and the Selling Stockholders, on the one hand, and the

Underwriters, on the other, shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company and the Selling Stockholders or by the Underwriters and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

(f) *Limitation on Liability.* The Company, the Selling Stockholders and the Underwriters agree that it would not be just and equitable if contribution pursuant to paragraph (e) above were determined by pro rata allocation (even if the Selling Stockholders or the Underwriters were treated as one entity for such purpose) or by any other method of allocation that does not take account of the equitable considerations referred to in paragraph (e) above. The amount paid or payable by an Indemnified Person as a result of the losses, claims, damages and liabilities referred to in paragraph (e) above shall be deemed to include, subject to the limitations set forth above, any legal or other expenses reasonably incurred by such Indemnified Person in connection with any such action or claim. Notwithstanding the provisions of paragraphs (e) and (f), in no event shall (i) an Underwriter be required to contribute any amount in excess of the amount by which the total underwriting discounts and commissions received by such Underwriter with respect to the offering of the Shares exceeds the amount of any damages that such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission or (ii) the aggregate liability of a Selling Stockholder under Section 10(b) and Section 10(e) exceed the limit set forth in Section 10(b) above. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations to contribute pursuant to paragraphs (e) and (f) are several in proportion to their respective purchase obligations hereunder and not joint.

(g) *Non-Exclusive Remedies.* The remedies provided for in this Section 10 are not exclusive and shall not limit any rights or remedies which may otherwise be available to any Indemnified Person at law or in equity.

11. Effectiveness of Agreement. This Agreement shall become effective upon the execution and delivery hereof by the parties.

12. Termination. This Agreement may be terminated in the absolute discretion of the Representatives, by notice to the Company and the Selling Stockholders, if after the execution and delivery of this Agreement and on or prior to the Closing Date or, in the case of the Option Shares, prior to the Additional Closing Date (i) trading generally shall have been suspended or materially limited on or by any of the New York Stock Exchange or The Nasdaq Stock Market; (ii) trading of any securities issued or guaranteed by the Company shall have been suspended on any exchange or in any over-the-counter market; (iii) a general moratorium on commercial banking activities shall have been declared by federal or New York State authorities; or (iv) there shall have occurred any outbreak or escalation of hostilities or any change in financial markets or any calamity or crisis, either within or outside the United States, that, in the judgment of the Representatives, is material and adverse and makes it impracticable or inadvisable to proceed with the offering, sale or delivery of the Shares on the Closing Date or the Additional Closing Date, as the case may be, on the terms and in the manner contemplated by this Agreement, the Pricing Disclosure Package and the Prospectus.

13. Defaulting Underwriter.

(a) If, on the Closing Date or the Additional Closing Date, as the case may be, any Underwriter defaults on its obligation to purchase the Shares that it has agreed to purchase hereunder on such date, the non-defaulting Underwriters may in their discretion arrange for the purchase of such Shares

by other persons satisfactory to the Company and the Selling Stockholders on the terms contained in this Agreement. If, within 36 hours after any such default by any Underwriter, the non-defaulting Underwriters do not arrange for the purchase of such Shares, then the Company and the Selling Stockholders shall be entitled to a further period of 36 hours within which to procure other persons satisfactory to the non-defaulting Underwriters to purchase such Shares on such terms. If other persons become obligated or agree to purchase the Shares of a defaulting Underwriter, either the non-defaulting Underwriters or the Company and the Selling Stockholders may postpone the Closing Date or the Additional Closing Date, as the case may be, for up to five full business days in order to effect any changes that in the opinion of counsel for the Company, counsel for the Selling Stockholders or counsel for the Underwriters may be necessary in the Registration Statement and the Prospectus or in any other document or arrangement, and the Company agrees to promptly prepare any amendment or supplement to the Registration Statement and the Prospectus that effects any such changes. As used in this Agreement, the term "Underwriter" includes, for all purposes of this Agreement unless the context otherwise requires, any person not listed in Schedule 1 hereto that, pursuant to this Section 13, purchases Shares that a defaulting Underwriter agreed but failed to purchase.

(b) If, after giving effect to any arrangements for the purchase of the Shares of a defaulting Underwriter or Underwriters by the non-defaulting Underwriters, the Company and the Selling Stockholders as provided in paragraph (a) above, the aggregate number of Shares that remain unpurchased on the Closing Date or the Additional Closing Date, as the case may be, does not exceed one-eleventh of the aggregate number of Shares to be purchased on such date, then the Company and the Selling Stockholders shall have the right to require each non-defaulting Underwriter to purchase the number of Shares that such Underwriter agreed to purchase hereunder on such date plus such Underwriter's pro rata share (based on the number of Shares that such Underwriter agreed to purchase on such date) of the Shares of such defaulting Underwriter or Underwriters for which such arrangements have not been made.

(c) If, after giving effect to any arrangements for the purchase of the Shares of a defaulting Underwriter or Underwriters by the non-defaulting Underwriters, the Company and the Selling Stockholders as provided in paragraph (a) above, the aggregate number of Shares that remain unpurchased on the Closing Date or the Additional Closing Date, as the case may be, exceeds one-eleventh of the aggregate amount of Shares to be purchased on such date, or if the Company and the Selling Stockholders shall not exercise the right described in paragraph (b) above, then this Agreement or, with respect to any Additional Closing Date, the obligation of the Underwriters to purchase Shares on the Additional Closing Date, as the case may be, shall terminate without liability on the part of the non-defaulting Underwriters. Any termination of this Agreement pursuant to this Section 13 shall be without liability on the part of the Company, except that the Company and the Selling Stockholders will continue to be liable for the payment of expenses as set forth in Section 14 hereof and except that the provisions of Section 10 hereof shall not terminate and shall remain in effect.

(d) Nothing contained herein shall relieve a defaulting Underwriter of any liability it may have to the Company, the Selling Stockholders or any non-defaulting Underwriter for damages caused by its default.

14. Payment of Expenses.

(a) Whether or not the transactions contemplated by this Agreement are consummated or this Agreement is terminated, the Company will pay or cause to be paid all costs and expenses incident to the performance of its obligations hereunder, including without limitation, (i) the costs incident to the authorization, issuance, sale, preparation and delivery of the Shares and any taxes payable in that connection; (ii) the costs incident to the preparation, printing and filing under the Securities Act of the Registration Statement,

the Preliminary Prospectus, any Issuer Free Writing Prospectus, any Pricing Disclosure Package and the Prospectus (including all exhibits, amendments and supplements thereto) and the distribution thereof; (iii) the fees and expenses of the Company's counsel and independent accountants; (iv) the fees and expenses incurred in connection with the registration or qualification and determination of eligibility for investment of the Shares under the laws of such jurisdictions as the Representatives may designate and, if required, the preparation, printing and distribution of a Blue Sky Memorandum (including the reasonably incurred fees and expenses of counsel for the Underwriters related thereto) in an amount not to exceed $10,000 (excluding filing fees); (v) the cost of preparing stock certificates; (vi) the costs and charges of any transfer agent and any registrar; (vii) all expenses and application fees incurred in connection with any filing with, and clearance of the offering by, FINRA in an amount not to exceed $30,000 (excluding filing fees); (viii) all expenses and application fees related to the listing of the Shares on the Exchange; and (ix) all of the travel and lodging expenses of the Company or any of its employees incurred by them in connection with any "road show" presentation to potential investors; provided, however, that the Underwriters will pay all of the travel, lodging and other expenses of the Underwriters or any of their employees incurred by them in connection with the "road show", and provided, further, that the Company and the Underwriters will each pay 50% of all other expenses incurred in connection with the "road show", including 50% of the cost of any aircraft chartered in connection with such road show. The provisions of this Section shall not supersede or otherwise affect any agreement that the Company and the Selling Stockholders may otherwise have for the allocation of such expenses among themselves.

(b) If (i) this Agreement is terminated pursuant to clause (ii) of Section 12, (ii) the Company for any reason fails to tender the Shares required to be tendered by it or on its behalf pursuant to this Agreement for delivery to the Underwriters other than as a result of a termination pursuant to clause (i), (iii) or (iv) of Section 12 or (iii) the Underwriters decline to purchase the Shares for any reason permitted under this Agreement (other than as a result of a termination pursuant to clause (i), (iii) or (iv) of Section 12 or as set forth in Section 13), the Company agrees to reimburse the Underwriters for all out-of-pocket costs and expenses (including the reasonable and documented fees and expenses of their counsel) reasonably incurred and documented by the Underwriters in connection with this Agreement and the offering contemplated hereby. If any Selling Stockholder for any reason defaults on its obligation to tender the Shares required to be tendered by it or on its behalf pursuant to this Agreement for delivery to the Underwriters, such Selling Stockholder agrees to reimburse the Underwriters for all out-of-pocket costs and expenses (including the reasonable and documented fees and expenses of their counsel) reasonably incurred and documented by the Underwriters in making preparations for the purchase, sale and delivery of the Shares not so delivered by such Selling Stockholder. For the avoidance of doubt, it is understood that neither the Company nor the Selling Stockholders shall pay or reimburse any costs, fees or expenses incurred by any Underwriter that defaults on its obligations to purchase the Shares.

15. Persons Entitled to Benefit of Agreement. This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors and the officers and directors and any controlling persons referred to herein, and the affiliates of each Underwriter referred to in Section 10 hereof. Nothing in this Agreement is intended or shall be construed to give any other person any legal or equitable right, remedy or claim under or in respect of this Agreement or any provision contained herein. No purchaser of Shares from any Underwriter shall be deemed to be a successor merely by reason of such purchase.

16. Survival. The respective indemnities, rights of contribution, representations, warranties and agreements of the Company, the Selling Stockholders and the Underwriters contained in this Agreement or made by or on behalf of the Company, the Selling Stockholders or the Underwriters pursuant to this Agreement or any certificate delivered pursuant hereto shall survive the delivery of and payment for the Shares and shall remain in full force and effect, regardless of any termination of this Agreement or any investigation made by or on behalf of the Company, the Selling Stockholders or the Underwriters.

17. Certain Defined Terms. For purposes of this Agreement, (a) except where otherwise expressly provided, the term "affiliate" has the meaning set forth in Rule 405 under the Securities Act; (b) the term "business day" means any day other than a day on which banks are permitted or required to be closed in New York City; and (c) the term "subsidiary" has the meaning set forth in Rule 405 under the Securities Act.

18. Compliance with USA Patriot Act. In accordance with the requirements of the USA Patriot Act (Title III of Pub. L. 107-56 (signed into law October 26, 2001)), the Underwriters are required to obtain, verify and record information that identifies their respective clients, including the Company and the Selling Stockholders, which information may include the name and address of their respective clients, as well as other information that will allow the Underwriters to properly identify their respective clients.

19. Miscellaneous.

(a) *Notices.* All notices and other communications hereunder shall be in writing and shall be deemed to have been duly given if mailed or transmitted and confirmed by any standard form of telecommunication. Notices to the Underwriters shall be given to the Representatives c/o J. P. Morgan Securities LLC, 383 Madison Avenue, New York, New York 10179 (fax: (212) 622-8358); Attention: Equity Syndicate Desk and RBC Capital Markets, LLC, Three World Financial Center, 200 Vesey Street, New York, NY 10281, Attention: Syndicate Director, Facsimile: (212) 428-6200. Notices to the Company shall be given to it at Altair Engineering Inc., 1820 E. Big Beaver Road, Troy, Michigan 48083, Facsimile (248) 614-2411; Attention: Howard Morof, Chief Financial Officer. Notices to the Selling Stockholders shall be given to the Attorneys-in-Fact at Jaffe, Raitt, Heuer and Weiss, P.C., 27777 Franklin Road, Suite 2500, Southfield, MI, 48034, (Fax: 248-351-3082); Attention: Peter Sugar; psugar@jaffelaw.com.

(b) *Governing Law.* This Agreement and any claim, controversy or dispute arising under or related to this Agreement shall be governed by and construed in accordance with the laws of the State of New York applicable to agreements made and to be performed in such state.

(c) *Waiver of Jury Trial.* Each of the parties hereto hereby waives any right to trial by jury in any suit or proceeding arising out of or relating to this Agreement.

(d) *Counterparts.* This Agreement may be signed in counterparts (which may include counterparts delivered by any standard form of telecommunication), each of which shall be an original and all of which together shall constitute one and the same instrument.

(e) *Amendments or Waivers.* No amendment or waiver of any provision of this Agreement, nor any consent or approval to any departure therefrom, shall in any event be effective unless the same shall be in writing and signed by the parties hereto.

(f) *Headings.* The headings herein are included for convenience of reference only and are not intended to be part of, or to affect the meaning or interpretation of, this Agreement.

If the foregoing is in accordance with your understanding, please indicate your acceptance of this Agreement by signing in the space provided below.

Very truly yours,

ALTAIR ENGINEERING INC.

By: _____
Name:
Title:

SELLING STOCKHOLDERS

By: _____
Name:
Title:

By: _____
Name:
Title:

As Attorneys-in-Fact acting on behalf of each of the Selling Stockholders named in Schedule 2 to this Agreement.

Accepted: As of the date first written above

J. P. MORGAN SECURITIES LLC

By: _____
Name:
Title:

RBC CAPITAL MARKETS, LLC

By: _____
Name:
Title:

For themselves and on behalf of the
several Underwriters listed
in Schedule 1 hereto.

Underwriter	Number of Shares
J. P. Morgan Securities LLC	
RBC Capital Markets, LLC	
Deutsche Bank Securities Inc.	
Canaccord Genuity LLC	
William Blair & Company, L.L.C.	
Needham & Company, LLC	
Berenberg Capital Markets, LLC	
Total	

Selling Stockholders:	Number of Underwritten Shares:	Attorneys-in-Fact

a. **Pricing Disclosure Package**

[None].

b. **Pricing Information Provided Orally by Underwriters**

Pricing Information Provided Orally by Underwriters

Underwritten Shares: [ ]

Option Shares: [ ]

Public Offering Price per Share: [ ]

Trade Date: June [ ], 2018

Settlement Date: June [ ], 2018

Underwritten Shares of Company: [ ]

Underwritten Shares of Selling Stockholders: [ ]

Written Testing-the-Waters Communications

[None.]

ANNEX C

Altair Engineering Inc.

Pricing Term Sheet

N/A

EGC Testing the waters authorization (to be delivered by the issuer to J.P. Morgan in email or letter form).

In reliance on Section 5(d) of the Securities Act of 1933, as amended (the "Act"), Altair Engineering Inc. (the "Issuer") hereby authorizes J.P. Morgan Securities LLC ("J.P. Morgan") and its affiliates and their respective employees and RBC Capital Markets, LLC and its affiliates and their respective employees to engage on behalf of the Issuer in oral and written communications with potential investors that are "qualified institutional buyers", as defined in Rule 144A under the Act, or institutions that are "accredited investors", as defined in Regulation D under the Act, to determine whether such investors might have an interest in the Issuer's contemplated public offering ("Testing the Waters Communications"). A "Written Testing the Waters Communication" means any Testing the Waters Communication that is a written communication within the meaning of Rule 405 under the Act. The Issuer represents that it is an "emerging growth company" as defined in Section 2(a)(19) of the Act ("Emerging Growth Company") and agrees to promptly notify J.P. Morgan and RBC Capital Markets, LLC in writing if the Issuer hereafter ceases to be an Emerging Growth Company while this authorization is in effect. If at any time following the distribution of any Written Testing the Waters Communication there occurs an event or development as a result of which such Written Testing the Waters Communication included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing at that subsequent time, not misleading, the Issuer will promptly notify J.P. Morgan and RBC Capital Markets, LLC and will promptly amend or supplement, at its own expense, such Written Testing the Waters Communication to eliminate or correct such untrue statement or omission.

Nothing in this authorization is intended to limit or otherwise affect the ability of J.P. Morgan and its affiliates and their respective employees and RBC Capital Markets, LLC and its affiliates and their respective employees to engage in communications in which they could otherwise lawfully engage in the absence of this authorization, including, without limitation, any written communication containing only one or more of the statements specified under Rule 134(a) under the Act. This authorization shall remain in effect until the Issuer has provided to J.P. Morgan and RBC Capital Markets, LLC a written notice revoking this authorization. All notices as described herein shall be sent by email to the attention of Mark Hoh at Mark.Hoh@jpmorgan.com, with copies to Aravind Natarajan at aravind.natarajan@rbccm.com.

Exhibit B

[Form of Waiver of Lock-up]

J.P. MORGAN SECURITIES LLC

RBC CAPITAL MARKETS, LLC

Altair Engineering Inc.
Public Offering of Common Stock

, 20

[Name and Address of
Officer or Director
Requesting Waiver]

Dear Mr./Ms. [Name]:

This letter is being delivered to you in connection with the offering by Altair Engineering Inc. (the "Company") of shares of common stock, par value $0.0001 per share (the "Common Stock"), of the Company and the lock-up letter dated , 20 (the "Lock-up Letter"), executed by you in connection with such offering, and your request for a [waiver] [release] dated , 20 , with respect to shares of [Class A]/[Class B] Common Stock (the "Shares").

J.P. Morgan Securities LLC and RBC Capital Markets, LLC hereby agree to [waive] [release] the transfer restrictions set forth in the Lock-up Letter, but only with respect to the Shares, effective , 20 ; provided, however, that such [waiver] [release] is conditioned on the Company announcing the impending [waiver] [release] by press release through a major news service at least two business days before effectiveness of such [waiver] [release]. This letter will serve as notice to the Company of the impending [waiver] [release].

Except as expressly [waived] [released] hereby, the Lock-up Letter shall remain in full force and effect.

Yours very truly,

[Signature of J.P. Morgan Securities LLC Representative]

[Name of J.P. Morgan Securities LLC Representative]

[Signature of RBC Capital Markets, LLC Representative]

[Name of RBC Capital Markets, LLC Representative]

cc: Altair Engineering Inc.

[Form of Press Release]

Altair Engineering Inc.
[Date]

Altair Engineering Inc. (the "Company") announced today that J.P. Morgan Securities LLC and RBC Capital Markets, LLC, the lead book-running managers in the Company's recent public sale of shares of common stock, are [waiving] [releasing] a lock-up restriction with respect to shares of the Company's [Class A]/[Class B] common stock held by [certain officers or directors] [an officer or director] of the Company. The [waiver] [release] will take effect on , 20 , and the shares may be sold on or after such date.

This press release is not an offer for sale of the securities in the United States or in any other jurisdiction where such offer is prohibited, and such securities may not be offered or sold in the United States absent registration or an exemption from registration under the United States Securities Act of 1933, as amended.

Exhibit D

FORM OF LOCK-UP AGREEMENT

, 20

J. P. MORGAN SECURITIES LLC
RBC CAPITAL MARKETS, LLC

As Representatives of
the several Underwriters listed in
Schedule 1 to the Underwriting
Agreement referred to below

c/o J. P. Morgan Securities LLC
383 Madison Avenue
New York, NY 10179

c/o RBC Capital Markets, LLC
Three World Financial Center
200 Vesey Street
New York, NY 10281

Re: Altair Engineering, Inc. – Follow-On Public Offering

Ladies and Gentlemen:

The undersigned understands that you, as Representatives of the several Underwriters, propose to enter into an underwriting agreement (the "Underwriting Agreement") with Altair Engineering, Inc., a Delaware corporation (the "Company"), and the Selling Stockholders listed on Schedule 2 of the Underwriting Agreement, providing for the public offering (the "Public Offering") by the several Underwriters named in Schedule 1 to the Underwriting Agreement (the "Underwriters"), of Class A Common Stock of the Company (the "Securities"). Capitalized terms used herein and not otherwise defined shall have the meanings set forth in the Underwriting Agreement.

In consideration of the Underwriters' agreement to purchase and make the Public Offering of the Securities, and for other good and valuable consideration receipt of which is hereby acknowledged, the undersigned hereby agrees that, without the prior written consent of J. P. Morgan Securities LLC and RBC Capital Markets, LLC on behalf of the Underwriters, the undersigned will not, during the period beginning on the date of this letter agreement (this "Letter Agreement") and ending 60 days after the date of the prospectus relating to the Public Offering (the "Prospectus") (such period, the "Restricted Period"), (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 the Company's Class A Common Stock, $0.0001 par value per share (the "Class A Common Stock"), or Class B Common Stock, $0.0001 value per share (the "Class B Common Stock, and together with the Class A Common Stock, the "Common Stock"), or any securities convertible into or exercisable or exchangeable for Common Stock (including without limitation, Common Stock or such other securities which may be deemed to be beneficially owned by the undersigned in accordance with the

rules and regulations of the Securities and Exchange Commission and securities which may be issued upon exercise of a stock option or warrant), or publicly disclose the intention to make any offer, sale, pledge or disposition, (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 Common Stock or any security convertible into or exercisable or exchangeable for Common Stock, in each case other than with respect to (A) the Securities to be sold by the undersigned pursuant to the Underwriting Agreement, (B) transfers of shares of Common Stock (i) as a bona fide gift or gifts, (ii) by will, other testamentary document or intestate succession, (iii) to any trust for the direct or indirect benefit of the undersigned or an immediate family member of the undersigned, or to any other entity that is wholly-owned by such persons (for purposes hereof, "immediate family" shall mean any relationship by blood, marriage or adoption, not more remote than first cousin), (iv) if the undersigned is a trust, transfers to the trustor or beneficiary of such trust, (v) transfers to any immediate family member or any investment fund or other entity controlled or managed by the undersigned not for value, and (vi) transfers to a nominee or custodian of a person or entity to whom a disposition or transfer would be permissible under clauses (i) through (v); (C) if the undersigned is a corporation, partnership or other business entity, transfers or distributions of shares of Common Stock or any security convertible into or exercisable or exchangeable for shares of Common Stock to members, partners, stockholders or affiliates of the undersigned (other than the Company and its controlled affiliates), including investment funds or other entities under common control or management with the undersigned; or (D) (i) the repurchase of the Common Stock or such other securities by the Company pursuant to stock option agreements or other equity award agreements providing for the right of said repurchase in connection with the termination of the undersigned's employment or consulting service with the Company, (ii) transfers of shares of Common Stock acquired in open market transactions after the completion of the Public Offering, (iii) tenders, sales or other transfers in response to a bona fide third-party takeover bid made to all holders of Common Stock or any other acquisition transaction, in each case in a change in control transaction whereby all or substantially all of the Class A Common Stock are acquired by a third party (provided that if such transaction is not consummated, the subject Common Stock shall remain subject to the restrictions set forth herein) and that has been approved by the board of directors of the Company and will occur after the Public Offering, (iv) the exercise, including by "net" exercise, of any options to acquire shares of Common Stock or the conversion of any convertible security into Common Stock described in the Prospectus, or issued pursuant to an equity plan described in the Prospectus, it being understood that any such shares of Common Stock received by the undersigned upon such exercise or conversion shall be subject to the restrictions set forth in this Letter Agreement; and (v) transfers to the Company in connection with, and to the extent necessary to fund, the payment of taxes due with respect to the vesting of restricted stock or vesting or exercise of similar rights to purchase Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock pursuant to an equity plan described in the Prospectus (other than a filing on a Form 5 made after the expiration of the Restriction Period referred to above); provided that in the case of any transfer or distribution pursuant to clause (B) or (C), each donee or distributee shall execute and deliver to the Representatives a lock-up letter in the form of this paragraph; and provided, further, that in the case of any transfer or distribution pursuant to clause (B) or (C), no filing by any party (donor, donee, transferor or transferee) under the Securities Exchange Act of 1934, as amended, or other public announcement shall be required or shall be made voluntarily in connection with such transfer or distribution; provided, further, in the case of clause (D) (ii) that no filing by any party under Section 16(a) of the Exchange Act shall be required or shall be made voluntarily in connection with such transfer during the Lockup Period, in the case of clause D(iv) any filing under Section 16(a) of the Exchange Act in connection with such exercise shall disclose only the exercise of the option and shall not disclose in any filing under Section 16(a) during the Restriction Period any disposition of the shares of Common Stock underlying the option, in the case of clause (D)(v) any filing under Section 16(a) of the Exchange Act in connection with such transfer shall disclose that such transfer was to cover the payment of taxes due with

respect to the vesting of restricted stock or similar rights to purchase Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock pursuant to any equity plan described in the Prospectus, and in the case of clause (D)(i), any filing under Section 16(a) of the Exchange Act in connection with such transfer shall disclose that such transfer was as a result of the repurchase of the Common Stock or such other securities by the Company pursuant to stock option agreements or other equity award agreements providing for the right of said repurchase in connection with the termination of the undersigned's employment or consulting service with the Company.

Furthermore, the undersigned may, if permitted by the Company, establish a written trading plan meeting the requirements of Rule 10b5-1 under the Exchange Act; provided that no sales or other transfers occur under such plan and no public disclosure of such plan shall be required or shall be made by any person during the Lockup Period.

If the undersigned is an officer or director of the Company, (i) J.P. Morgan Securities LLC and RBC Capital Markets, LLC on behalf of the Underwriters agree that, at least three business days before the effective date of any release or waiver of the foregoing restrictions in connection with a transfer of shares of Common Stock, J.P. Morgan Securities LLC and RBC Capital Markets, LLC on behalf of the Underwriters will notify the Company of the impending release or waiver, and (ii) the Company has agreed in the Underwriting Agreement to announce the impending release or waiver by press release through a major news service at least two business days before the effective date of the release or waiver. Any release or waiver granted by J.P. Morgan Securities LLC and RBC Capital Markets, LLC on behalf of the Underwriters hereunder to any such officer or director shall only be effective two business days after the publication date of such press release. The provisions of this paragraph will not apply if (a) the release or waiver is effected solely to permit a transfer not for consideration and (b) the transferee has agreed in writing to be bound by the same terms described in this Letter Agreement to the extent and for the duration that such terms remain in effect at the time of the transfer.

In furtherance of the foregoing, the Company, and any duly appointed transfer agent for the registration or transfer of the securities described herein, are hereby authorized to decline to make any transfer of securities if such transfer would constitute a violation or breach of this Letter Agreement.

The undersigned hereby represents and warrants that the undersigned has full power and authority to enter into this Letter Agreement. All authority herein conferred or agreed to be conferred and any obligations of the undersigned shall be binding upon the successors, assigns, heirs or personal representatives of the undersigned.

The undersigned understands that, if (i) prior to signing the Underwriting Agreement, the Company notifies the Underwriters that it does not intend to proceed with the Public Offering, (ii) the Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the Common Stock to be sold thereunder, (iii) the Registration Statement is withdrawn by the Company prior to the completion of the Public Offering or (iv) the Public Offering is not completed by August 14, 2018, the undersigned shall be released from all obligations under this Letter Agreement. The undersigned understands that the Underwriters are entering into the Underwriting Agreement and proceeding with the Public Offering in reliance upon this Letter Agreement.

This Letter Agreement and any claim, controversy or dispute arising under or related to this Letter Agreement shall be governed by and construed in accordance with the laws of the State of New York.

Very truly yours,

[*NAME OF STOCKHOLDER*]

By: _____
Name:
Title:

Exhibit 5.1

LOWENSTEIN SANDLER LLP
1251 Avenue of the Americas
New York, New York 10020

June 4, 2018

Altair Engineering Inc.
1820 E. Big Beaver Road
Troy, Michigan 48083

Re: Registration Statement on Form S-1

Ladies and Gentlemen:

We have acted as counsel to Altair Engineering Inc., a Delaware corporation (the "***Company***"), in connection with the filing by the Company of a Registration Statement on Form S-1 (the "***Registration Statement***") with the Securities and Exchange Commission, including a related prospectus filed with the Registration Statement (the "***Prospectus***"), covering an underwritten public offering of up to 6,440,000 shares of the Company's Class A common stock, par value $0.0001 (the "***Shares***"), which includes up to 3,292,580 Shares to be sold by the Company (the "***Company Shares***"), up to 2,307,420 Shares to be sold by the selling stockholders identified in such Registration Statement (the "***Stockholder Shares***") and up to 840,000 Shares that may be sold by the Company upon the exercise of an option to purchase additional Shares granted to the underwriters (the "***Company Additional Shares***"). Of the Stockholder Shares, up to 1,675,420 shares (the "***Converted Stockholder Shares***") will be sold to the underwriters upon automatic conversion of shares of the Company's Class B common stock, par value $0.0001 (the "***Class B Shares***"), held by the applicable selling stockholders and up to 257,000 shares (the "***Option-Exercised Stockholder Shares***") will be sold to the underwriters upon exercise by certain selling stockholders of outstanding stock options pursuant to the terms of previously executed stock option agreements (the "***Selling Stockholder Stock Option Agreements***").

In connection with this opinion, we have (i) examined and relied upon (a) the Registration Statement and Prospectus, (b) the Company's Certificate of Incorporation (the "***Charter***") and Bylaws, each as currently in effect as of the date hereof, (c) the Selling Stockholder Stock Option Agreements and (d) the originals or copies certified to our satisfaction of such records, documents, certificates, memoranda and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below and (ii) assumed that the Shares will be sold to the underwriters at a price established by the Board of Directors of the Company or the Pricing Committee thereof in accordance with Section 153 of the General Corporation Law of the State of Delaware (the "***DGCL***").

We have assumed the genuineness and authenticity of all documents submitted to us as originals, and the conformity to originals of all documents submitted to us as copies and the due execution and delivery of all documents where due execution and delivery are a prerequisite to the effectiveness thereof (except we have not assumed the due execution and delivery by the Company of any such documents). Our opinion is expressed only with respect to the DGCL.

On the basis of the foregoing, and in reliance thereon, we are of the opinion that: (i) the Company Shares and the Company Additional Shares, when sold and issued against payment therefor in accordance with the Registration Statement and the Prospectus, will be validly issued, fully paid and non-assessable, (ii) the Converted Stockholder Shares, upon the automatic conversion of the related Class B Shares pursuant to the Charter concurrent with the sale of such Converted Stockholder Shares by the applicable selling stockholders to the underwriters in accordance with the Registration Statement and the Prospectus, will be validly issued, fully paid and non-assessable and (iii) the Option-Exercised Stockholder Shares, when issued by the Company upon exercise of the related stock options in accordance with the terms of the respective Selling Stockholder Stock Option Agreements immediately prior to the sale of such Option-Exercised Stockholder Shares by the applicable selling stockholders to the underwriters in accordance with the Registration Statement and the Prospectus, will be validly issued, fully paid and non-assessable.

We consent to the reference to our firm under the caption “Legal Matters” in the Prospectus included in the Registration Statement and to the filing of this opinion as an exhibit to the Registration Statement.

Very truly yours,

/s/ Lowenstein Sandler LLP

LOWENSTEIN SANDLER LLP

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption “Experts” in the Registration Statement (Form S-1) and related Prospectus of Altair Engineering Inc. for the registration of shares of its common stock and to the incorporation by reference therein of our report dated March 21, 2018, with respect to the consolidated financial statements and schedule of Altair Engineering Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2017, filed with the Securities and Exchange Commission.

/s/ ERNST & YOUNG LLP

Detroit, Michigan
June 4, 2018