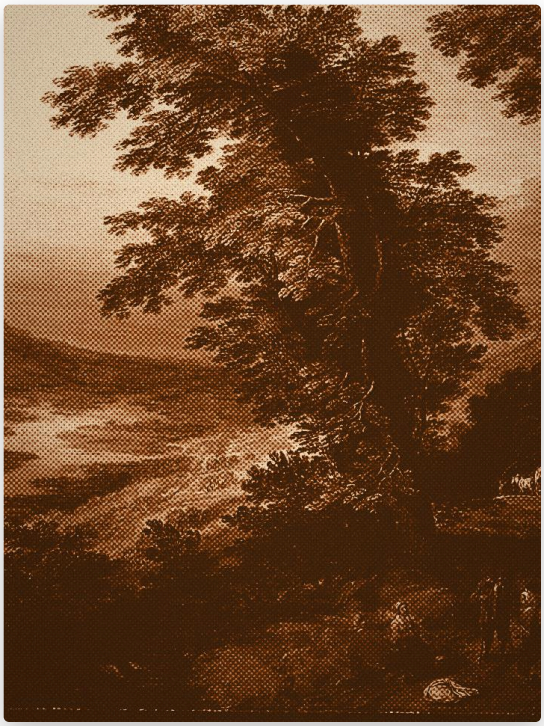
FORM S-1 · REGISTRATION STATEMENT

TuSimple Holdings Inc

IPO priced 2021-04-16 · $40.00 a share · TSP



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AS FILED WITH THE SECURITIES AND EXCHANGE COMMISSION ON MARCH 23, 2021

REGISTRATION NO. 333-

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM S-1

REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

TuSimple Holdings Inc.

(EXACT NAME OF REGISTRANT AS SPECIFIED IN ITS CHARTER)

Delaware	7373	86-2341575
(State or Other Jurisdiction of Incorporation or Organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

TuSimple Holdings Inc.

9191 TOWNE CENTRE DRIVE

SUITE 600

SAN DIEGO, CA 92122

(619) 916-3144

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

CHENG LU

PRESIDENT AND CHIEF EXECUTIVE OFFICER

TuSimple Holdings Inc.

9191 TOWNE CENTRE DRIVE

SUITE 600

SAN DIEGO, CA 92122

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

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

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

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

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

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

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

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

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

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	PROPOSED MAXIMUMAGGREGATE OFFERING PRICE(1)(2)	AMOUNT OF REGISTRATION FEE
Class A Common Stock, $0.0001 par value	$100,000,000	$10,910

(1) Estimated pursuant to Rule 457(o) under the Securities Act of 1933, as amended.

(2) Includes the aggregate offering price of additional shares that the underwriters have the option to purchase.

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, as amended, or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to such Section 8(a), may determine.

The information in this preliminary 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 effective. This preliminary prospectus is not an offer to sell these securities and neither we nor the selling stockholder are soliciting offers to buy these securities in any state where the offer or sale is not permitted.

PROSPECTUS

SUBJECT TO COMPLETION, DATED MARCH 23, 2021

SHARES

CLASS A COMMON STOCK

TuSimple Holdings Inc. is offering shares of Class A common stock and the selling stockholder identified in this prospectus is offering shares of Class A common stock. We will not receive any proceeds from the sale of shares by the selling stockholder. This is our initial public offering, and no public market currently exists for our shares. We anticipate that the initial public offering price of our Class A common stock will be between $ and $ per share.

Following the completion of this offering, we will 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, transfer, and conversion rights. Each share of Class A common stock is entitled to one vote. Each share of Class B common stock is entitled to ten votes and is convertible at any time into one share of Class A common stock. In addition, all shares of Class B common stock will automatically convert into shares of Class A common stock in certain circumstances, including after the date on which the number of outstanding shares of Class B common stock held by the Founders (as defined below) represents less than 50.0% of the total number of shares of Class B common stock held by them immediately prior to the completion of this offering. See the section titled "Description of Capital Stock" herein for additional information on our capital stock. The holders of our outstanding shares of Class B common stock will hold approximately % of the voting power of our outstanding capital stock immediately following this offering, of which Mo Chen, our co-founder and Executive Chairman, will hold, or have the ability to control, approximately % of the voting power of our outstanding capital stock immediately following this offering; and Xiaodi Hou, our co-founder and Chief Technology Officer and a member of our board of directors, will hold, or have the ability to control, approximately % of the voting power of our outstanding capital stock immediately following this offering. As a result, individually or together, Mo Chen and Xiaodi Hou, collectively referred to herein as our "Founders," will be able to significantly influence any action requiring the approval of the stockholders, including the election of our board of directors, the adoption of amendments to our certificate of incorporation and bylaws and the approval of any merger, consolidation, sale of all or substantially all of our assets or other major corporate transaction.

We have applied to list our Class A common stock on the Nasdaq Global Select Market under the symbol "TSP."

We are an "emerging growth company" under applicable federal securities laws and will be subject to reduced public company reporting requirements for this prospectus and future filings.

Investing in our Class A common stock involves risks. Please see "Risk Factors" beginning on page 35.

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

PRICE $ PER SHARE

	Price to Public	Underwriting Discounts andCommissions(1)	Proceeds, BeforeExpenses,to Us	Proceeds, BeforeExpenses, toSellingStockholder
Per Share		$ $		$ $
Total		$ $		$ $

(1) See "Underwriting" for additional disclosure regarding underwriting discounts, commissions, and expenses.

The selling stockholder identified in this prospectus has granted the underwriters the right for a period of 30 days to purchase up to an additional shares of Class A common stock at the initial public offering price less the underwriting discount to cover over-allotments.

The underwriters expect to deliver the Class A common stock to purchasers on , 2021.

MORGAN STANLEY	CITIGROUP	J.P. MORGAN

, 2021

tu simple A BETTER PATH FORWARD The Global Leader in Autonomous Trucking 240+ 2.8MM+ 2 OEMs Core Technology Road Tested Partnerships with Patents Miles and 5,700+ 800+ 70 Purpose-Built Fully Employees Across AV Trucks Globally Autonomous Trucks 3 Continents Reserved in First 4 Months Through TuSimples groundbreaking Autonomous Freight Network, we are addressing the truck freight industrys most pressing challenges by enabling reliable, low-cost freight capacity as a service while setting a new standard for safety and fuel efficiency. CO 2 $ $ Lower Enhanced Increased Reduced Cost Safety Efficiency Emissions Massive Opportunity for Disruption Global truck freight market: $4tn Global e-commerce: $3.5tn Global automotive: $2.8tn $800bn U.S. truck freight market Third highest contributor to U.S. GDP growth in 2017 15% Trade, transport & warehousing 2.3 MILLION semi-trucks 470 BILLION MILES driven annually Our Solution Addresses the Growing Freight Capacity Supply and Demand Imbalance Increased demand from e-commerce trends faced with a growing shortage of drivers & safety issues Rising e-commerce Trends such as same penetration into retail or next-day shipping Increasing Demand Diminishing Supply $ Driver turnover Insurance premiums exceeding 100%+(1) are rising at a 5% CAGR(3) Driver shortage 40% increase in fatalities expected to worsen involving semi-trucks 2.6 times by 2028(2) from 2009-2019(4) Source: 1. ATRI: In strong economic periods. 2. ATA. 3. ATRI: From 2012-2018. 4. NHTSA: Passenger vehicle occupants killed in semi-truck collisions.

TuSimple Has the Winning Combination to Lead the Industry PROPRIETARY ARTIFICAL INTELLIGENCE SOFTWARE Our proprietary autonomous software is specifically designed to allow trucks to operate on highways and surface streets, 24 hours a day, 365 days a year. PROPRIETARY ARTIFICAL INTELLIGENCE SOFTWARE Our proprietary autonomous software is specifically designed to allow trucks to operate on highways and surface streets, 24 hours a day, 365 days a year. SCALABLE GO-TO-MARKET STRATEGY TuSimples Autonomous Freight Network (AFN) is a scalable go to market strategy enabling the rapid adoption of TuSimples autonomous technology.

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Through and including , 2021 (25 days after the date of this prospectus), all dealers that effect transactions in our Class A common stock, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to unsold allotments or subscriptions.

None of us, the selling stockholder, or the underwriters have authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses we have prepared. We, the selling stockholder, and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the shares offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus is current only as of its date.

None of us, the selling stockholder, or 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 Class A common stock and the distribution of this prospectus outside of the United States.

Prospectus Summary

PROSPECTUS SUMMARY *This summary highlights selected information that is presented in greater detail elsewhere in this prospectus. This summary does not contain all of the information you should consider before investing in our Class A common stock. You should read this entire prospectus carefully, including the sections titled "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and the related notes included elsewhere in this prospectus, before making an investment decision. Unless the context otherwise requires, the terms "TuSimple," "the company," "we," "us," and "our" in this prospectus refer to TuSimple Holdings Inc. and its consolidated subsidiaries.*

TUSIMPLE HOLDINGS INC.

`Overview of Our Company`

We are an autonomous technology company that is revolutionizing the estimated $4 trillion global truck freight market.[1] We have developed industry-leading autonomous technology specifically designed for semi-trucks, which has enabled us to build the world's first Autonomous Freight Network ("AFN") in partnership with world-class shippers, carriers, railroads, freight brokers, fleet asset owners, and truck hardware partners. We believe that our technology and our AFN will make long haul trucking significantly safer as well as more reliable, efficient and environmentally friendly, creating significant benefits for all who rely on the freight ecosystem to deliver essential goods.

Since our founding in 2015, we have developed a fully integrated software and hardware solution enabling what we believe is the world's most advanced Level 4 ("L4")[2] driver-out autonomous semi-truck technology.[3] Hallmarks of our proprietary semi-truck specific technology include our 1,000 meter perception range, 35 second planning horizon, high definition ("HD") maps with accuracy within five centimeters, and an integrated L4 autonomous semi-truck design comprising of a fully redundant sensor suite and components. Long-range perception, advanced planning and decision-making, and highly accurate mapping are critical capabilities for the autonomous operation of semi-trucks, which are heavy, articulated vehicles that need to be able to operate at highway speeds. We believe that we are the first and only company to demonstrate these capabilities and achieve L4 autonomous semi-trucks driving on both highways and surface streets as well as the first company to autonomously haul a paid freight load. We further believe that our technological differentiation and unique go-to-market strategy is a key driver of the over 5,700 reservations which we received in four months of availability for our purpose-built L4 autonomous semi-trucks. For further discussion regarding our reservations, please see the section titled "Prospectus Summary—Our Solution—Our Products—Purpose-Built L4 Autonomous Semi-Trucks—Partnership with Navistar."

We are focused specifically on the truck freight market, which is a large and essential industry that moves approximately 80% of the freight in the United States by revenue.[4] E-commerce trends such as same day shipping are expected to further accelerate demand for truck freight and strain traditional freight providers' ability to supply sufficient capacity dynamically and cost effectively.[5] Currently, trucking is facing substantial challenges in several areas including safety, efficiency, and carbon footprint, which we believe cannot be fully addressed without significant technological innovation. Specific industry challenges include:

- ***Trucking accidents.*** From 2009 to 2019, the number of persons injured in crashes involving large trucks more than doubled from 74,000 to 159,000.[6]

1 Armstrong & Associates, Inc., 2019 Global Third-Party Logistics (3PL) Market Analysis.

2 Based on the "Levels of Driving Automation" published by the Society of Automotive Engineers ("SAE").

3 L4 autonomous solution expected to be capable of driver-out operations on AFN mapped routes.

4 American Trucking Associations, U.S. Freight Transportation Forecast 2019 to 2030.

5 American Transportation Research Institute ("ATRI"), E-Commence Impacts on the Trucking Industry, February 2019.

6 The National Highway Traffic Safety Administration, People Killed and Injured in Crashes Involving Large Trucks, by Person Type and Crash Type, 2009-2019.

- ***Driver shortages.*** Driver shortages and high driver turnover continue to lead to increasing labor costs for the freight industry, placing upward pressure on the cost and availability of reliable truck freight capacity. In 2018, labor costs represented over 40% of total per mile operating costs which is an increase from approximately 33% in 2012.[7]

- ***Underinvestment in technological advancements.*** The truck freight industry today is highly fragmented and is characterized by low profit margins—generally in the single digits—which we believe makes it difficult for existing stakeholders to invest in technological advancement.

- ***High levels of greenhouse gas emissions.*** Rising freight volumes are driving significant levels of commercial truck greenhouse gas emissions. The U.S. Environmental Protection Agency ("EPA") reported in 2018 that medium and heavy duty trucks contribute 23% of annual U.S. transportation greenhouse gas emissions.

We believe that our Autonomous Freight Network will address the trucking industry's most pressing challenges and will revolutionize the way freight moves. Our AFN is designed to provide a comprehensive, turnkey, autonomous freight solution that supplies users with access to purpose-built L4 autonomous semi-trucks operating on HD digital mapped routes connecting a nationwide network of terminals. Key advantages of our AFN solution design include:

- ***Safety.*** The National Highway Traffic Safety Administration estimates that 94% of all serious accidents are due to human error. We believe that by developing an autonomous solution for long haul trucking, we can significantly improve safety in the trucking industry.
- ***Reliable freight capacity.*** Our AFN provides users with reliable autonomous freight capacity as a service which is unencumbered by prevailing truck driver shortages.
- ***Efficiency.*** Direct labor costs represent over 40% of the per mile truck freight cost structure. We believe that our purpose-built L4 autonomous semi-truck solution will reduce freight operating costs by up to 50% per mile and will allow our users to allocate scarce driver resources to customer facing first and last mile routes.
- ***Environmental impact.*** Based on a study conducted with the University of California San Diego and empirical data from our users, we expect our solution to deliver over 10% better fuel efficiency than traditional trucking through optimized truck control and driving operations which can deliver a measurable reduction in carbon emissions.

7 ATRI, An Analysis of the Operational Costs of Trucking: 2019 Update, November 2019.

Transformative Benefits for Industry Stakeholders. Our AFN leverages our proprietary L4 autonomous semi-trucks, HD digital route mapping capabilities, and TuSimple Connect cloud-based autonomous operations oversight system to provide substantial benefits to the key truck freight industry stakeholders. The "plug and play" nature of our solution will allow any truck freight market participant to access and benefit from our autonomous freight capacity. Shippers, carriers, and railroads gain access to reliable and safe freight capacity at a substantially lower annual total cost of ownership when direct labor is removed from the per mile cost structure. Removing the driver from long haul operations allows shippers, carriers, and railroads to reallocate scarce driver resources to customer facing first and last mile routes. Freight brokers benefit from the reliability of autonomy, which allows them to more efficiently match demand with the lowest cost long haul freight capacity. We believe that the wide ranging benefits of our solution to industry participants will accelerate the adoption of our network.

AFN Accommodates Multiple Service Models. Our AFN provides autonomous freight capacity as a service through multiple service models based on users' needs. We believe that allowing our users the flexibility to select different service models is critical to our superior customer experience and will help drive rapid adoption of our network.

- ***Carrier-Owned Capacity.*** Shippers, carriers, and railroads that prefer to own their fleet will be able to purchase our purpose-built L4 autonomous semi-truck from a semi-truck original equipment manufacturer ("OEM") partner and subscribe to TuSimple Path—a comprehensive turnkey product to enable autonomous operations across our network. TuSimple Path includes features such as our on-board autonomous driving software, TuSimple Connect cloud-based autonomous operations oversight system, HD digital route mapping support, and emergency roadside assistance. Users will pay TuSimple a per mile, usage-based fee for access to TuSimple Path and benefit from lower overall freight costs with an expected payback period of less than one year on their upfront incremental capital investment to purchase our purpose-built L4 autonomous semi-trucks.
- ***TuSimple Capacity.*** Our fleet of purpose-built L4 autonomous semi-trucks, financed through third party fleet asset owners, will serve users that desire access to safe, reliable, low cost, and more environmentally friendly freight transportation without owning semi-truck assets. Users of TuSimple Capacity can range from relatively smaller users of freight logistics to large shippers, carriers, and railroads seeking to supplement their own captive fleet for incremental freight capacity. We will charge users of TuSimple Capacity a per mile rate to ship freight, which we expect will be at a meaningful discount to prevailing market freight rates. We believe that our competitive advantage in terms of pricing will be enabled by our anticipated cost structure, which is expected to be significantly lower

than that of human-operated semi-trucks. Users will benefit directly from lower shipping costs compared to conventional truck freight.

1. Based on preliminary conversations with AFN users. Pricing listed for Carrier-Owned Capacity is illustrative and will be eventually determined based on market dynamics.

2. Based on a 10–15% discount to prevailing freight rates. Pricing listed for TuSimple Capacity is illustrative and will be eventually determined based on market dynamics.

Leading Autonomous Technology Specifically Designed for Trucking. We are developing a Level 4 autonomous technology solution specifically designed for the unique demands of semi-trucks. L4 autonomy is characterized by the ability of the vehicle to perform all driving functions under a given set of pre-specified conditions. We believe that our L4 autonomous capabilities are well suited for "middle mile" truck freight—in which fixed, predictable, and primarily highway routes make up the majority of total miles driven on a shipping route—and focusing on this opportunity will optimize our path to commercialization. Autonomous trucking also presents unique challenges, primarily due to the size of long haul semi-trucks and the speed at which these semi-trucks typically operate. We believe that being the first company to focus exclusively on semi-truck autonomy positions us to lead the development of the solutions to these challenges and capitalize on the autonomous truck freight opportunity. Our leading autonomous technology enables semi-trucks to drive day or night on both the highway and surface streets in rain and in other poor weather conditions. Semi-trucks with our leading autonomous technology can travel at speeds of up to 75 miles per hour.

Ecosystem Approach with Unmatched Partnerships to Scale. We have created a world class ecosystem of partners consisting of shippers, carriers, railroads, freight brokers, fleet asset owners, OEMs, Tier 1 components suppliers, and third party service providers that we believe will de-risk commercialization of the AFN, enable rapid adoption of our autonomous freight solution, and allow us to build an attractive, network based business model.

We are working in partnership with leading semi-truck OEMs Navistar and TRATON as well as components partners to build the world's first purpose-built L4 autonomous semi-truck to be operated exclusively on our network. We believe that this collaborative approach to create semi-trucks designed and built with integrated auto-grade components and sensors will increase our AFN's reliability at scale. Vertically integrating through partnerships with OEMs and Tier 1 suppliers allows us to maintain strong supply chain and hardware design control while remaining capital light and primarily focusing on developing proprietary autonomous technology.

In parallel, we have developed a robust ecosystem of shippers, carriers, railroads, freight brokers, fleet asset owners, and third party service providers, including UPS, McLane, U.S. Xpress, Werner, Schneider, and CN, that provide critical validation and enhance the network effect benefits of our approach. We believe that our unmatched partnership network creates a significant and sustainable competitive advantage, especially as we work with shippers, carriers, and railroads to strategically locate our AFN terminals near their distribution centers. The continued growth of our AFN infrastructure and partnerships will continue to improve our user experience and drive more users to our platform which will allow us to further densify our strategic terminal network and reinforce rapid network growth.

The Traditional Truck Freight Industry

Overview of the Freight Market. The global truck freight market is estimated to generate approximately $4 trillion[8] in annual revenue. Truck freight comprises approximately 80% of the $1 trillion total U.S. freight market.[9] The U.S. truck freight market has been characterized by strong economic cycle resiliency with consistent long term increases in miles driven per year evidenced by approximately 3% compound annual growth rates ("CAGR") from 1990-2018,[10] and we believe that it has growth tailwinds from recent industry trends, including increased penetration of e-commerce.

Truck freight volumes in the U.S. are concentrated along a small number of corridors. Nearly 80% of truck freight goods hauled in the U.S. are moved via 10% of the nation's trade corridors, with the most valuable corridors connecting the 100 largest metropolitan areas. This concentration of corridors means that our AFN is able to address a significant portion of the truck freight market by focusing on select routes.

8 Armstrong & Associates, Inc., 2019 Global Third-Party Logistics (3PL) Market Analysis.

9 American Trucking Associations, U.S. Freight Transportation Forecast 2019 to 2030.

10 Bureau of Transportation Statistics, Table 1-35: U.S. Vehicle-Miles, September 2020.

Sources: U.S. Department of Transportation ("DoT"), Bureau of Transportation Statistics, Freight Analysis Framework. Freight Analysis Framework integrates data from various sources and is produced through a partnership between the Bureau of Transportation Statistics and the Federal Highway Administration.

Trucking's Role in the Freight Market. Trucking represents approximately 80% of the U.S. freight market primarily due to its distinct blend of flexibility, cost, and speed relative to alternative transportation modes. Rail (9% of the U.S. freight market) is generally lower cost than truck freight on a per mile basis, but lacks the operational speed and flexibility to reach the breadth of delivery locations that semi-trucks are able to serve, adding time to the overall delivery process. This dynamic makes rail generally less suitable for same and next day shipping and renders it incapable of first and last mile delivery. Air freight (3% of the U.S. freight market) is attractive for specific use cases such as same and next day shipping due to its superior speed, but its significantly higher cost and larger carbon footprint makes it unattractive in many circumstances. We believe that the steady growth of the market and tailwinds from industry trends such as same and next day shipping will drive a further shift in demand for truck freight over rail and air.

Truck Freight Industry Characteristics. While trucking is the most frequently utilized mode of freight transportation, the industry is currently characterized by low levels of technological differentiation between carriers, minimal barriers to entry, and high levels of price competition. As a result, the market is highly fragmented, and operating margins for incumbent carriers are typically below 10%. Key truck freight industry participants include asset-based carriers, freight brokers, shippers with captive fleets, and semi-truck OEMs.

"Middle Mile" and "First and Last Mile" Truck Freight. The $800 billion U.S. truck freight market is comprised of "middle mile" (long haul) and "last mile" (short haul) freight with an estimated 2.3 million Class 8 semi-trucks in operation accounting for 470 billion total miles driven annually, assuming an illustrative $1.70 per mile prevailing traditional freight rate.[11] Long haul trucking generally occurs over long stretches of interstate highways. These routes tend to be relatively concentrated along a handful of well-defined commercial corridors which span the United States with just 10% of the nation's trade corridors accounting for nearly 80% of all transported goods.[12] Last mile represents the short journey of goods from distribution hubs to their final destination which is completed via surface streets.

Labor is the Largest Per Mile Cost. The cost of labor, has rapidly increased as a percentage of the per mile truck freight cost structure. Labor costs now represent 43% of total per mile semi-truck operating costs, a ten percentage point increase since 2012. Labor costs are the largest component of the per mile cost structure and are 79% greater than fuel costs, which represent the second largest per mile cost. These labor costs are not inclusive of costly driver training and retention expenses, which only further increase truck freight costs.

Semi-truck Driver Shortages. The truck freight industry is currently experiencing severe driver shortages. The latest analysis from the American Trucking Associations ("ATA") found that the Class 8 semi-truck driver shortage more than tripled from 2005 to 2018, to approximately 60,000 drivers, representing an approximate 9% CAGR. The driver pool is also aging, with 54% of commercial truckers being 45 years or older, relative to just 44% of the overall U.S. working population.[13] The ATA anticipates the driver shortage will expand a further 2.6 times by 2028, representing an approximate 10% CAGR, as demand growth continues and the aging trucker workforce retires. We believe that the aging driver population, coupled with the continued driving hours per day regulatory restrictions will continue to put downward pressure on the supply of driver hours and therefore truck freight capacity. From 2012 to 2018, labor costs per mile increased 46% and now represent the largest per mile cost component at 43% of total semi-truck operating costs. The American

Transportation Research Institute notes that the workforce turnover percentage for almost all carriers is in the high double digits with levels exceeding 100% in strong economic periods. Additionally, heightened levels of workforce turnover drive additional financial cost as carriers have had to pay increasingly large sign-on bonuses or other financial incentives to compete for qualified drivers in recent years.

Trucking Safety Issues. The truck freight industry is also experiencing an increasing number of issues related to safety and cost of insurance. The significant weight of fully loaded trailers means that commercial semi-trucks require approximately twice as much braking distance as passenger vehicles.[14] From 2009 to 2019 the number of passenger vehicle occupants killed in semi-truck collisions climbed approximately 40%.[15] The resulting compensation for victims of semi-truck accidents has increased more significantly, and as a result, semi-trucking insurance premiums per mile have increased 33% from 2012 to 2018, representing an approximate 5% CAGR.[16]

The Development of Autonomous Trucking

Vehicle Automation. We believe that the past decade has brought significant progress to vehicle automation technology and that these achievements are guiding us toward proliferation of higher levels of vehicle automation including L4 autonomous driving. From 2004 to 2007, The Defense Advanced Research Projects

11 ACT Research Co., LLC, North America Commercial Vehicle Outlook, January 11, 2021.

12 A. Tomer and J. Kane, Mapping Freight: The Highly Concentrated Nature of Goods Trade in the United States, Metropolitan Policy Program at Brookings, November 2014.

13 U.S. Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey, 18b. Employed Persons by Detailed Industry and Age, January 22, 2020.

14 Insurance Institute for Highway Safety ("IIHS"), Fatal Facts 2018 – Large Trucks, December 2019.

15 The National Highway Traffic Safety Administration, People Killed and Injured in Crashes Involving Large Trucks, by Person Type and Crash Type, 2009-2019.

16 ATRI, An Analysis of the Operational Costs of Trucking: 2019 Update, November 2019.

Agency ("DARPA") sponsored several challenges intended to advance development of autonomous driving technology by the private sector. While the most successful entrant in the initial 2004 competition traveled just seven miles over the Mojave Desert, by 2007 the contestant vehicles were capable of avoiding obstacles and obeying traffic laws in a simulated urban environment. The vast economic and safety potential of autonomous vehicles has continued to drive substantial investment, further accelerating the pace of technological development. Advanced Driver Assistance Systems, primarily constituting Level 1 ("L1") and Level 2 ("L2") automation as defined by SAE, continue to become more sophisticated and prevalent. Because 94% of serious crashes are caused by human error, we believe that the safety benefits of vehicle automation are driving a cohesive effort between the private sector and regulators toward developing progressively higher levels of automation such as full driver-out L4 autonomous operation. Studies have shown, however, that lower automation levels still requiring a human driver can have negative impacts on driver attention and fatigue due to lower constant dedication to the driving task. We believe, for this reason, that full driver-out L4 autonomy provides a safer solution.

Source: National Highway Traffic Safety Administration.

Autonomous Trucking Compared to Autonomous Passenger Vehicles. Solving the safety and cost issues facing the truck freight industry with autonomous technology presents unique opportunities and challenges relative to passenger vehicles. The autonomous design differences stem from the configuration of commercial semi-trucks, their size and weight, the speeds at which they operate, and the way passenger vehicle drivers behave around them. A standard Class 8 semi-truck with a fully loaded trailer has limited rear visibility and can weigh up to 80,000 pounds which is significantly heavier than the average passenger vehicle. Semi-trucks' weight, coupled with typical highway driving speeds exceeding 60 miles per hour, require a longer planning horizon and therefore an integrated autonomous software and hardware solution with more comprehensive camera vision, better predictive artificial intelligence capabilities and the ability to account for other unique conditions such as the impact of high wind speeds on trailers and on-ramp merging are critical.

Despite these technical challenges we believe that the better defined long haul operating environment and ability to map established truck freight corridors significantly limit the number of potential "edge cases," which are uncommon road situations that the autonomous software must be trained to navigate safely. Limiting the number of edge cases is a critical development item towards driver-out operations. Furthermore, even in the rare circumstance that an L4 autonomous semi-truck encounters a previously unsolved edge case, the use case of transporting goods allows for a viable and safe minimal risk condition state of pulling over to the side of the road to allow for safe resolution of the unsolved edge case. In comparison, the occupants in an autonomous passenger vehicle may not accept a comparable emergency maneuver which involves sitting idle or having to find alternative transportation on short notice.

Regulatory Environment for Autonomous Trucking. National- and state-level regulatory authorities share the goal of carriers and shippers to improve the safety of the trucking industry. The U.S. Department of Transportation has stated that "the United States Government is committed to fostering surface transportation innovations to ensure the United States leads the world in automated vehicle (AV) technology development and integration while prioritizing safety, security and privacy and safeguarding the freedoms enjoyed by Americans." Today, 43 states allow L4 autonomous semi-truck testing, of which 24 states allow L4 autonomous semi-truck commercial deployment. We believe that the current regulatory environment exhibits a clear path for L4 autonomous semi-trucks to deploy nationwide and that working collaboratively with regulators and ecosystem partners will create a safer freight industry.

Source: U.S. DoT, Bureau of Transportation Statistics.

Autonomous Trucking Safety. We believe that the adoption of autonomous technology in trucking will significantly reduce the number of accidents caused by distracted or impaired driving, regimenting safer driving practices and operating more predictably. We believe that the middle mile truck freight routes, which we define as long haul freight routes between terminals, are ideally suited for L4 autonomy. Truck freight operations along specific routes, particularly in the middle mile, allows L4 autonomy to reliably fulfill the requirements of the industry while substantially reducing the number of edge cases that must be solved by the autonomous software. We also believe it is critical for L4 autonomous semi-trucks to travel on surface streets as well as highways to carry freight from terminal to terminal to minimize drayage costs and operational inefficiency. As a result, we also focus our autonomous capabilities on navigating surface streets in order to provide terminal to terminal transportation rather than requiring a highway "off-ramp" location farther from our users.

Autonomous Trucking Efficiency. We believe that autonomy addresses the fundamental supply and demand imbalance facing the truck freight industry today. We believe that removing the driver from middle mile truck freight will provide shippers, carriers, and railroads with significant cost savings and allow them to reallocate scarce driver resources to first and last mile routes.

Sources: ATRI, DAT Solutions, LLC ("DAT") Notes:

1.	2018 average operating cost per ATRI.
2.	Other costs include insurance, permits, licenses, tires, and tolls.
3.	2018 average dry van contracted rate per mile per DAT.
4.	Dollar figures rounded to nearest $0.01.

Rapidly growing freight volumes driven by e-commerce and other trends not only increases the number of miles driven, but more importantly the speed at which deliveries must be made. Trucking's current solution to same and next day shipping challenges is typically to employ "sleeper teams" of two drivers that alternate driving shifts as semi-truck drivers are legally limited to 11 hour shifts. The demand for dynamic freight delivery is exacerbated by the chronic and worsening driver supply shortage. We expect L4 autonomous semi-trucks to be able to operate in excess of 22 hours per day as they are not subject to the same maximum daily operating hours restrictions as a human driver, enhancing asset utilization and availability of freight capacity. In addition, autonomous technology can reduce fuel consumption and maintenance expenses, and we expect it to reduce insurance costs over time once it develops a track record of safety.

Our Solution

Our Autonomous Freight Network is an innovative freight ecosystem that will provide our users with access to safer, lower cost, and reliable freight capacity on demand. To enable our AFN, we are developing highly capable and reliable L4 autonomous semi-trucks that incorporate our core technologies including our proprietary autonomous software platform and world-class sensor system. We believe that our AFN is the most comprehensive solution to address the freight industry's long term challenges including safety, efficiency, the environment, and supply and demand imbalances. Set forth below are the key elements of our solution enabling us to provide users with autonomous freight capacity as a service, which we believe will revolutionize the freight industry.

A Comprehensive Autonomous Freight Capacity as a Service Solution. The combination of our leading core technology, product and service offerings is designed to enable our comprehensive autonomous freight capacity as a service solution. Our core technology offerings, comprised of our proprietary autonomous software platform and world-class sensor system, form the bedrock of our AFN. These core technologies are the building blocks for our purpose-built L4 autonomous semi-trucks and TuSimple Path which are our primary user products. Our strategic terminal network is the third pillar of our product suite that provides a highly valuable and accessible infrastructure for our users. The combination of our core technologies and products enable our Carrier-Owned Capacity and TuSimple Capacity offerings which are the two service models through which users can access freight capacity on our AFN. The flexibility of our multiple service models to access the AFN underpins our autonomous freight capacity as a service solution. Each layer of our business model including core technologies, products and services combines to create an unparalleled user experience which we believe will transform the truck freight industry:

Our Services

The Autonomous Freight Network is an expanding nationwide network of HD digital mapped routes and terminals coupled with an operational oversight system operated by TuSimple. It is the infrastructure to enable safe and efficient autonomous freight capacity as a service. Our HD digital mapped routes currently span over 3,000 miles across the U.S., and we expect to map the entire 46,000 mile U.S. Interstate System by 2024. We are scaling our AFN through an ecosystem approach by partnering with world class shippers, carriers, railroads, and service providers to de-risk and accelerate the pace of expansion. We believe that our AFN will offer users a comprehensive network to access autonomous long haul freight capacity.

To provide the most flexible solution for our users, we offer two methods to access autonomous freight capacity on our AFN:

Carrier-Owned Capacity. Many of our users own all or a substantial portion of their semi-truck fleet. Large scale shippers such as McLane, for instance, often prefer the oversight and logistical control that comes with owning and operating their semi-truck fleet rather than utilizing third party carriers and freight brokers. Since the third quarter of 2020, users who prefer to own their semi-trucks have been able to reserve over 5,700 of our purpose-built L4 autonomous semi-trucks built in partnership with Navistar, as described in more detail below under the heading "Purpose-Built L4 Autonomous Semi-Truck". By subscribing to TuSimple Path, Carrier-Owned Capacity users will be able to seamlessly integrate autonomous freight operations into their existing supply chain. Users will pay TuSimple a per mile subscription fee to operate the purpose-built L4 autonomous semi-truck and receive the full benefit of our AFN, including autonomy-enabled routes mapped directly to users' existing facilities and TuSimple Connect platform. By purchasing our purpose-built L4 autonomous semi-trucks and subscribing to TuSimple Path, we expect to drastically decrease our users' annual total cost of ownership

which will yield a payback period of less than one year on the incremental cost of hardware. Assuming an illustrative $0.35 per mile technology subscription fee, we estimate this will save shippers $0.40–0.50 per mile relative to prevailing driver labor costs,[17] representing approximately $95 thousand annual savings per truck.

TuSimple Capacity. Access to our full service autonomous freight capacity as a service is available to our users through our TuSimple Capacity. We utilize a capital light business model, financing our L4 autonomous semi-trucks through third party fleet asset owners and financing sources. This model provides us with control of operational logistics and user experience as we offer a seamless terminal to terminal freight service to our users. Our users pay for access to our L4 autonomous semi-trucks operating across our AFN on a per mile basis which we anticipate will be at a 10–15% discount to the per mile rate charged by traditional truck freight carriers. Assuming an illustrative $1.70 per mile prevailing traditional freight rate, a 15% lower rate of $1.45 would lead to approximately $25,000 in savings per 100 thousand truckload miles.

Our Products

Purpose-Built L4 Autonomous Semi-truck. We are developing, with Navistar and TRATON, the first vertically integrated L4 purpose-built autonomous semi-truck that we expect will be manufactured at scale to be deployed on our AFN. We believe that this vertical integration, coupling proprietary software with hardware

17 ATRI; assumes approximately 210,000 truckload miles.

manufactured by world class OEMs and components partners as well as roadside assistance and maintenance partnerships, will deliver the most reliable and first-to-market purpose-built L4 autonomous semi-trucks at scale.

Our hardware partnerships allow us to primarily focus our development on our proprietary, core autonomous software while gaining the benefits of a capital light business model. We believe that leveraging these partnerships significantly de-risks and accelerates our pace to commercializing our AFN at the requisite scale to adequately serve the freight industry. We also believe that leading industry participants' decisions to partner with us further validate our solution.

- ***Partnership with Navistar.*** In July 2020, we announced our formal partnership with Navistar, one of the world's largest commercial truck OEMs. Navistar manufactures its trucks under the International and IC brands. Through our partnership, we intend to produce a line of purpose-built L4 autonomous semi-trucks for the North American market at scale by 2024 in Navistar's manufacturing facilities. This milestone builds upon our two year relationship with Navistar, and we believe that it is a critical step to building our AFN to scale with highly reliable, integrated hardware solutions. Through our first four months of accepting reservations for our purpose-built L4 autonomous semi-truck, we have accepted over 5,700 reservations from approximately ten customers, each of whom has significant freight operations. Approximately 75% of our reservations were made by customers who operate commercial truck fleets and who are also equity investors in our company. Reservation opportunities were made available to a limited selection of potential customers. We work with our reservation holders to integrate our HD mapped routes, TuSimple Connect oversight system, and other critical elements of our AFN into their freight operations in advance of delivery of our purpose-built L4 autonomous semi-trucks. Our current semi-truck reservations typically contemplate delivery over multiple years beginning in 2024 based on our customers' specifications. We expect to have capacity to fulfill all current reservations according to each customer's delivery schedule. We enter into reservation agreements and manage the deposits collection process directly with our customers. These reservations allow our customers to secure a priority position to order and purchase one of our purpose-built L4 autonomous semi-trucks. Typically, each reservation requires a $500 per truck deposit, however, the deposit requirement has been waived for our equity investors that currently hold reservations. We are currently in the process of collecting these deposits to hold in an escrow account, which can be delivered to us within a 12 month period after entering into a reservation agreement. Until the customer enters into a purchase agreement for our purpose-built L4 autonomous semi-truck, which is within the discretion of the customer, the reservation can be canceled and the customer is entitled to a full refund of its deposit. Any cancellations and refunds will be satisfied out of the deposits held in the escrow account.

- ***Partnership with TRATON.*** In September 2020, we announced a global partnership with TRATON to develop purpose-built L4 autonomous semi-trucks. TRATON, a publicly listed subsidiary of Volkswagen, is one of the world's largest commercial truck OEMs. Scania, MAN Truck & Bus, and Volkswagen Caminhões e Ônibus are the truck brands of the TRATON GROUP. We have already begun developing the first L4 autonomous hub-to-hub truck freight route between Södertälje and Jönköping in Sweden using TRATON's Scania trucks. We believe that, as one of the world's largest commercial vehicle OEMs, TRATON significantly increases our ability to scale globally and bring our transformative autonomous trucking solution to freight users around the world.

- ***Tier 1 Ecosystem.*** Our vertical hardware integration extends beyond OEMs and into Tier 1 supplier partnerships. Tier 1 suppliers manufacture critical components that improve the performance of our system and provide high quality component redundancy. As the architect of the autonomous system, we have important input into which suppliers' parts best meet our design specifications.

TuSimple Path. Our L4 autonomous semi-trucks are powered by our on-board autonomous driving software, our TuSimple Connect cloud-based autonomous operations oversight system, autonomous HD route mapping support, and emergency roadside assistance to provide safe and seamless end-to-end autonomous freight capacity as a service.

Note:

1. Except weather conditions that significantly impede traction or visibility.

AFN Terminals. We believe that to achieve a meaningful share of the truck freight market, the scale of our network solution is critical. While removing the driver from the semi-truck is highly attractive on a unit economics basis, the solution is not viable for major shippers, carriers, and railroads without a scalable and highly reliable network of terminals connected by HD digital mapped routes. Our terminal network is comprised of both users' existing terminals as well as TuSimple operated terminals which we lease. We are actively working with our ecosystem of users to expand our footprint of terminals that we operate and which are strategically located to maximize proximity to our users' facilities. Our AFN connects both our users' existing terminals and our own operated terminals to facilitate freight movement. We intend to continue to finance the terminals that we operate under a facility lease or other similar financing arrangement. We believe that our growing terminal network is highly complementary with our L4 autonomous semi-trucks' capability to operate from terminal to terminal, minimizing drayage and operational inefficiency.

Our Core Technology

Highly Efficient and Reliable Autonomous Trucking Technology. We believe that to deliver an exceptional user experience, our autonomous freight solution must be reliable and must easily integrate into our users' existing supply chains. Our reliability starts with our L4 autonomous semi-trucks powered by our proprietary autonomous software, durable auto-grade hardware, trustworthy maintenance, and on-demand roadside services. We do not believe that an aftermarket or retrofitted autonomous solution can provide long term reliability for scaled commercial development. Furthermore, our advanced, proprietary software and hardware technologies have allowed us to be the first to demonstrate a true terminal to terminal solution, rather than a highway-only ramp to ramp solution. Our L4 autonomous semi-trucks' ability to navigate beyond highways onto surface streets allows our terminals to be strategically located on-site or near our users' distribution centers. We believe that a ramp to ramp highway-only L4 autonomous semi-truck would be insufficient for our users because the semi-trucks would still require human operators to drive the semi-trucks to and from on- and off-ramps, decreasing scalability, increasing the chances of accidents, and incurring significant drayage and incremental real estate costs. We believe that our terminal to terminal ability provides a far superior solution because it ensures seamless integration into our users' existing supply chain—a key minimum hurdle for widespread autonomy adoption.

Full Stack of Proprietary Software Functions. The five core components of our proprietary software stack powering our autonomous system include Perception, Motion Planning, Control, Machine Learning Infrastructure, and Mapping. Each proprietary component is critical and interconnected to meet the unique challenges of operating an autonomous Class 8 semi-truck. Our software and on-board hardware including sensors, steering, braking, and electronic compute unit systems are seamlessly integrated to enable technological breakthroughs such as our camera-centric long range perception system. We believe that our purpose-built L4 autonomous semi-truck will be significantly safer than a human driver, alleviating a primary pain point for the current freight industry. Safely removing the human driver from long haul trucking will not only reduce labor costs as the largest operating expense but can also reduce accidents, increasing safety for work force, reducing operational lost time, and bringing down insurance costs over time. Including additional savings from increased fuel efficiency and reduced wear on the vehicle, we believe that our purpose-built L4 autonomous semi-truck solution will reduce freight operating costs by up to 50% per mile.

Technology Specifically Designed for Semi-Trucks. L4 autonomous semi-trucks present distinct challenges. The combination of a semi-truck's weight and typical highway speeds requires approximately 2x longer stopping distances than passenger vehicles. Due to their length, semi-trucks can take up to 16 seconds to make a left hand turn which requires a significantly longer planning horizon than passenger vehicles. Our proprietary sensor platform and predictive AI allow our trucks to safely navigate these unique challenges.

Sources: Schneider, California Department of Motor Vehicles.

World-Class Sensor System. Our proprietary sensor system is critical to our L4 autonomous semi-trucks' perception range and accuracy. We designed a proprietary camera module coupled with our proprietary software that enables the semi-truck's 1,000 meter perception range, even in low light conditions. This range across lighting environments is designed to provide our semi-trucks with sufficient reaction time to safely operate at highway speeds, ultimately allowing for a planning horizon up to 35 seconds. Our camera-centric system is powered by both primary and backup cameras, providing a fully redundant camera system for increased safety. Augmenting the camera perception is an array of LiDAR, radar systems, GPS, and ultrasonic sensors. Our combined use of cameras and sensors provides our semi-trucks with superior perception range, while also being highly accurate in different road scenarios. With the exception of our specially designed long range high definition camera, we have sourced the balance of our sensor suite from existing third party products in order to reduce the cost of the overall system.

Proprietary HD Mapping Capability. Our in-house mapping technology can quickly map new routes and provide users with more location options for shipping on our AFN. Our proprietary mapping technology and process is accurate to within five centimeters. Precise localization accuracy is crucial to safely operate semi-trucks autonomously given the 8.5 foot average tractor width, particularly when travelling on local streets which average just 10 feet wide. We are able to map new routes at a rate of over 250 miles per week which translates into our ability to map a typical "middle mile" route for a user in approximately four weeks on average. This nimble, flexible approach allows us to quickly meet our users' evolving freight demands while efficiently expanding our network.

Cloud-Based Operational and Monitoring System. Our seamless user experience is enhanced by our proprietary TuSimple Connect system. This cloud-based autonomous operations oversight system is designed to ensure safe operations, reliability, and efficient capacity for our users. The system directly connects to our users' Transportation Management Systems, integrating TuSimple Connect into their supply chain and creating a close user relationship. Our users can book and track their freight seamlessly with real-time two way communication that allows our AFN to dynamically match freight supply with demand.

Network-Based Approach ***Network-Based Approach Encourages Faster Adoption.*** We believe that our AFN will provide a superior user experience by solving truck freight supply and demand pain points while significantly improving safety and lowering emissions. We expect our superior user experience and attractive per mile economics to drive rapid adoption of our solution and increase our AFN network's density. As demand increases, we expect utilization rates of semi-trucks already on our AFN to grow, which will make adding additional semi-trucks, terminals, and routes increasingly attractive. More L4 autonomous semi-trucks, terminals, and routes increase available capacity on our AFN which increases network density and further enables the on-demand nature of our solution. Our capital light business model significantly reduces friction to scale and allows capacity to be added quickly by leveraging third parties to finance additional L4 autonomous semi-trucks and strategic terminal locations. As more semi-trucks, terminals, and routes are added, freight capacity and on-demand availability on the AFN increase as well, leading to a self-perpetuating system and further accelerating network growth.

Our Competitive Strengths

We believe that the following strengths position us well to lead the transition to autonomous trucking and build an attractive, network based business model:

We are the Leader in Autonomous Trucking. We have accomplished many first of their kind milestones for an L4 autonomous semi-truck technology company. We believe that we are further in the development of our autonomous technology and closest to commercialization than any L4 autonomous semi-truck technology company.

- First to announce partnerships with OEMs via our Navistar and TRATON partnerships
- First to announce an investment from a major carrier when UPS invested in our company in 2019
- First to establish a near highway terminal for autonomous commercial freight operations
- First and only to demonstrate L4 autonomous semi-truck driving on both surface streets and highways
- First L4 autonomous semi-truck to haul a paid freight load

We Are Solely Focused on the Truck Freight Market. Autonomous trucking has specific technical and operational challenges. L4 autonomous semi-truck driving operations are materially different than passenger cars, principally as a result of a semi-truck's weight, size, and configuration. Furthermore, a semi-truck engaged in hauling freight is a significantly different use case than a personal vehicle or rideshare vehicle principally engaged in passenger transportation in urban environments. We believe that our focus on the particular challenges of the truck freight market provides a significant competitive advantage relative to companies which have historically focused on autonomous passenger vehicle development.

Autonomous Technology Leadership. Our intellectual property portfolio includes over 240 patents worldwide. Some of the key elements of our technology include our 1,000 meter perception system, multi-sensor fusion, prediction model, and planning capabilities. We believe that our technology is highly differentiated and is a key enabler of bringing our solution to commercialization.

Validation of our Technology and Approach. Our partnerships with, and in some cases investments from, sophisticated companies from the freight and technology industries, such as NVIDIA, UPS, Navistar, TRATON, U.S. Xpress, Werner, Schneider, and CN, validate the strength of our technology and our business model. We believe that we have the most significant and most numerous points of external validation of our technology and approach among autonomous trucking technology companies.

Proprietary Relationships with World Class Hardware Partners. Our partnerships with semi-truck OEMs such as Navistar and TRATON as well as other hardware partners such as NVIDIA help us develop a reliable, scalable production semi-truck. The partnerships allow us to primarily focus our technology development on our proprietary core L4 autonomous semi-truck software while gaining the benefits of capital light vertical integration.

Our AFN has an Unmatched Group of Global Leaders in Freight. We have developed an ecosystem of users and commercial partners including UPS, McLane, JB Hunt, U.S. Xpress, Werner, Schneider, and CN, who are some of the largest and most sophisticated participants in the freight ecosystem. Our partners are critical in helping us test and develop our autonomous trucking solution and accelerate adoption of our AFN.

Environmental Sustainability Benefits. We have demonstrated a 10% improvement in fuel efficiency compared to traditional truck freight through our technology. This was conducted through a study with University of California San Diego and using empirical data with our users. We believe that fuel efficiency is important to large shippers and fleets, both in terms of cost savings and for reducing carbon footprint.

World Class Management Team with Multi-Disciplinary Experience. Our organization is led by a world class team with a diversity of expertise and experience. The team is balanced across entrepreneurial, finance, trucking technology, and logistics expertise with experience at some of the world's foremost organizations in those areas. We believe that this team is critical to our success given the scale and complexity of the market which we are transforming. By drawing from experiences ranging across technology, logistics, investing, and other relevant areas, we believe that our team is a core competitive strength as we build out our AFN.

Industry Leading Technology Team. Members of our technical team have made significant contributions to the advancement of artificial intelligence and machine vision technologies. For example, members of our team invented Spectral Saliency Theory, which is one of the most influential theories of the past decade relating to machine vision, which is a key enabler for safe and reliable L4 autonomous truck operations.

Our Strategy

We continue to build on our position as a global leader in autonomous trucking technology, building safer, more reliable, efficient and lower carbon footprint freight transportation. Key elements of our strategy include:

Build Upon Our Track Record of Autonomous Trucking Achievements. Since our founding in 2015, we have pushed the boundaries of autonomous vehicle software and hardware and have raised over $800 million in funding to support our growth. Our centralized data processing and storage system is designed to maximize the value of our 2.8 million road miles and 150+ million simulation miles, allowing us to become a leader in solving complex autonomous trucking edge cases.

Expand our Autonomous Freight Network Across the U.S. We intend to build out our network of freight terminals, AFN partners, and HD digital mapped routes, expanding from our existing footprint in Arizona, New Mexico, and Texas to nationwide coverage across major interstate highways by 2024. We are currently mapping roadways at a pace of over 250 miles per week. Our goal is to achieve route map coverage of the entire continental U.S. by 2024. We intend to have revenue sharing agreements with our ecosystem partners, which we believe will incentivize them to help expand and enhance our AFN. In addition, carriers, shippers, and railroads will have the opportunity to significantly improve their operating margins by participating in our AFN as users and commercial partners, creating a powerful network effect.

Demonstrate Driver-Out Testing. In 2021, we expect to demonstrate our semi-truck operating on public roads without a safety driver or passenger on-board. This demonstration is designed to prove out the advanced progress of our technology and will serve as one of the key upcoming milestones toward full autonomous freight operations.

Begin Production of Our Purpose-Built L4 Autonomous Semi-Truck. In partnership with Navistar, we have commenced co-development of a purpose-built L4 autonomous semi-truck for commercial production by 2024 for the U.S. market. In the third quarter of 2020, we, along with Navistar, started taking reservations for the semi-truck, which we expect to be an important indicator of user demand for our offering. We intend to begin filling reservations over a multi-year period commencing in 2024, with actual date of delivery based on our customers' specifications.

Offer Multiple Ways to Serve Our Users. We will offer several ways for users to access our AFN, both for those that prefer an asset light model and those that prefer to own their fleet. A summary of our different user offerings is set forth in the business section under "Our Solution."

Continued Focus on Achievement of Key Technology and Business Milestones. We intend to continue to build on our existing technological and business milestones to advance towards full commercialization. We will continue to enhance our L4 autonomous semi-truck technology and establish additional commercial partnerships in key areas, such as hardware, financing, insurance, and freight brokerage.

Global Expansion. In addition to building our U.S. based AFN, we intend to expand commercialization internationally. We plan to build a purpose-built L4 autonomous semi-truck specifically for the Europe and China market with our OEM partner TRATON. Our expansion in both regions will augment and complement our AFN commercialization in the United States. We believe that China and Europe represent significant opportunities given China and Greater Asia represent an approximately $1.7 trillion total addressable market ("TAM") with 7.6 million heavy duty trucks and Europe represents an estimated $400 billion TAM with 2.3 million heavy duty trucks.[18]

Risk Factors Summary

Our business is subject to numerous risks and uncertainties including those highlighted in the section titled "Risk Factors" immediately following this prospectus summary. These risks include, among others, the following:

- Autonomous driving is an emerging technology and involves significant risks and uncertainties.
- Our business model has yet to be tested, and any failure to commercialize our strategic plans would have an adverse effect on our operating results and business, and harm our reputation and could result in substantial liabilities that exceed our resources.
- We are subject to substantial regulations, including regulations governing autonomous vehicles, and unfavorable changes to, or failure by us to comply with, these regulations could substantially harm our business and operating results.
- We are an early stage company with a history of losses, and expect to incur significant expenses and continuing losses for the foreseeable future.
- We expect to need to raise additional funds, and these funds may not be available to us on attractive terms when we need them, or at all.
- We depend on the experience and expertise of our senior management team, technical engineers, and certain key employees, and losing one or more of such individuals could harm our business, operating results, and financial condition.
- We rely on third-party suppliers, and because some of the raw materials and key components in our products come from limited or sole sources of supply, we are susceptible to supply shortages, long lead times for components, and supply changes.
- We may be subject to product liability or warranty claims that could result in significant direct or indirect costs, including reputational harm, increased insurance premiums, or the need to self-insure, which could adversely affect our business and operating results.
- If our L4 autonomous semi-trucks fail to perform as expected, our ability to develop our AFN and market, sell, or lease our purpose-built L4 autonomous semi-trucks could be harmed. Future product recalls involving our purpose-built L4 autonomous semi-trucks or hardware deployed on our L4 autonomous semi-trucks could materially and adversely affect our business, prospects, operating results, and financial condition.
- Unauthorized control or manipulation of systems in autonomous semi-trucks may cause them to operate improperly or not at all, or compromise their safety and data security, which could result in loss of confidence in us and our products, cancellation of contracts with certain of our OEM or Tier 1 partners, and harm our business.
- We may become subject to litigation brought by third parties claiming infringement, misappropriation, or other violation by us of their intellectual property rights.

18 TAM figures per Armstrong & Associates; China truck count per National Bureau of Statistics; Europe truck count per Eurostat.

- Our business may be adversely affected if we are unable to adequately establish, maintain, protect, and enforce our intellectual property and proprietary rights or prevent third parties from making unauthorized use of our technology and other intellectual property rights.
- We face risks associated with our international operations, including unfavorable regulatory, political, tax, and labor conditions, which could harm our business.
- Changes to trade policy, tariffs, and import/export regulations may have a material adverse effect on our business, financial condition, and results of operations.
- Anti-takeover provisions in our charter documents may discourage our acquisition by a third party, which could limit our stockholders' opportunity to sell their shares at a premium.

- The COVID-19 pandemic may adversely affect our business and operating results, along with those of our suppliers and users.

If we are unable to adequately address these and other risks we face, our business, financial condition, operating results, and prospects may be adversely affected.

Corporate Information

Our principal executive offices are located at 9191 Towne Centre Drive, Suite 600, San Diego, CA 92122, and our telephone number is (619) 916-3144. Our website address is www.tusimple.com. The information on, or that can be accessed through, our website is not part of this prospectus. We have included our website address as an inactive textual reference only. Except as otherwise indicated herein or as the context otherwise requires, references in this prospectus to "TuSimple," "the company," "we," "us," and "our" refer to TuSimple Holdings Inc., a Delaware corporation, and its consolidated subsidiaries taken as a whole.

We began developing our autonomous truck solutions in the United States and China in 2015 through certain predecessor entities, including TuSimple LLC in the United States. In 2016, Tusimple (Cayman) Limited was incorporated under the laws of the Cayman Islands to serve as the holding company for TuSimple, Inc., a California corporation that is the successor of TuSimple LLC and the entity through which we currently carry out substantially all of our operations, and our other international subsidiaries, and all of the assets and operations related to our autonomous truck solutions business were assigned to us. On February 23, 2021, we changed our jurisdiction of incorporation from the Cayman Islands to the State of Delaware. Tusimple (Cayman) Limited deregistered as a Cayman Islands exempted company and continued and domesticated as a corporation incorporated under the laws of the State of Delaware. This transaction is referred to as the "Domestication." In connection with the Domestication, Tusimple (Cayman) Limited changed its name to TuSimple Holdings Inc. Our business, assets, and liabilities and those of our subsidiaries on a consolidated basis, as well as our principal locations and fiscal year, were the same immediately after the Domestication as they were immediately prior to the Domestication. In addition, our directors and executive officers immediately after the Domestication were the same individuals who were directors and executive officers, respectively, immediately prior to the Domestication.

Trademarks

The TuSimple logo, "TuSimple," and our other registered and common law trade names, trademarks, and service marks are the property of TuSimple Holdings Inc. or our subsidiaries. This prospectus contains additional trade names, trademarks, and service marks of other companies that are the property of their respective owners. We do not intend our use or display of other companies' trade names, trademarks, or service marks to imply a relationship with, or endorsement or sponsorship of us by, these other companies.

Implications of Being an Emerging Growth Company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended (the "JOBS Act"), and therefore we intend to take advantage of certain exemptions from various public company reporting requirements, including not being required to have our internal control over financial reporting audited by our independent registered public accounting firm pursuant to Section 404(b) of the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act"), reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and any golden parachute payments not previously approved. We may take advantage of these exemptions for up to five years or until we no longer qualify as an "emerging growth company," whichever is earlier. In addition, the JOBS Act provides that an "emerging growth company" can delay adopting new or revised accounting standards until those standards apply to private companies. We have elected to use this extended transition period under the JOBS Act. As a result, our consolidated financial statements may not be comparable to the financial statements of issuers who are required to comply with the effective dates for new or revised accounting standards that are applicable to public companies.

The Offering

THE OFFERING

Class A Common stock offered by us	shares
Class A common stock offered by the selling stockholder	shares
Class A Common stock to be outstanding immediately after this offering	shares (shares if the underwriters exercise their right to purchase additional shares of Class A common stock in full)
Underwriters' right to purchase additional shares of Class A common stock from the selling stockholder	The selling stockholder has granted the underwriters the right for a period of 30 days from the date of this prospectus to purchase up to additional shares of Class A common stock from the selling stockholder to cover over-allotments, if any.
Class B Common stock to be outstanding immediately after this offering	24,000,000 shares
Total Class A and Class B common stock to be outstanding immediately after this offering	shares
Use of proceeds	We estimate that the net proceeds to us from this offering will be approximately $ million, based upon an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and offering expenses payable by us.

The principal purposes of this offering are to increase our financial flexibility, increase our visibility in the marketplace, and create a public market for our Class A common stock. We expect to use the net proceeds from this offering for working capital and other general corporate purposes, including funding our operating needs. However, we do not currently have specific planned uses for the proceeds. We may also use a portion of our net proceeds to acquire or invest in complementary products, technologies, or businesses. However, we currently have no agreements or commitments to complete any such transactions. See "Use of Proceeds." We will not receive any proceeds from the sale of shares of Class A common stock by the selling stockholder. The selling stockholder is not a member of the executive management team.

Directed share program

At our request, and and their respective affiliates (the "DSP Underwriters") have reserved up to shares of Class A common stock, or % of the shares offered by this prospectus, for sale through a directed share program at the initial public offering price to individuals, including certain of our senior management and employees, as well as friends and family members of our executive officers, founders and certain members of senior management, and persons with whom we have a business relationship, including certain partners. The reserved shares will not be subject to a lock-up, except if purchased by our directors, officers or employees. The number of shares of Class A common stock available for sale to the general public will be reduced by the number of reserved shares sold to these individuals. Any reserved shares of our Class A common stock that are not so purchased will be offered by the DSP Underwriters to the general public on the same terms as the other shares of our Class A common stock offered by this prospectus. We have agreed to indemnify the DSP Underwriters against certain liabilities and expenses, including liabilities under the Securities Act, in connection with sales of the reserved shares.

Voting rights	Each share of our Class A common stock entitles its holder to one vote on all matters to be voted on by stockholders generally. Each share of our Class B common stock entitles its holder to ten votes on all matters to be voted on by stockholders generally.

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 our amended and restated certificate of incorporation. Holders of our outstanding Class B common stock will hold approximately % of the voting power of our outstanding capital stock following this offering and will have the ability to control the outcome of matters submitted to our stockholders for approval, including the election of our directors, amendments of our organizational documents and the approval of any change in control transaction. For additional information, see the sections titled "Principal and Selling Stockholders" and "Description of Capital Stock."

All shares of our Class B common stock will automatically convert, on a one-for-one basis, into shares of Class A common stock on the earliest of (i) the date specified by a vote of the holders of Class B common stock representing 75.0% of the outstanding shares of Class B common stock, (ii) the date that is between 90 days and 270 days, as determined by the board of directors, after the death or incapacitation of the last Founder to die or become incapacitated or (iii) the date that is between 61 and 180 days, as determined by the board of directors, after the date on which the number of outstanding shares of Class B common stock held by the Founders represents less than 50.0% of the total number of shares of Class B common stock held collectively by the Founders at 11:59 pm Pacific Time on the date that we file our amended and restated certificate of incorporation immediately prior to the completion of this offering.

Concentration of ownership	Following this offering, the holders of our outstanding Class B common stock will beneficially own approximately % of our outstanding shares and will hold approximately % of the voting power of our outstanding shares and our directors, executive officers, greater than 5% stockholders and their respective affiliates will hold in the aggregate approximately % of the voting power of our outstanding capital stock following this offering, assuming no exercise of the underwriters' option to purchase additional shares of our Class A common stock.
Risk factors	See "Risk Factors" and the other information included in this prospectus for a discussion of factors you should consider carefully before deciding to invest in our Class A common stock.
Proposed Nasdaq Global Select Market trading symbol	"TSP"

The number of shares of our Class A common stock and Class B common stock that will be outstanding after this offering is based on 160,290,356 shares of our Class A common stock outstanding and 24,000,000 shares of our Class B common stock outstanding as of December 31, 2020, and reflects:

- 120,534,419 shares of redeemable convertible preferred stock that will automatically convert into an equal number of shares of Class A common stock immediately prior to the completion of this offering (the "Preferred Stock Conversion"), including (i) 102,074,703 shares of redeemable convertible preferred stock outstanding as of December 31, 2020, (ii) 4,650,999 shares of Series E redeemable convertible preferred stock issued after December 31, 2020 (excluding the shares issuable upon the exercise of the warrant referenced in (iv) below), (iii) 4,331,644 shares of Series E-2 redeemable convertible preferred stock issued upon the exercise of a warrant in February 2021, and (iv) 9,477,073 shares of Series E redeemable convertible preferred stock issued upon the exercise of a warrant in March 2021;
- 24,000,000 shares of our Class A common stock held by Mo Chen and Xiaodi Hou, our Founders, that will be exchanged for an equal number of shares of our Class B common stock immediately prior the completion of this offering (the "Class B Exchange");
- the issuance of 3,212,600 shares of our Class A common stock subject to restricted stock units and share value awards, for which the time-based vesting condition was satisfied as of December 31, 2020, and for which the performance-based vesting condition will be satisfied upon the effectiveness of the registration statement of which this prospectus forms a part (the "RSU and SVA Settlement").

The shares of our Class A common stock outstanding as of December 31, 2020 exclude the following:

- 625,000 shares of Class A common stock subject to restricted stock units outstanding, but for which the time-based vesting condition was not satisfied as of December 31, 2020;
- 915,546 shares of Class A common stock subject to share value awards outstanding, but for which the time-based vesting condition was not satisfied as of December 31, 2020;
- 13,295,497 shares of Class A common stock issuable upon the exercise of stock options outstanding as of December 31, 2020, with a weighted-average exercise price of $1.29 per share;

- 60,360 shares of Class A common stock issuable upon the vesting and settlement of restricted stock units awarded after December 31, 2020;
- 2,665,968 shares of Class A common stock issuable upon the exercise of stock options granted after December 31, 2020;
- 46,928 shares of Class A common stock reserved for future issuance under our 2017 Share Plan, which shares will cease to be available for issuance at the time our 2021 Equity Incentive Plan becomes effective;
- 20,134,146 shares of Class A common stock reserved for issuance under our 2021 Equity Incentive Plan, which will become effective in connection with the completion of this offering. Our 2021 Equity Incentive Plan also provide for automatic annual increases in the number of shares reserved under these plans, as more fully described in "Management—Equity Plans;" and
- 2,013,414 shares of Class A common stock reserved for issuance under our 2021 Employee Stock Purchase Plan, which we expect to become effective as of the effective date of the registration statement. Our 2021 Employee Stock Purchase Plan also provides for automatic annual increases in the number of shares reserved under these plans, as more fully described in "Management—Equity Plans;" and
- the completion of the Domestication, pursuant to which our name was changed from Tusimple (Cayman) Limited to TuSimple Holdings Inc., each ordinary share became one share of Class A common stock, and all preferred shares became redeemable convertible preferred stock.

Unless otherwise indicated, all information in this prospectus assumes:

- the Preferred Stock Conversion;
- the filing and effectiveness of our amended and restated certificate of incorporation, which will occur immediately prior to the completion of this offering and will effect the reclassification of common stock into Class A common stock;
- the Class B Exchange which will occur immediately prior to the completion of this offering;
- the cash exercise of a warrant to purchase 9,477,073 shares of Series E redeemable convertible preferred stock at a price of $14.1401 per share in March 2021, which will result in the issuance of 9,477,073 shares of Class A common stock as a result of the conversion of the Series E redeemable convertible preferred stock upon the completion of this offering;
- the cash exercise of a warrant to purchase 4,331,644 shares of Series E-2 redeemable convertible preferred stock at a price of $11.31208 per share in February 2021, which will result in the issuance of 4,331,644 shares of Class A common stock as a result of the conversion of the Series E-2 redeemable convertible preferred stock upon the completion of this offering, and the expiration of the unexercised balance of such warrant upon the completion of this offering (together with the exercise of the warrant described immediately above, the "Warrant Exercises")
- no exercise of the underwriters' option to purchase additional shares of Class A common stock from the selling stockholder;
- no exercise or cancellation of outstanding options or warrants (except as noted above) and no settlement of outstanding share value awards and restricted stock units subsequent to December 31, 2020; and
- assumes no purchase of our Class A common stock by executive officers, directors and existing stockholders through the directed share program.

Summary Consolidated Financial Data

SUMMARY CONSOLIDATED FINANCIAL DATA The following tables set forth a summary of our historical consolidated financial data. The summary consolidated statements of operations data for the years ended December 31, 2018, 2019, and 2020 and the summary consolidated balance sheet data as of December 31, 2020 are derived from our audited consolidated financial statements included elsewhere in this prospectus. Our consolidated financial statements are prepared and presented in accordance with U.S. generally accepted accounting principles ("GAAP"). You should read this data together with our audited consolidated financial statements and related notes appearing elsewhere in this prospectus and the information in "Management's Discussion and Analysis of Financial Condition and Results of Operations." Our historical results are not necessarily indicative of our future results.

	Years Ended December 31,		
	2018	2019	2020
	(in thousands, except share and per share data)		
Summary Consolidated Statements of Operations Data			
Revenue	$9	$710	$1,843
Costs and expenses:			
Cost of revenue	—	1,595	5,293
Research and development	32,278	63,619	132,001
Sales and marketing	1,085	814	1,313
General and administrative	12,175	21,962	37,300

Total costs and expenses	45,538	87,990	175,907
Loss from operations	(45,529)	(87,280)	(174,064)
Change in fair value of related party convertible loan	—	—	(5,556)
Change in fair value of warrants liability	—	—	1,816
Other income (expense), net	495	2,397	(66)
Loss before provision for income taxes	(45,034)	(84,883)	(177,870)
Provision for income taxes	—	—	—
Net loss	(45,034)	(84,883)	(177,870)
Net loss attributable to noncontrolling interests	16	43	—
Net loss attributable to TuSimple Holdings Inc.	$(45,018)	$(84,840)	$(177,870)
Accretion of redeemable convertible preferred stock	—	(201)	(20,959)
Deemed dividend on exchange of Series A-2 redeemable convertible preferred stock for Class A common stock	—	(60,000)	—
Net loss attributable to common stockholders	$(45,018)	$(145,041)	$(198,829)
Net loss per share attributable to common stockholders, basic and diluted	$(0.70)	$(2.47)	$(3.37)
Weighted average shares used in computing net loss per share attributable to common stockholders, basic and diluted	64,734,628	58,700,441	58,929,271

The following table presents our summary consolidated balance sheets data as of the dates indicated.

	As of December 31, 2020		
	Actual	Pro Forma [1]	Pro Forma As Adjusted [2] [3]
	(in thousands)		
Summary Consolidated Balance Sheet Data			
Cash and cash equivalents	$310,815	$550,768	$
Working capital	238,385	520,790	
Total assets	346,585	586,538	
Warrants liability	42,452	—	
Total liabilities	87,267	44,815	
Redeemable convertible preferred stock	664,791	—	
Accumulated deficit	(405,178)	(419,229)	
Total stockholders' (deficit) equity	(405,473)	541,723	

(1) The pro forma consolidated balance sheet data reflects (i) the issuance of 4,650,999 shares of Series E redeemable convertible preferred stock issued after December 31, 2020, (ii) the filing and effectiveness of our amended and restated certificate of incorporation, which will effect the reclassification of our common stock into Class A common stock, (iii) the conversion of redeemable convertible preferred stock into shares of Class A common stock, (iv) the exchange of 24,000,000 shares of Class A common stock for an equal number of shares of Class B common stock by our Founders, Mo Chen and Xiaodi Hou, immediately prior to the completion of this offering, (v) the Warrant Exercises and the related reclassification of the warrants liability to Class A common stock and additional paid-in capital and the related gain from the expiration of the unexercised portion of one warrant, reflected as a decrease in accumulated deficit, (vi) stock-based compensation of $12.0 million associated with the RSU and SVA Settlement, reflected as an increase in additional paid-in capital and an increase in accumulated deficit, (vii) stock-based compensation of $5.0 million associated with options for which the service-based vesting condition was satisfied as of December 31, 2020 and for which the performance-based vesting condition will be satisfied upon completion of this offering, reflected as an increase in additional paid-in capital and increase in accumulated deficit, and (viii) compensation expense of $4.7 million associated with amounts payable under separation agreements upon the completion of this offering, reflected as a decrease in cash and cash equivalents and an increase in accumulated deficit, in each case as if such event had occurred on December 31, 2020.

(2) The pro forma as adjusted consolidated balance sheet data reflects (i) the pro forma adjustments described in footnote (1) above; and (ii) the sale by us of shares of Class A common stock in this offering at the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting assumed underwriting discounts and commissions and estimated offering expenses payable by us.

(3) Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) each of pro forma as adjusted cash and cash equivalents, working capital, total assets, and total stockholders' equity by approximately $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, after deducting assumed underwriting discounts and commissions. We may also increase (decrease) the number of shares we are offering. Each increase (decrease) of 1.0 million shares offered by us would increase (decrease) each of pro forma as adjusted cash and cash equivalents, working capital, total assets, and total stockholders' equity by approximately $ million, assuming the assumed initial public offering price per share remains the same, after deducting assumed underwriting discounts and commissions. The pro forma as adjusted information is illustrative only, and we will adjust this information based on the actual initial public offering price, number of shares offered, and other terms of this offering determined at pricing.

Risk Factors

RISK FACTORS *Investing in our securities involves a high degree of risks. Before you make a decision to purchase our securities, in addition to the risks and uncertainties discussed above under "Forward-Looking Statements," you should carefully consider the specific risks set forth herein. If any of these risks actually occur, it may materially harm our business, financial condition, liquidity, and results of operations. As a result, the market price of our securities could decline, and you could lose all or part of your investment. Additionally, the risks and uncertainties described in this prospectus, including our consolidated financial statements and the related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations," are not the only risks and uncertainties that we face. Additional risks and uncertainties not presently known to us or that we currently believe to be immaterial may become material and adversely affect our business.*

`Risks Related to Our Technology, Business Model, and Industry`

Autonomous driving is an emerging technology and involves significant risks and uncertainties.

Our autonomous driving technology is highly dependent on internally-developed software, as well as on partnerships with third parties such as semi-truck original equipment manufacturers ("OEM") and other Tier 1 suppliers. We develop and integrate our autonomous driving technology and work with OEMs and other suppliers to develop autonomous driving technology hardware.

We currently operate on our Autonomous Freight Network ("AFN") L4 autonomous semi-trucks equipped with our autonomous driving technology. We also partner with OEMs, such as Navistar and TRATON, that are seeking to manufacture purpose-built L4 autonomous semi-trucks capable of incorporating our autonomous driving technology, and may in the future partner with other OEMs. In addition to OEMs, we depend on other third parties, such as ZF, Knorr-Bremse, and Nvidia, to produce components for our L4 autonomous semi-trucks. The timely development and performance of our autonomous driving programs is dependent on the materials, cooperation, and quality delivered by our partners. Further, we do not control technology for serial production, such as brakes, gear shifting, and steering. There can be no assurance that those applications can be developed and validated at the high reliability standard required for Level 4 autonomous driving in a cost-effective and timely manner. Our dependence on these relationships exposes us to the risk that components manufactured by OEMs or other suppliers could contain defects that would cause our autonomous driving technology to not operate as intended.

Although we believe that our algorithms, data analysis and processing, and artificial intelligence technology are promising, we cannot assure you that our technology will achieve the necessary reliability for Level 4 autonomy at commercial scale. For example, we are still improving our technology in terms of handling non-compliant driving behavior by other cars on the road and low reflectivity objects and performing in extreme weather conditions, such as snow or heavy fog. There can be no assurance that our data analytics and artificial intelligence could predict every single potential issue that may arise during the operation of our L4 autonomous semi-trucks.

We have a limited operating history in a new market and face significant challenges as our industry is rapidly evolving.

We commenced operations in 2015 and recently launched in July 2020 our AFN, an ecosystem consisting of L4 autonomous semi-trucks, high definition digital mapped routes, strategically placed terminals, and TuSimple Connect, a proprietary cloud-based autonomous operations oversight system. We expect to derive substantially all of our revenue from our AFN, which is still in the early stages of development and commercialization.

You should consider our business and prospects in light of the risks and challenges we face as a new entrant into a novel industry, including, among other things, with respect to our ability to:

- navigate an evolving and complex regulatory environment;
- design, outfit, and produce safe, reliable, and quality L4 autonomous semi-trucks with our partners on an ongoing basis;
- successfully produce with OEM partners a line of purpose-built L4 autonomous semi-trucks on the timeline we estimate;
- improve and enhance our software and autonomous technology;
- establish and expand our user base;
- successfully market our AFN and our other products and services;
- properly price our products and services;
- improve and maintain our operational efficiency;
- maintain a reliable, secure, high-performance, and scalable technology infrastructure;
- attract, retain, and motivate talented employees;
- anticipate and adapt to changing market conditions, including technological developments and changes in competitive landscape; and
- build a well-recognized and respected brand.

If we fail to address any or all of these risks and challenges, our business may be materially and adversely affected. There are also a number of additional challenges to Level 4 autonomous driving, many of which are not within our control, including market acceptance of autonomous driving, governmental licensing requirements, concerns regarding data security and privacy, actual and threatened litigation (whether or not a judgment is rendered against us), and the general perception that an autonomous vehicle is not safe because there is no human driver. There can be no assurance that the market will accept our technology, in which case our future business, results of operations and financial condition could be adversely affected.

The autonomous trucking and freight transport industry is in its early stages and is rapidly evolving. Our autonomous driving technology has not yet commercialized at scale. We cannot assure you that we will be able to adjust to changing market or regulatory conditions quickly or cost-effectively. If we fail to do so, our business, results of operations and financial condition will be adversely affected.

Our business model has yet to be tested and any failure to commercialize our strategic plans would have an adverse effect on our operating results and business, harm our reputation and could result in substantial liabilities that exceed our resources.

You should be aware of the difficulties normally encountered by a relatively new enterprise that is beginning to scale its business, many of which are beyond our control, including unknown future challenges and opportunities, substantial risks and expenses in the course of entering new markets and undertaking marketing activities. The likelihood of our success must be considered in light of these risks, expenses, complications, delays, and the competitive environment in which we operate. There is, therefore, substantial uncertainty that our business plan will prove successful, and we may not be able to generate significant revenue, raise additional capital, or operate profitably. We will continue to encounter risks and difficulties frequently experienced by early commercial stage companies, including scaling up our infrastructure and headcount, and may encounter unforeseen expenses, difficulties, or delays in connection with our growth. In addition, as a result of the capital-intensive nature of our business, we can be expected to continue to sustain substantial operating expenses without generating sufficient revenue to cover expenditures. Any investment in our company is therefore highly speculative and could result in the loss of your entire investment.

Our future business depends in large part on our ability to continue to develop and successfully commercialize our Level 4 autonomous driving technology, our AFN, and other freight capacity services we plan to offer. Our ability to develop, deliver, and commercialize at scale our autonomous driving software and systems to support or perform autonomous operation of large semi-trucks is still unproven.

Our continued enhancement of our autonomous driving technology is and will be subject to risks, including with respect to:

- our ability to continue to enhance our data analytics and software technology;
- designing, developing, and securing necessary components on acceptable terms and in a timely manner;
- our ability to attract, recruit, hire, and train skilled employees; and
- our ability to enter into strategic relationships with key members in the trucking and freight transport industries, as well as component suppliers.

We have limited experience to date in applying our autonomous driving technology at scale. While we currently operate autonomous semi-trucks equipped with our autonomous driving technology, we have not yet produced and sold to third parties our purpose-built L4 autonomous semi-trucks at scale. Even if we are successful in developing and commercializing our technology, we could face unexpected difficulties, delays, and cost overruns, including as a result of factors beyond our control such as unforeseen issues with our technology, problems with suppliers, and adverse regulatory developments. Any failure to develop our technology within our projected costs and timelines could have a material adverse effect on our business, prospects, operating results, and financial condition.

Since the market for autonomous solutions is relatively new and disruptive, if our Level 4 autonomous driving technology fails to gain acceptance from users and other stakeholders in the freight transportation industry, our business, prospects, operating results, and financial condition could be materially harmed.

Demand for autonomous driving technology depends to a large extent on general, economic, political, and social conditions in a given market. The market opportunities we are pursuing are at an early stage of development, and it is difficult to predict user demand or adoption rates for our solutions, including the AFN, or the future growth of the markets in which we operate. Despite the fact that the automotive industry has engaged in considerable effort to research and test Level 2 and Level 3 autonomous cars, our technology targeting Level 4 autonomous semi-trucks requires significant investment and may never be commercially successful on a large scale, or at all.

Further, even if we succeed in operating at commercial scale, because of the disruptive nature of our business to the freight transportation industry, key industry participants may not accept our AFN, may develop competing services or may otherwise seek to subvert our efforts. For example, autonomous semi-trucks might displace individual semi-truck drivers and small fleet owners. Labor unions may also raise concerns about autonomous semi-trucks displacing drivers or otherwise negatively affecting employment opportunities for their members, as has been the case in other industries that have been subject to automation. This has in the past resulted, and could in the future result, in negative publicity, lobbying efforts to U.S. local, state, and federal, lawmaking authorities, or equivalent authorities in the foreign jurisdictions in which we seek to do business, to implement legislation or regulations that make it more difficult to operate our business or boycotts of us or our users. Any such occurrences could materially harm our future business.

Additionally, regulatory, safety, and reliability issues, or the perception thereof, many of which are outside of our control, could also cause the public or our potential partners and users to lose confidence in autonomous solutions in general. The safety of such technology depends in part on user interaction and users, as well as other drivers, pedestrians, other obstacles on the roadways or other unforeseen events. For example, there have been several crashes involving automobiles of other manufacturers resulting in death or personal injury where autopilot features are engaged. Even though these incidents were

unrelated to our AFN and our technology, such cases resulted in significant negative publicity and, in the future, could result in suspension or prohibition of self-driving vehicles. If safety and reliability issues for autonomous driving technology cannot be addressed properly, our business, prospects, operating results, and financial condition could be materially harmed.

Our autonomous driving technology and related hardware and software could have undetected defects, errors or bugs in hardware or software which could create safety issues, reduce market adoption, damage our reputation with current or prospective users or expose us to product liability and other claims that could materially and adversely affect our business.

Our autonomous driving technology is highly technical and very complex, and has in the past and may in the future experience defects, errors or bugs at various stages of development. We may be unable to timely correct problems to our partners' and users' satisfaction. Additionally, there may be undetected errors or defects especially as we introduce new systems or as new versions are released. These risks are particularly prevalent in the highly competitive freight transport market, as any such errors or defects could delay or prevent the adoption of autonomous driving technology in trucks. Errors or defects in our products may only be discovered after they have been tested, commercialized, and deployed. If that is the case, we may incur significant additional development costs and product recall, repair or replacement costs, or more importantly, liability for personal injury or property damage caused by such errors or defects, as these problems would also likely result in claims against us. Our reputation or brand may be damaged as a result of these problems and users may be reluctant to use our services, which could adversely affect our ability to retain existing users and attract new users, and could materially and adversely affect our financial results.

In addition, we could face material legal claims for breach of contract, product liability, tort or breach of warranty as a result of these problems. Any such lawsuit may cause irreparable damage to our brand and reputation. In addition, defending a lawsuit, regardless of its merit, could be costly and may divert management's attention and adversely affect the market's perception of us and our services. In addition, our business liability insurance coverage could prove inadequate with respect to a claim and future coverage may be unavailable on acceptable terms or at all. These product-related issues could result in claims against us and our business could be materially and adversely affected.

The operation of our L4 autonomous semi-trucks is different from non-autonomous semi-trucks and may be unfamiliar to our users and other road users.

We have specifically engineered our L4 autonomous semi-trucks with our technology to provide a superior ability to sense, predict, and react to real-world driving situations. Our proprietary artificial intelligence ("AI") and machine vision capabilities are specifically engineered to meet the demands of commercial trucks. In certain instances, these protections may cause the vehicle to behave in ways that are unfamiliar to drivers of non-autonomous driving trucks. For example, our L4 autonomous semi-trucks adhere strictly to safety rules, including stopping for three seconds at a stop sign. These safety rules may not be strictly adhered to by human drivers, and thus may be unfamiliar or come as a surprise to other drivers on the road.

Furthermore, there can be no assurance that our users will be able to properly adapt to the different operation processes for our L4 autonomous semi-trucks. For example, they may not be able to adapt their business processes to address activities such as the dispatching of trucks, pre-trip inspections, remote monitoring, and rescuing of trucks. Any accidents resulting from such failure to operate our L4 autonomous semi-trucks properly could harm our brand and reputation, result in adverse publicity, and product liability claims, and have a material adverse effect on our business, prospects, financial condition, and operating results.

Reservations for our purpose-built L4 autonomous semi-trucks are cancellable.

Through our first four months of accepting reservations for our purpose-built L4 autonomous semi-truck, we have accepted over 5,700 reservations from approximately ten customers, each of whom has significant freight operations. Approximately 75% of our reservations were made by customers who operate commercial truck fleets and who are also equity investors in our company. Typically, each reservation requires a $500 per truck deposit, however, the deposit requirement has been waived for our equity investors that currently hold reservations. We are currently in the process of collecting these deposits to hold in an escrow account, which can be delivered to us within a 12 month period after entering into a reservation agreement. Until the customer enters into a purchase agreement for our purpose-built L4 autonomous semi-truck, which is within the discretion of the customer, the reservation can be canceled and the customer is entitled to a full refund of its deposit. Any cancellations and refunds will be satisfied out of the deposits held in the escrow account. We have not entered into purchase agreements with any of our customers that have reserved our purpose-built L4 autonomous semi-trucks.

Because all of our reservations are cancellable, it is possible that a significant number of customers who submitted reservations for our purpose-built L4 autonomous semi-trucks may cancel those reservations. Given the anticipated lead times between customer reservation and delivery of our purpose-built L4 autonomous semi-trucks, there is a heightened risk that customers that have made reservations may not ultimately take delivery of vehicles due to potential changes in customer preferences, competitive developments, and other factors. As a result, no assurance can be made that reservations will not be canceled, or that reservations will ultimately result in the purchase of a purpose-built L4 autonomous semi-truck. Any cancellations could harm our financial condition, business, prospects, and operating results.

We operate in a highly competitive market and some market participants have substantially greater resources than we do. We compete against a large number of both established competitors and new market entrants.

The market for autonomous trucking and freight transport solutions is highly competitive. Many companies are seeking to develop autonomous trucking and delivery solutions. Competition in these markets is based primarily on technology, innovation, quality, safety, reputation, and price. Our future success will depend on our ability to further develop and protect our technology in a timely manner and to stay ahead of existing and new competitors. Our competitors in this market are working towards commercializing autonomous driving technology and may have substantial financial, marketing, research and development, and other resources. Some examples of our competitors include Waymo, Aurora, Embark, and Kodiak.

In addition, we also face competition from traditional freight transport companies, such as non-autonomous trucking companies, railroads, and air carriers. Traditional shipping fleets and other carriers operating with human drivers are still the predominant operators in the market. Because of the long history of such traditional freight transport companies serving the freight market, there may be many constituencies in the market that would resist a shift towards autonomous freight transport, which could include lobbying and marketing campaigns, particularly because our technology will displace semi-truck drivers.

In addition, the market leaders in the automotive industry may start, or have already started, pursuing large scale deployment of autonomous vehicle technology on their own. These companies may have more operational and financial resources than us. We cannot guarantee that we will be able to effectively compete with them. We may also face competition from Tier 1 suppliers and other technology and automotive supply companies if they decide to expand vertically and develop their own autonomous semi-trucks, some of whom have significantly greater resources than we do. We do not know how close these competitors are to commercializing autonomous driving systems.

Furthermore, although we believe that we have the first-mover advantage in the competitive autonomous freight segment, many established and new market participants have entered or have announced plans to enter the autonomous vehicle market. Most of these participants have significantly greater financial, manufacturing, marketing, and other resources than we do and may be able to devote greater resources to the design, development, manufacturing, distribution, promotion, sale, and support of their products. If existing competitors or new entrants are able to commercialize earlier than expected, our competitive advantage could be adversely affected.

Risks Related to Our Dependence on Third Parties

We rely on our business partners and other industry participants for our AFN. Business collaboration with partners is subject to risks, and these relationships may not lead to significant revenue. Any adverse change in our cooperation with them could harm our business.

Strategic business relationships are and will continue to be an important factor in the growth and success of our business. We have alliances and partnerships with other companies in the trucking and automotive industry to help us in our efforts to continue to enhance our technology, commercialize our solutions, and drive market acceptance. We have established partnerships with leading semi-truck manufacturers, such as Navistar and TRATON, to co-develop and validate critical components required for Level 4 autonomous semi-trucks and to develop a hub-to-hub pilot program using our autonomous technology. Upon the successful completion of the development activities under our partnership agreements with Navistar and TRATON, in order to continue our relationship with these parties, we will enter into good faith negotiations to establish a production license agreement and a long-term cooperation agreement with Navistar and TRATON, respectively. We may not be able to successfully negotiate a definitive agreement with either Navistar or TRATON or such agreements may be on terms that are disadvantageous to us. We will also need to identify and negotiate additional relationships with other third parties, such as those who can provide service centers, maintenance, refueling, roadside service, towing, sensor support, and financing services. We may not be able to successfully identify and negotiate definitive agreements with these third parties to provide the services we would require on terms that are attractive or at all, which would cause us to incur increased costs to develop and provide these capabilities.

Collaboration with these third parties is subject to risks, some of which are outside our control. For example, certain of our agreements with our partners grant our partner or us the right to terminate such agreements for cause or without cause, including in some cases by paying a termination for convenience fee. If any of our partnerships with semi-truck manufacturers, such as our agreement with Navistar, are terminated, it may delay or prevent our efforts to produce purpose-built L4 autonomous semi-trucks at scale. In addition, such agreements have in the past and may in the future contain certain exclusivity provisions which, if triggered, could preclude us from working with other businesses with superior technology or with whom we may prefer to partner with for other reasons. We could experience delays to the extent our partners do not meet agreed upon timelines or experience capacity constraints. We could also experience disagreement in budget or funding for the joint development project. There is also a risk of other potential disputes with partners in the future, including with respect to intellectual property rights. Our ability to successfully commercialize could also be adversely affected by perceptions about the quality of our or our partners' trucks.

If our existing partner agreements were to be terminated, we may be unable to enter into new agreements on terms and conditions acceptable to us. The expense and time required to complete any transition, and to assure that vehicles manufactured at facilities of new third-party partners comply with our quality standards and regulatory requirements, may be greater than anticipated. Any of the foregoing could adversely affect our business, results of operations, and financial condition.

We rely on third-party suppliers and because some of the raw materials and key components in our products come from limited or sole sources of supply, we are susceptible to supply shortages, long lead times for components, and supply changes, any of which could disrupt our supply chain and could delay deliveries of our products to users.

All of the components that are used to outfit semi-trucks with our autonomous technology and that will be used to manufacture our purpose-built L4 autonomous semi-trucks are sourced from third-party suppliers. To date, the semi-trucks we have used have had our autonomous technology added to an existing semi-truck design and we are working to have fully-integrated trucks available for users by 2024. We intend to begin filling reservations over a multi-year period commencing in 2024, with actual date of delivery based on our customers' specifications. We do not have any experience in managing a large supply chain to manufacture and deliver products at scale. In addition, some of the key components used to manufacture our L4 autonomous semi-trucks come from limited or sole sources of supply. For example, we depend on actuation suppliers to develop and design redundant actuation for steering, braking, and engine transmission. We are also dependent on our suppliers' production timeline for supplying automotive-grade LiDAR at scale. We are therefore subject to the risk of shortages and long lead times in the supply of these components and the risk that our suppliers discontinue or modify components used in our products. In addition, our agreements with our third party suppliers are non-exclusive. Our suppliers may dedicate more resources to other companies, including our competitors. We may in the future experience component shortages and price fluctuations of certain key components and materials, and the predictability of the availability and pricing of these components may be limited. Component shortages or pricing fluctuations could be material in the future. In the event of a component shortage, supply interruption or material pricing change from suppliers of these components, we may not be able to develop alternate sources in a timely manner or at all in the case of sole or limited sources. Developing alternate sources of supply for these components may be time-consuming, difficult, and costly and we may not be able to source these components on terms that are acceptable to us, or at all, which may undermine our ability to meet our requirements or to fill user orders in a timely manner. Any interruption or delay in the supply of any of these parts or components, or the inability to obtain these parts or components from alternate sources at acceptable prices and within a reasonable amount of time, would adversely affect our ability to meet scheduled product deliveries to users. This could adversely affect our relationships with our users and could cause delays in our ability to expand our operations, including with our partners manufacturing purpose-built L4 autonomous semi-trucks. Even where we

are able to pass increased component costs along to our users, there may be a lapse of time before we are able to do so such that we must absorb the increased cost initially. If we are unable to buy these components in quantities sufficient to meet our requirements on a timely basis, we will not be able to have sufficient ability to meet user demand, which may result in users using competitive services instead of ours.

Risks Related to Our Financial Position and Need for Additional Capital

We are an early stage company with a history of losses, and expect to incur significant expenses and continuing losses for the foreseeable future.

We incurred net losses of $84.9 million and $177.9 million for the years ended December 31, 2019 and 2020, respectively. We have not recognized a material amount of revenue to date and we had accumulated deficit of $405.2 million as of December 31, 2020. We have developed and launched our AFN but there can be no assurance that it will be commercially successful at scale. Our potential profitability is dependent upon a number of factors, many of which are beyond our control.

We expect the rate at which we will incur losses to be significantly higher in future periods as we:

- design, develop, and manufacture purpose-built L4 autonomous semi-trucks with our OEM partners;
- seek to achieve and commercialize full Level 4 autonomy for our L4 autonomous semi-trucks;
- seek to expand our AFN, on a nationwide basis in the United States and internationally;
- expand our design, development, maintenance, and repair capabilities;
- respond to competition in the autonomous driving market and from traditional freight transportation providers;
- respond to evolving regulatory developments in the nascent autonomous vehicle market;
- increase our sales and marketing activities; and
- increase our general and administrative functions to support our growing operations and for being a public reporting company.

Because we will incur the costs and expenses from these efforts before we receive any incremental revenue, our losses in future periods will be significant. In addition, we may find that these efforts are more expensive than we currently anticipate or that these efforts may not result in revenue, which would further increase our losses. In particular, we expect to incur substantial and potentially increasing research and development ("R&D") costs. Our R&D costs were $63.6 million and $132.0 million during the years ended December 31, 2019 and 2020, respectively, and are likely to grow in the future. Because we account for R&D as an operating expense, these expenditures will adversely affect our results to operations in the future. Further, our R&D program may not produce successful results, and our new products may not achieve market acceptance, create additional revenue, or become profitable.

We expect to need to raise additional funds and these funds may not be available to us on attractive terms when we need them, or at all. If we cannot raise additional funds on attractive terms when we need them, our operations and prospects could be negatively affected.

The commercialization of L4 autonomous semi-trucks outfitted with our technology, purpose-built L4 autonomous semi-trucks manufactured by our OEM partners and our AFN and related technology is capital-intensive. To date, we have financed our operations primarily through the issuance of equity securities in private placements and the issuance of convertible debt securities. We will need to raise additional capital to continue to fund our research and development and commercialization activities and to improve our liquidity position. Our ability to obtain the necessary financing to carry out our business plan is subject to a number of factors, including general market volatility, investor acceptance of our business plan, regulatory requirements, including foreign investment reviews, and the successful development of our autonomous technology. These factors may make the timing, amount, terms, and conditions of such financing unattractive or unavailable to us.

We may raise these additional funds through the issuance of equity, equity related, or debt securities. To the extent that we raise additional financing by issuing equity securities or convertible debt securities, our stockholders may experience substantial dilution, and to the extent we engage in debt financing, we may become subject to restrictive covenants that could limit our flexibility in conducting future business activities. Financial institutions may request credit enhancement such as third-party guarantee and pledge of equity interest in order to extend loans to us. We cannot be certain that additional funds will be available to us on attractive terms when required, or at all. If we cannot raise additional funds when we need them, our financial condition, results of operations, business, and prospects could be materially adversely affected.

We may be subject to risks associated with potential future acquisitions.

Although we have no current acquisition plans, if appropriate opportunities arise, we may acquire additional assets, products, technology or businesses that are complementary to our existing business. Any future acquisitions and the subsequent integration of new assets and businesses would require significant attention from our management and could result in a diversion of resources from our existing business, which in turn could have an adverse effect on our operations, and consequently our results of operations and financial condition. Acquired assets or businesses may not generate the financial results we expect. Acquisitions could result in the use of substantial amounts of cash, potentially dilutive issuances of equity securities, significant goodwill impairment charges, amortization expenses for other intangible assets and exposure to potential unknown liabilities of the acquired business. Moreover, the costs of identifying and consummating acquisitions may be significant.

Risks Related to Our Business Operations

We depend on the experience and expertise of our senior management team, technical engineers, and certain key employees, and the loss of any executive officer or key employee, or the inability to identify and recruit executive officers, technical engineers, and key employees in a timely manner, could harm our business, operating results, and financial condition.

Our success depends largely upon the continued services of our key executive officers and certain key employees. We rely on our executive officers and key employees in the areas of business strategy, research and development, marketing, sales, services, and general and administrative functions. From time to time, there may be changes in our executive management team or key employees resulting from the hiring or departure of executives or key employees, which could disrupt our business. We do not maintain key-man insurance for any member of our senior management team or any other employee. We do not have employment agreements with our executive officers or other key personnel that require them to continue to work for us for any specified period and, therefore, they could terminate their employment with us at any time. The loss of one or more of our executive officers or key employees could have a serious adverse effect on our business.

To execute our growth plan, we must attract and retain highly qualified personnel. Competition for these personnel is intense in the technology industry, especially for engineers with high levels of experience in artificial intelligence and designing and developing autonomous driving related algorithms. Furthermore, it can be difficult to recruit personnel from other geographies to relocate to our Southern California location. We may also need to recruit highly qualified technical engineers internationally and therefore subject us to the compliance of relevant immigration laws and regulations. We have, from time to time, experienced, and we expect to continue to experience, difficulty in hiring and retaining employees with appropriate qualifications. Many of the companies with which we compete for experienced personnel have greater resources than we have and can offer more attractive compensation packages for new employees. If we hire employees from competitors or other companies, their former employers may attempt to assert that these employees or our company have breached their legal obligations, resulting in a diversion of our time and resources and potentially in litigation. In addition, job candidates and existing employees often consider the value of the share incentive awards they receive in connection with their employment. If the perceived value of our share awards declines, it may adversely affect our ability to recruit and retain highly skilled employees. If we fail to attract new personnel on a timely basis or fail to retain and motivate our current personnel, we may not be able to commercialize and then expand our AFN in a timely manner and our business and future growth prospects could be adversely affected.

We have experienced rapid growth in recent periods and expect to continue to invest in our growth for the foreseeable future. If we fail to manage our growth effectively, we may be unable to execute our business plan, maintain high levels of service, or adequately address competitive challenges.

We have recently experienced a period of rapid growth in our headcount and operations. Our number of full-time employees has increased significantly over the last few years, from 131 employees as of January 1, 2018 to 839 employees as of December 31, 2020. The recent rapid growth in our business has placed, and is expected to continue to place, a significant strain on our managerial, administrative, operational, and financial resources, as well as our infrastructure. We plan to continue to expand our operations in the future. Our success will depend in part on our ability to manage this growth effectively and execute our business plan. To manage the expected growth of our operations and personnel, we will need to continue to improve our operational, financial, and management controls and our reporting systems and procedures.

We rely heavily on information technology ("IT") systems to manage critical business functions. To manage our growth effectively, we must continue to improve and expand our infrastructure, including our IT, financial, and administrative systems and controls. In particular, we may need to significantly expand our IT infrastructure as the amount of data we store and transmit increases over time, which will require that we both utilize existing IT products and adopt new technology. If we are not able to scale our IT infrastructure in a cost-effective and secure manner, our ability to offer competitive solutions will be harmed and our business, financial condition, and operating results may suffer.

We must also continue to manage our employees, operations, finances, research and development, and capital investments efficiently. Our productivity and the quality of our solutions may be adversely affected if we do not integrate and train our new employees quickly and effectively or if we fail to appropriately coordinate across our executive, research and development, technology, service development, analytics, finance, human resources, marketing, sales, operations, and customer support teams. As we continue to grow, we will incur additional expenses, and our growth may continue to place a strain on our resources, infrastructure, and ability to maintain the quality of our solutions. If we do not adapt to meet these evolving challenges, or if the current and future members of our management team do not effectively manage our growth, the quality of our solutions may suffer and our corporate culture may be harmed. Failure to manage our future growth effectively could cause our business to suffer, which, in turn, could have an adverse impact on our business, financial condition, and operating results.

Our management team has limited experience managing a public company.

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

We may be subject to product liability or warranty claims that could result in significant direct or indirect costs, including reputational harm, increased insurance premiums or the need to self-insure, which could adversely affect our business and operating results.

Our technology is used for autonomous driving, which presents the risk of significant injury, including fatalities. We may be subject to claims if one of our or a user's semi-truck is involved in an accident and persons are injured or purport to be injured or if property is damaged. Any insurance that we carry may not be sufficient or it may not apply to all situations. The risk of serious injury, death, and substantial damage to property is much higher with a substantially heavier fast-moving autonomous semi-truck, as compared to a collision with a slower moving autonomous passenger car in an urban environment. In

accidents involving semi-trucks, most of the resulting fatalities are victims outside of the semi-truck. If we experience such an event or multiple events, our insurance premiums could increase significantly or insurance may not be available to us at all. Further, if insurance is not available on commercially reasonable terms, or at all, we might need to self-insure. In addition, lawmakers or governmental agencies could pass laws or adopt regulations that limit the use of autonomous trucking technology or increase liability associated with its use. Any of these events could adversely affect our brand, relationships with users, operating results, or financial condition.

Our L4 autonomous semi-trucks are expensive and, as a result, we, along with our users, may need to obtain financing to purchase or lease semi-trucks.

Because acquiring semi-trucks and then outfitting them with our autonomous technology is expensive, we will need to obtain committed financing capacity for our self-operated fleet to support our growth, and we may in the future be required to find financing solutions to help our users or us purchase or finance our purpose-built L4 autonomous semi-trucks manufactured in partnership with OEMs. Our ability to attract financing depends on many factors that are outside of our control, including our or our users' perceived creditworthiness and the condition of credit markets generally. If we are unable to procure financing partners willing to finance such deployments, our ability to grow our business may be harmed.

We will be required to make significant capital expenditures to maintain our fleet of L4 autonomous semi-trucks.

We expect our capital expenditure requirements will primarily relate to maintaining and upgrading our fleet of L4 autonomous semi-trucks to serve our users and remain competitive. The aging of our fleet will require us to make regular capital expenditures to maintain our level of service. In addition, changing competitive conditions or the emergence of any significant advances in autonomous driving technology could require us to invest significant capital in additional equipment or capacity in order to remain competitive. If we are unable to fund any such investment or otherwise fail to invest in new vehicles, our business, financial condition or results of operations could be materially and adversely affected.

We and our manufacturing partners may experience significant delays in the manufacture, launch, and financing of our purpose-built L4 autonomous semi-trucks, which could harm our business and prospects.

Any delay in the manufacture, launch, and financing of our purpose-built L4 autonomous semi-trucks could materially damage our brand, business, prospects, financial condition, and operating results. Vehicle manufacturers often experience delays in the manufacture and commercial release of new products. To the extent we delay the launch of our purpose-built L4 autonomous semi-trucks, our growth prospects could be adversely affected. Furthermore, we rely on third party suppliers for the provision and development of many of the key components and materials that will be used in our existing L4 autonomous semi-trucks and those that will be purpose-built. To the extent our suppliers experience any delays in providing us with or developing necessary components, we could experience delays in delivering on our timelines.

If our L4 autonomous semi-trucks fail to perform as expected, our ability to develop our AFN and market, sell or lease our purpose-built L4 autonomous semi-trucks could be harmed. Future product recalls involving our purpose-built L4 autonomous semi-trucks or hardware deployed on our L4 autonomous semi-trucks could materially and adversely affect our business, prospects, operating results, and financial condition.

Our L4 autonomous semi-trucks and, once production begins, our purpose-built L4 autonomous semi-trucks may contain defects in design and manufacture that may cause them not to perform as expected or may require repair. For example, our L4 autonomous semi-trucks currently use, and our purpose-built L4 autonomous semi-trucks are expected to use, a substantial amount of software to operate which will require modification and updates over the life of the vehicle. Software products are inherently complex and often contain defects and errors when first introduced. There can be no assurance that we will be able to detect and fix any defects in the semi-trucks' hardware or software prior to commencing user sales or during the life of the trucks. Our purpose-built L4 autonomous semi-trucks may not perform consistent with users' expectations or consistent with other trucks that may become available. Any product defects or any other failure of our purpose-built L4 autonomous semi-trucks to perform as expected could harm our reputation, ability to develop our AFN and result in adverse publicity, lost revenue, delivery delays, product recalls, product liability claims, and significant warranty and other expenses, and could have a material adverse impact on our business, financial condition, operating results, and prospects.

Once production begins, we may experience recalls involving our purpose-built L4 autonomous semi-trucks, which could adversely affect our brand in our target markets and could adversely affect our business, prospects, and results of operations. Any product recall in the future may result in adverse publicity, damage our brand, and materially adversely affect our business, prospects, operating results, and financial condition. In the future, we may voluntarily or involuntarily, initiate a recall if any of our purpose-built L4 autonomous semi-truck components (including LiDAR sensors, cameras, and other components) prove to be defective or noncompliant with applicable motor vehicle safety standards. Such recalls typically involve significant expense and diversion of management attention and other resources, which could adversely affect our brand image, as well as our business, prospects, financial condition, and results of operations.

If we are unable to establish and maintain confidence in our long-term business prospects among users, securities and industry analysts, and within our industries, or are subject to negative publicity, then our financial condition, operating results, business prospects, and access to capital may suffer materially.

Users may be less likely to purchase or use our L4 autonomous semi-trucks if they are not convinced that our business will succeed or that our service and support and other operations will continue in the long term. Similarly, suppliers and other third parties will be less likely to invest time and resources in developing business relationships with us if they are not convinced that our business will succeed. Accordingly, in order to build and maintain our business, we must maintain confidence among users, suppliers, securities and industry analysts, and other parties in our long-term financial viability and business prospects. Maintaining such confidence may be particularly complicated by certain factors including those that are largely outside of our control, such as our limited operating history at scale, user unfamiliarity with our solutions, any delays in scaling manufacturing, delivery, and service operations to meet demand, competition and uncertainty regarding the future of autonomous vehicles, and our performance compared with market expectations.

We identified a material weakness in our internal control over financial reporting for the years ended December 31, 2018, 2019, and 2020, and we may identify additional material weaknesses in the future that may cause us to fail to meet our reporting obligations or result in material misstatements of our financial statements. If we fail to remediate any material weaknesses or if we otherwise fail to establish and maintain effective control over financial reporting, our ability to accurately and timely report our financial results could be adversely affected.

In connection with the contemporaneous audits of our financial statements for the years ended December 31, 2018, 2019, and 2020, we identified control deficiencies in the design and implementation of our internal control over financial reporting that constituted a material weakness. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our financial statements will not be prevented or detected on a timely basis.

The material weakness identified in our internal control over financial reporting related to a lack of appropriately designed and implemented controls over the review and approval of manual journal entries (including consolidation entries) and the related supporting journal entry calculations. We have taken and plan to take the following actions: (i) hiring of additional finance and accounting personnel over time to augment our accounting staff and to provide more resources for complex accounting matters and financial reporting; and (ii) further developing and implementing formal policies, processes, and documentation procedures relating to our financial reporting. To date, we have hired additional financial and accounting personnel with technical accounting experience and implemented new technology solutions to assist with our financial reporting process. We are still implementing formal policies, processes, and documentation procedures related to the review and approval of manual journal entries. We will not be able to fully remediate this material weakness until these steps have been completed and have been operating effectively for a sufficient period of time. We currently expect that the material weakness will be remediated by December 31, 2021, and costs associated with the remediation plan are not expected to be material. However, we cannot assure you that these measures will be sufficient to remediate the material weakness that has been identified or prevent future material weaknesses or significant deficiencies from occurring.

Neither we nor our independent registered public accounting firm has performed an evaluation of our internal control over financial reporting during any period in accordance with the provisions of the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act"). In light of the control deficiencies and the resulting material weakness that were previously identified as a result of the limited procedures performed, we believe that it is possible that, had we and our independent registered public accounting firm performed an evaluation of our internal control over financial reporting in accordance with the provisions of the Sarbanes-Oxley Act, additional material weaknesses and significant control deficiencies may have been identified.

We may identify future material weaknesses in our internal controls over financial reporting or fail to meet the demands that will be placed upon us as a public company, including the requirements of the Sarbanes-Oxley Act, and we may be unable to accurately report our financial results, or report them within the timeframes required by law or stock exchange regulations. Under Section 404 of the Sarbanes-Oxley Act, we will be required to evaluate and determine the effectiveness of our internal control over financial reporting and, beginning with our second annual report following this offering, provide a management report on internal control over financial reporting. Failure to comply with Section 404 of the Sarbanes-Oxley Act could also potentially subject us to sanctions or investigations by the SEC or other regulatory authorities. We cannot assure that our existing material weakness will be remediated or that additional material weaknesses will not exist or otherwise be discovered, any of which could adversely affect our reputation, financial condition, and results of operations.

Pandemics and epidemics, including the ongoing COVID-19 pandemic, natural disasters, terrorist activities, political unrest, and other outbreaks could have a material adverse impact on our business, results of operations, financial condition, cash flows or liquidity, and the extent to which we will be impacted will depend on future developments, which cannot be predicted.

During the ongoing global COVID-19 pandemic, the capital markets are experiencing pronounced volatility, which may adversely affect investor's confidence and, in turn may affect, our initial public offering.

In addition, the COVID-19 pandemic has caused us to modify our business practices (such as employee travel plan and cancellation of physical participation in meetings, events, and conference), and we may take further actions as required by governmental authorities or that we determine are in the best interests of our employees, users, and business partners. In addition, the business and operations of our manufacturers, suppliers, and other business partners have also been adversely impacted by the COVID-19 pandemic and may be further adversely impacted in the future, which could result in delays in our ability to commercialize our autonomous trucking solutions.

As a result of social distancing, travel bans, and quarantine measures, access to our facilities, users, management, support staff, and professional advisors has been limited, which in turn has impacted, and will continue to impact, our operations, and financial condition.

The extent to which COVID-19 impacts our, and those of our partners and potential users, business, results of operations, and financial condition will depend on future developments, which are uncertain and cannot be predicted, including, but not limited to, the occurrence of a "second wave," duration and spread of the outbreak, its severity, the actions to contain the virus or treat its impact, and how quickly and to what extent normal economic and operating conditions can resume. Even if the COVID-19 outbreak subsides, we may continue to experience materially adverse impacts to our business as a result of its global economic impact, including any recession that has occurred or may occur in the future.

We are also vulnerable to natural disasters and other calamities. Although we have servers that are hosted in an offsite location, our backup system does not capture data on a real-time basis and we may be unable to recover certain data in the event of a server failure. We cannot assure you that any backup systems will be adequate to protect us from the effects of fire, floods, typhoons, earthquakes, power loss, telecommunications failures, break-ins, war, riots, terrorist attacks or similar events. Any of the foregoing events may give rise to interruptions, breakdowns, system failures, technology platform failures or internet failures, which could cause the loss or corruption of data or malfunctions of software or hardware as well as adversely affect our ability to provide services.

Risks Related to Our Intellectual Property, Information Technology and Data Privacy

We may become subject to litigation brought by third parties claiming infringement, misappropriation or other violation by us of their intellectual property rights.

The industry in which our business operates is characterized by a large number of patents, some of which may be of questionable scope, validity or enforceability, and some of which may appear to overlap with other issued patents. As a result, there is a significant amount of uncertainty in the industry regarding patent protection and infringement. In recent years, there has been significant litigation globally involving patents and other intellectual property rights. Third parties have asserted, and may in the future assert, that we have infringed, misappropriated or otherwise violated their intellectual property rights. We have received letters from third parties that identify patents owned by third parties and invite us to obtain licenses to such patents. We work with

patent counsel to evaluate the merits of their claims and sometimes we may decide to engage in licensing discussions. We may not be able to obtain a commercially reasonable license or a license that we obtain (if any) may not entirely resolve the potential risks of intellectual property infringement. As we face increasing competition and as a public company, the possibility of intellectual property rights claims against us grows. Such claims and litigation may involve one or more of our competitors focused on using their patents and other intellectual property to obtain competitive advantage, or patent holding companies or other adverse intellectual property rights holders who have no relevant product revenue, and therefore our own pending patents and other intellectual property rights may provide little or no deterrence to these rights holders in bringing intellectual property rights claims against us. There may be intellectual property rights held by others, including issued or pending patents and trademarks, that cover significant aspects of our technologies or business methods, and we cannot assure that we are not infringing or violating, and have not infringed or violated, any third-party intellectual property rights or that we will not be held to have done so or be accused of doing so in the future. In addition, because patent applications can take many years until the patents issue, there may be applications now pending of which we are unaware, which may later result in issued patents that our products may infringe. We expect that in the future we may receive notices that claim we or our collaborators have misappropriated or misused other parties' intellectual property rights, particularly as the number of competitors in our market grows.

To defend ourselves against any intellectual property claims brought by third parties, whether with or without merits, can be time-consuming and could result in substantial costs and a diversion of our resources. These claims and any resulting lawsuits, if resolved adversely to us, could subject us to significant liability for damages, impose temporary or permanent injunctions against our products, technologies or business operations, or invalidate or render unenforceable our intellectual property.

If our technology is determined to infringe a valid and enforceable patent, or if we wish to avoid potential intellectual property litigation on any alleged infringement, misappropriation or other violation of third party intellectual property rights, we may be required to do one or more of the following: (i) cease development, sales, or use of our products that incorporate or use the asserted intellectual property right; (ii) obtain a license from the owner of the asserted intellectual property right, which may be unavailable on commercially reasonable terms, or at all, or which may be non-exclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us; (iii) pay substantial royalties or other damages; or (iv) redesign our technology or one or more aspects or systems of our L4 autonomous semi-trucks to avoid any infringement or allegations thereof. The aforementioned options sometimes may not be commercially feasible. Additionally, in our ordinary course of business, we agree to indemnify our users, partners, and other commercial counterparties for any infringement arising out of their use of our intellectual property, along with providing standard indemnification provisions, so we may face liability to our users, business partners or third parties for indemnification or other remedies in the event that they are sued for infringement.

We may also in the future license third party technology or other intellectual property, and we may face claims that our use of such in-licensed technology or other intellectual property infringes, misappropriates or otherwise violates the intellectual property rights of others. In such cases, we will seek indemnification from our licensors. However, our rights to indemnification may be unavailable or insufficient to cover our costs and losses.

We also may not be successful in any attempt to redesign our technology to avoid any alleged infringement. A successful claim of infringement against us, or our failure or inability to develop and implement non-infringing technology, or license the infringed technology on acceptable terms and on a timely basis, could materially adversely affect our business and results of operations. Furthermore, such lawsuits, regardless of their success, would likely be time-consuming and expensive to resolve and would divert management's time and attention from our business, which could seriously harm our business. Also, such lawsuits, regardless of their success, could seriously harm our reputation with users and in the industry at large.

Our business may be adversely affected if we are unable to adequately establish, maintain, protect, and enforce our intellectual property and proprietary rights or prevent third parties from making unauthorized use of our technology and other intellectual property rights.

Our intellectual property is an essential asset of our business. Failure to adequately protect our intellectual property rights could result in our competitors offering similar products, potentially resulting in the loss of our competitive advantage, and a decrease in our revenue which would adversely affect our business prospects, financial condition, and operating results. Our success depends, at least in part, on our ability to protect our core technology and intellectual property. We rely on a combination of intellectual property rights, such as patents, trademarks, copyrights, and trade secrets (including know-how), in addition to employee and third-party nondisclosure agreements, intellectual property licenses, and other contractual rights, to establish, maintain, protect, and enforce our rights in our technology, proprietary information, and processes. Intellectual property laws and our procedures and restrictions provide only limited protection and any of our intellectual property rights may be challenged, invalidated, circumvented, infringed or misappropriated. If we fail to protect our intellectual property rights adequately, we may lose an important advantage in the markets in which we compete. While we take measures to protect our intellectual property, such efforts may be insufficient or ineffective, and any of our intellectual property rights may be challenged, which could result in them being narrowed in scope or declared invalid or unenforceable. Other parties may also independently develop technologies that are substantially similar or superior to ours. We also may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. However, the measures we take to protect our intellectual property from unauthorized use by others may not be effective and there can be no assurance that our intellectual property rights will be sufficient to protect against others offering products, services, or technologies that are substantially similar or superior to ours and that compete with our business.

Litigation may be necessary in the future to enforce our intellectual property rights and to protect our trade secrets. Our efforts to enforce our intellectual property rights may be met with defenses, counterclaims, and countersuits attacking the validity and enforceability of our intellectual property. Any litigation initiated by us concerning the violation by third parties of our intellectual property rights is likely to be expensive and time-consuming and could lead to the invalidation of, or render unenforceable, our intellectual property, or could otherwise have negative consequences for us. Furthermore, it could result in a court or governmental agency invalidating or rendering unenforceable our patents or other intellectual property rights upon which the suit is based. We will not be able to protect our intellectual property if we are unable to enforce our rights or if we do not detect unauthorized use of our intellectual property. Our inability to protect our proprietary technology against unauthorized copying or use, as well as any costly litigation or diversion of our management's attention and resources, could delay the introduction and implementation of new technologies, result in our substituting inferior or more costly technologies into our products or injure our reputation. Moreover, policing unauthorized use of our technologies, trade secrets, and intellectual

property may be difficult, expensive, and time-consuming, particularly in foreign countries where the laws may not be as protective of intellectual property rights as those in the United States and where mechanisms for enforcement of intellectual property rights may be weak. If we fail to meaningfully establish, maintain, protect, and enforce our intellectual property and proprietary rights, our business, operating results, and financial condition could be adversely affected.

Changes in U.S. patent law could diminish the value of patents in general, thereby impairing our ability to protect our products.

There are a number of recent changes to the patent laws that may have a significant impact on our ability to protect our technology and enforce our intellectual property rights. For example, the Leahy-Smith America Invents Act (the "AIA") enacted in September 2011, resulted in significant changes in patent legislation. An important change introduced by the AIA is that, as of March 16, 2013, the United States transitioned from a "first-to-invent" to a "first-to-file" system for deciding which party should be granted a patent when two or more patent applications are filed by different parties claiming the same invention. Under a "first-to-file" system, assuming the other requirements for patentability are met, the first inventor to file a patent application generally will be entitled to a patent on the invention regardless of whether another inventor had made the invention earlier. A third party that files a patent application in the USPTO after that date but before us could therefore be awarded a patent covering an invention of ours even if we made the invention before it was made by the third party. Circumstances could prevent us from promptly filing patent applications on our inventions.

The AIA also includes a number of significant changes that affect the way patent applications will be prosecuted and also may affect patent litigation. These include allowing third party submission of prior art to the USPTO during patent prosecution and additional procedures to attack the validity of a patent by USPTO administered post-grant proceedings, including post-grant review, *inter partes* review, and derivation proceedings. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in United States federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. Accordingly, a third party may attempt to use the USPTO procedures to invalidate our patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action. The AIA and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Further, the standards applied by the USPTO and foreign patent offices in granting patents are not always applied uniformly or predictably. For example, there is no uniform worldwide policy regarding patentable subject matter or the scope of claims allowable for business methods. As such, we do not know the degree of future protection that we will have on our technologies, products, and services. While we will endeavor to try to protect our technologies, products, and services with intellectual property rights such as patents, as appropriate, the process of obtaining patents is time-consuming, expensive, and sometimes unpredictable.

Additionally, the U.S. Supreme Court has ruled on several patent cases in recent years, such as Impression Products, Inc. v. Lexmark International, Inc., Association for Molecular Pathology v. Myriad Genetics, Inc., Mayo Collaborative Services v. Prometheus Laboratories, Inc. and Alice Corporation Pty. Ltd. v. CLS Bank International, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that could weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

Our patent applications may not issue as patents, which may have a material adverse effect on our ability to prevent others from commercially exploiting products similar to ours.

We cannot be certain that we are the first inventor of the subject matter to which we have filed a particular patent application, or if we are the first party to file such a patent application. If another party has filed a patent application to the same subject matter as we have, we may not be entitled to the protection sought by the patent application. Further, the scope of protection of issued patent claims is often difficult to determine. As a result, we cannot be certain that the patent applications that we file will issue, or that our issued patents will be broad enough to protect our proprietary rights or otherwise afford protection against competitors with similar technology. In addition, the issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability. Our competitors may challenge or seek to invalidate our issued patents, or design around our issued patents, which may adversely affect our business, prospects, financial condition or operating results. Also, the costs associated with enforcing patents, confidentiality and invention agreements, or other intellectual property rights may make aggressive enforcement impracticable.

We may not be able to protect our intellectual property rights throughout the world.

Filing, prosecuting, maintaining, defending, and enforcing patents and other intellectual property rights on our product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection or other intellectual property rights to develop their own products and may export otherwise infringing, misappropriating, or violating products to territories where we have patent or other intellectual property protection, but enforcement rights are not as strong as those in the United States. These products may compete with our product candidates, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of some countries do not favor the enforcement of patents and other intellectual property rights, which could make it difficult for us to stop the infringement, misappropriation, or other violation of our intellectual property rights generally. Proceedings to enforce our intellectual property rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of

being invalidated or interpreted narrowly and our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. For example, due to the evolving nature of the legal landscape for intellectual property in China, the level of protection available differs in many respects from that of certain other common law jurisdictions (such as the U.S.) and may be insufficient under certain circumstances due to local judicial protectionism, challenges in obtaining evidence and comparatively small damage awards. As a civil law country, China does not have a robust case law system like that in the U.S., and statutory laws and regulations are subject to judicial interpretation, which may not be applied consistently due to inconsistent application of judicial precedents and lack of clear guidance on statutory interpretation. Protection of intellectual property and enforcement against intellectual property infringement in China can be difficult and time-consuming, as we may be unable to promptly detect or become aware of and police any unauthorized use of our intellectual property in China. If the measures we take to protect our intellectual property under Chinese law are inadequate or ineffective, we may incur losses arising from infringement of our intellectual property, and our efforts to enforce or protect our intellectual property could result in substantial costs and diversion of resources and management time, each of which could substantially harm our operating results.

Many countries, including European Union countries, India, Japan, and China, have compulsory licensing laws under which a patent owner may be compelled under specified circumstances to grant licenses to third parties. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In those countries, we may have limited remedies if patents are infringed or if we are compelled to grant a license to a third party, which could materially diminish the value of those patents. This could limit our potential revenue opportunities. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license, which could adversely affect our business, financial condition, results of operations, and prospects.

In addition to patented technology, we rely on our unpatented proprietary technology, trade secrets, processes, and know-how.

We rely on proprietary information (such as trade secrets, know-how, and confidential information) to protect intellectual property that may not be patentable, or that we believe is best protected by means that do not require public disclosure. We generally seek to protect this proprietary information by entering into confidentiality agreements, or consulting, services, or employment agreements that contain non-disclosure and non-use provisions with our employees, consultants, contractors, scientific advisors, and third parties. However, we cannot guarantee that we have entered into such agreements with each party that has or may have had access to our trade secrets or proprietary information and, even if entered into, these agreements may be breached or may otherwise fail to prevent disclosure, third-party infringement or misappropriation of our proprietary information, may be limited as to their term and may not provide an adequate remedy in the event of unauthorized disclosure or use of proprietary information. We have limited control over the protection of trade secrets used by our third-party manufacturers and suppliers and could lose future trade secret protection if any unauthorized disclosure of such information occurs. In addition, our proprietary information may otherwise become known or be independently developed by our competitors or other third parties. To the extent that our employees, consultants, contractors, and other third parties use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain protection for our proprietary information could adversely affect our competitive business position. Furthermore, laws regarding trade secret rights in certain markets where we operate may afford little or no protection to our trade secrets. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor or other third party, we would have no right to prevent them from using that trade secret to compete with us. If any of our trade secrets were to be disclosed (whether lawfully or otherwise) to or independently developed by a competitor or other third party, it could have a material adverse effect on our business, operating results, and financial condition.

We also rely on physical and electronic security measures to protect our proprietary information, but we cannot guarantee that these security measures provide adequate protection for such proprietary information or will never be breached. There is a risk that third parties may obtain unauthorized access to and improperly utilize or disclose our proprietary information, which would harm our competitive advantages. We may not be able to detect or prevent the unauthorized access to or use of our information by third parties, and we may not be able to take appropriate and timely steps to mitigate the damages (or the damages may not be capable of being mitigated or remedied).

We utilize open source software, which may pose particular risks to our proprietary software, technologies, products, and services in a manner that could harm our business.

We use open source software in our products and services and anticipate using open source software in the future. Some open source software licenses require those who distribute open source software as part of their own software products to publicly disclose all or part of the source code to such software product or to make available any modifications or derivative works of the open source code on unfavorable terms or at no cost. This could result in our proprietary software being made available in the source code form and/or licensed to others under open source licenses, which could allow our competitors or other third parties to use our proprietary software freely without spending the development effort, and which could lead to a loss of the competitive advantage of our proprietary technologies and, as a result, sales of our products and services. The terms of many open source licenses to which we are subject have not been interpreted by U.S. or foreign courts, and there is a risk that open source software licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to provide or distribute our products or services or retain our ownership of our proprietary intellectual property. Additionally, we could face claims from third parties claiming ownership of, or demanding release of, the open source software or derivative works that we developed using such software, which could include our proprietary source code, or otherwise seeking to enforce the terms of, or alleging breach of, the applicable open source license. These claims could result in litigation and could require us to make our proprietary software source code freely available, purchase a costly license, or cease offering the implicated products or services unless and until we can re-engineer them to avoid breach of the applicable open source software licenses or potential infringement. This re-engineering process could require us to expend significant additional research and development resources, and we cannot guarantee that we will be successful.

Additionally, the use of certain open source software can lead to greater risks than use of third-party commercial software, as open source licensors generally do not provide warranties or controls on the origin of software. There is typically no support available for open source software, and we cannot ensure that the authors of such open source software will implement or push updates to address security risks or will not abandon further development and

maintenance. Many of the risks associated with the use of open source software, such as the lack of warranties or assurances of title, non-infringement, or performance, cannot be eliminated, and could, if not properly addressed, negatively affect our business. We have processes to help alleviate these risks, including a review process for screening requests from our developers for the use of open source software, but we cannot be sure that all open source software is identified or submitted for approval prior to use in our products and services. Any of these risks could be difficult to eliminate or manage, and, if not addressed, could adversely affect our ownership of proprietary intellectual property, the security of our vehicles, or our business, results of operations, and financial condition.

If our software contains serious errors or defects, we may lose revenue and market acceptance and may incur costs to defend or settle claims with our licensees, franchisees or other parties.

Software inevitably contains errors, defects, security vulnerabilities or software bugs, some of which are difficult to detect and correct, particularly when first introduced or when new versions or enhancements are released. Despite internal testing, our software may contain serious errors or defects, security vulnerabilities or software bugs that we may be unable to successfully detect or correct in a timely manner or at all, which could result in security incidents, data breaches, vehicle safety issues, product liability claims, lost revenue, significant expenditures of capital, a delay or loss in market acceptance, and damage to our reputation and brand, any of which could adversely affect our business, results of operations, and financial condition.

We are exposed to, and may be adversely affected by, interruptions to our information technology systems and networks and sophisticated cyber-attacks.

We collect and maintain information in digital form that is necessary to conduct our business, and we rely on information technology systems and networks ("IT systems") in connection with many of our business activities. Some of these networks and systems are managed by third-party service providers and are not under our direct control, and as a result, a number of third-party service providers may or could have access to our confidential information. Our operations routinely involve receiving, storing, processing, and transmitting confidential or sensitive information pertaining to our business, users, dealers, suppliers, employees, and other sensitive matters, including intellectual property, proprietary business information, and personal information. It is critical that we do so in a secure manner to maintain the confidentiality and integrity of such confidential or sensitive information. We have established physical, electronic, and organizational measures designed to safeguard and secure our systems to prevent a data compromise, and rely on commercially available systems, software, tools, and monitoring to provide security for our IT systems and the processing, transmission, and storage of digital information. Despite the implementation of preventative and detective security controls, such IT systems are vulnerable to damage or interruption from a variety of sources, including telecommunications or network failures or interruptions, system malfunction, natural disasters, malicious human acts, terrorism, and war. Such IT systems, including our servers, are additionally vulnerable to physical or electronic break-ins, security breaches from inadvertent or intentional actions by our employees, third-party service providers, contractors, consultants, business partners, and/or other third parties, or from cyber-attacks by malicious third parties (including the deployment of harmful malware, ransomware, denial-of-service attacks, social engineering, and other means to affect service reliability and threaten the confidentiality, integrity, and availability of information).

We have experienced data breaches, cyber-attacks, attempts to breach our systems, and other similar incidents, none of which have been material. Any future cyber incidents could, however, materially disrupt operational systems, result in the loss of trade secrets or other proprietary or competitively sensitive information, compromise personally identifiable information regarding users or employees and jeopardize the security of our facilities. The risk of a security breach or disruption, particularly through cyber-attacks or cyber intrusion, including by computer hackers, foreign governments, and cyber terrorists, has generally increased as the number, intensity, and sophistication of attempted attacks and intrusions from around the world have increased. We can provide no assurance that our current IT Systems, or those of the third parties upon which we rely, are fully protected against cybersecurity threats. It is possible that we or our third-party service providers may experience cybersecurity and other breach incidents that remain undetected for an extended period. Even when a security breach is detected, the full extent of the breach may not be determined immediately. Because techniques used to obtain unauthorized access or to sabotage systems change frequently and generally are not recognized until they are launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. Information technology security threats, including security breaches, computer malware, and other cyber-attacks are increasing in both frequency and sophistication and could cause us to incur financial liability, subject us to legal or regulatory sanctions or damage our reputation with users, dealers, suppliers, and other stakeholders. We continuously seek to maintain information security and controls, however our efforts to mitigate and address network security problems, bugs, viruses, worms, malicious software programs, and security vulnerabilities may not be successful and the impact of a material cybersecurity event could have a material adverse effect on our competitive position, reputation, results of operations, financial condition, and cash flows.

Unauthorized control or manipulation of systems in autonomous semi-trucks may cause them to operate improperly or not at all, or compromise their safety and data security, which could result in loss of confidence in us and our products, cancellation of contracts with certain of our OEM or Tier 1 partners and harm our business.

There have been reports of vehicles of certain OEMs being "hacked" to grant access to and operation of the vehicles to unauthorized persons. Our L4 autonomous semi-trucks contain complex IT systems and are designed with built-in data connectivity. We have designed, implemented, and tested security measures intended to prevent unauthorized access to our information technology networks and systems installed in our L4 autonomous semi-trucks. However, hackers may attempt to gain unauthorized access to modify, alter, and use such networks and systems to gain control of, or to change, our semi-trucks' functionality, user interface and performance characteristics, or to gain access to data stored in or generated by our products. As techniques used to obtain unauthorized access to or sabotage systems change frequently and may not be known until launched against us or our third-party service providers, there can be no assurance that we will be able to anticipate, or implement adequate measures to protect against, these attacks. Any such security incidents could result in unexpected control of or changes to the vehicles' functionality and safe operation and could result in legal claims or proceedings and negative publicity, which would negatively affect our brand and harm our business, prospects, financial condition, and operating results.

We collect, process, transmit, and store personal information in connection with the operation of our business and are subject to various data privacy and consumer protection laws. The costs to comply with, or our actual or perceived failure to comply with, changing U.S. and foreign laws related to data privacy, security, and protection, such as the California Consumer Privacy Act and the E.U. General Data Protection Regulation, or contractual obligations related to data privacy,

security, and protection, could adversely affect our financial condition, operating results, and our reputation.

In operating our business and providing services and solutions to clients, we collect, use, store, transmit, and otherwise process employee, partner, and client data, including personal data, in and across multiple jurisdictions. We use the electronic systems of our L4 autonomous semi-trucks to log information about each semi-truck's use in order to aid us in vehicle diagnostics, repair, and maintenance, as well as to help us collect data regarding drivers' use patterns and preference in order to help us customize and optimize the driving and riding experiences. Our L4 autonomous semi-trucks also collect personal information of drivers and passengers, such as a voice command of a person, in order to aid the manual operation of our semi-trucks. When our L4 autonomous semi-trucks are in operation, the camera, LiDAR, and other sensing components of our semi-trucks will collect street view, mapping data, landscape images, and other LiDAR information, which may include personal information such as license plate numbers of other vehicles, facial features of pedestrians, appearance of individuals, GPS data, geolocation data, in order train the data analytics and artificial intelligence technology equipped in our semi-trucks for the purpose of identifying different objects, and predicting potential issues that may arise during the operation of our semi-trucks.

We leverage systems and applications that are spread over the United States, China, and Sweden, requiring us to regularly move data across national borders. As a result, we are subject to a variety of laws and regulations in the United States, China, the European Union, and other foreign jurisdictions as well as contractual obligations, regarding data privacy, protection, and security. Some of these laws and regulations require obtaining data subjects' consent to the collection and use of their data, honoring data subjects' request to delete their data or limit the processing of their data, providing notifications in the event of a data breach, and setting up the proper legal mechanisms for cross-border data transfers. Some users may refuse to provide consent to our collection and use of their personal information, or may restrict our use of such personal information, and in some cases it is not feasible to obtain consent from data subjects in the general public whose personal information may be captured by our L4 autonomous semi-trucks, all of which may hinder our ability to train our data analytics and artificial intelligence technology, and may harm the competitiveness of our technology. In many cases, these laws and regulations apply not only to the collection and processing of personal information from third parties with whom we do not have any contractual relationship, but also to the sharing or transfer of information between or among us, our subsidiaries and other third parties with which we have commercial relationships, such as our service providers, partners, and clients. The regulatory framework for data privacy, protection, and security worldwide is continuously evolving and developing and, as a result, interpretation and implementation standards and enforcement practices are likely to remain uncertain for the foreseeable future. In particular, some of these laws and regulations may require us to store certain categories of data collected from individuals residing in a jurisdiction only on servers physically located in such jurisdiction, and may further require us to conduct security assessments and/or adopt other cross-border data transfer mechanisms in order to transfer such data outside of such jurisdiction. With the continuously evolving and rapidly changing privacy regulatory regime, our ability to freely transfer data among our affiliates and with our partners in different jurisdictions may be impeded, or we may need to incur significant costs in order to comply with such requirements. In addition, the number of high-profile data breaches at major companies continues to accelerate, which will likely lead to even greater regulatory scrutiny.

The scope and interpretation of the laws and regulations that are or may be applicable to us are often uncertain and may be conflicting, particularly with respect to foreign laws. For example, the E.U. General Data Protection Regulation (the "GDPR"), which became effective in May 2018, greatly increased the European Commission's jurisdictional reach of its laws and added a broad array of requirements for handling personal data with respect to EU data subjects. EU member states are tasked under the GDPR to enact, and have enacted, certain implementing legislation that adds to and/or further interprets the GDPR requirements and potentially extends our obligations and potential liability for failing to meet such obligations. The GDPR, together with national legislation, regulations and guidelines of the EU member states and the United Kingdom governing the processing of personal data, impose strict obligations and restrictions on the ability to collect, use, retain, protect, disclose, transfer, and otherwise process personal data with respect to EU and UK data subjects. In particular, the GDPR includes obligations and restrictions concerning the consent and rights of individuals to whom the personal data relates, the transfer of personal data out of the EEA or the United Kingdom, security breach notifications and the security and confidentiality of personal data. Among other stringent requirements, the GDPR restricts transfers of data outside of the EU to third countries deemed to lack adequate privacy protections (such as the U.S.), unless an appropriate safeguard specified by the GDPR is implemented. A July 16, 2020 decision of the Court of Justice of the European Union invalidated a key mechanism for lawful data transfer to the U.S. and called into question the viability of its primary alternative. As such, the ability of companies to lawfully transfer personal data from the EU to the U.S. is presently uncertain. Other countries have enacted or are considering enacting similar cross-border data transfer rules or data localization requirements. These developments could limit our ability to launch our products in the EU and other foreign markets. The GDPR authorizes fines for certain violations of up to 4% of global annual revenue or €20 million, whichever is greater. Such fines are in addition to any civil litigation claims by data subjects. Much remains unknown with respect to how to interpret and implement the GDPR and guidance on implementation and compliance practices is often updated or otherwise revised. Given the breadth and depth of changes in data protection obligations, including classification of data and our commitment to a range of administrative, technical and physical controls to protect data and enable data transfers outside of the EU and the United Kingdom, our compliance with the GDPR's requirements will continue to require time, resources and review of the technology and systems we use to satisfy the GDPR's requirements, including as EU member states enact their legislation. Further, while the United Kingdom enacted the Data Protection Act 2018 in May 2018 that supplements the GDPR, and has publicly announced that it will continue to regulate the protection of personal data in the same way post-Brexit, Brexit has created uncertainty with regard to the future of regulation of data protection in the United Kingdom.

The implementation of the GDPR has led other jurisdictions to amend, or propose legislation to amend, their existing data protection laws to align with the requirements of the GDPR, with the aim of obtaining an adequate level of data protection to facilitate the transfer of personal data to most jurisdictions from the EU. Accordingly, the challenges we face in the EU will likely also apply to other jurisdictions outside the EU that adopt laws similar in construction to the GDPR or regulatory frameworks of equivalent complexity. For example, the U.S., Brazil, the Cayman Islands, China, India, and Japan have also proposed or adopted sweeping new data protection laws, in some cases including data localization laws that will require that personal data stay within their borders.

The U.S. federal government and various states and governmental agencies also have adopted or are considering adopting various laws, regulations, and standards regarding the collection, use, retention, security, disclosure, transfer, and other processing of sensitive and personal information. In addition, many states in which we operate have laws that protect the privacy and security of sensitive and personal information. Certain state laws may be more

stringent or broader in scope, or offer greater individual rights, with respect to sensitive and personal information than federal, international, or other state laws, and such laws may differ from each other, which may complicate compliance efforts. For example, California enacted the California Consumer Privacy Act of 2018 (the "CCPA") on June 28, 2018, which came into effect on January 1, 2020. The CCPA creates individual privacy rights for California residents and increases the privacy and security obligations of entities handling personal data of California consumers and meeting certain thresholds. Failure to comply with the CCPA may result in attorney general enforcement action and damage to our reputation. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches that result in the loss of certain types of personal information. This private right of action may increase the likelihood of, and risks associated with, class action data breach litigation. In addition, the CCPA's restrictions on "sales" of personal information may restrict our use of cookies and similar tracking technologies for advertising purposes. To the extent the CCPA applies to us, it will increase our compliance costs and potential liability. In addition, many similar laws have been proposed at the federal level and in other states. For instance, the state of Nevada recently enacted a law that went into force on October 1, 2019 and requires companies to honor consumers' requests to no longer sell their data. Violators may be subject to injunctions and civil penalties of up to $5,000 per violation. New legislation proposed or enacted in Illinois, Massachusetts, New Jersey, New York, Rhode Island, Washington, and other states, and a proposed right to privacy amendment to the Vermont Constitution, imposes, or has the potential to impose, additional obligations on companies that collect, store, use, retain, disclose, transfer, and otherwise process confidential, sensitive, and personal information, and will continue to shape the data privacy environment throughout the United States. State laws are changing rapidly and there is discussion in Congress of a new federal data protection and privacy law to which we would become subject if it is enacted. All of these evolving compliance and operational requirements impose significant costs that are likely to increase over time, may require us to modify our data processing practices and policies, and may divert resources from other initiatives and projects. Furthermore, non-compliance with data privacy laws and regulations, or a major breach of our network security and systems, could have serious negative consequences for our businesses and future prospects, including possible fines, penalties, and damages, reduced customer demand for our L4 autonomous semi-trucks, and harm to our reputation and brand, all of which may have a material and adverse impact on our business, financial condition, and operating results.

We outsource important aspects of the storage, processing, and transmission of personal information, and thus rely on third parties to manage functions that have material cybersecurity risks. In an attempt to address these risks, we may require third-party service providers who handle personal information to sign confidentiality agreements or data processing agreements (if required by applicable data privacy laws), which would contractually require them to safeguard personal information to the same extent that applies to us, and in some cases we require such service providers to complete information security questionnaires, quality verification questionnaires, or undergo third-party security examinations or provide data security certifications or security audit results. In addition, we periodically hire third-party security experts to assess and test our security posture. However, we cannot assure that these contractual measures and other safeguards will adequately protect us from the risks associated with the storage and transmission of the personal information of our users, employees, drivers, and passengers.

Many statutory requirements include obligations for companies to notify individuals of security breaches involving certain personal information, which could result from breaches experienced by us or our third-party service providers. For example, laws in all 50 U.S. states and the District of Columbia require businesses to provide notice to consumers whose personal information has been disclosed as a result of a data breach. These laws are not consistent, and compliance in the event of a widespread data breach is difficult and may be costly. Moreover, states have been frequently amending existing laws, requiring attention to changing regulatory requirements. We also may be contractually required to notify users or other counterparties of a security breach. Although we may have contractual protections with our third-party service providers, contractors, and consultants, any actual or perceived security breach could harm our reputation and brand, expose us to potential liability or require us to expend significant resources on data security and in responding to any such actual or perceived breach. Any contractual protections we may have from our third-party service providers, contractors or consultants may not be sufficient to adequately protect us from any such liabilities and losses, and we may be unable to enforce any such contractual protections.

In China, the PRC Cyber Security Law became effective on June 1, 2017. The Cyber Security Law reaffirms the basic principles and requirements specified in other existing laws and regulations on personal information protection, such as the requirements on the collection, use, processing, storage, and disclosure of personal information. Specifically, it requires that network operators take technical measures and other necessary measures in accordance with applicable laws and regulations and the compulsory requirements of the national and industrial standards to safeguard the safe and stable operation of its networks, maintain the integrity, confidentiality, and availability of network data, take technical and other necessary measures to ensure the security of the personal information they have collected against unauthorized access, alteration, disclosure, or loss, and formulate contingency plans for network security incidents and remediation measures. It also requires a subset of network operators that meet certain thresholds to be critical information infrastructure operators ("CIIO") to store personal information and important data collected and generated during its operation within the territory of China locally on servers in China. The interpretation of what network operators are qualified as CIIOs is unclear. If we are deemed to be a CIIO, we would become subject to additional requirements applicable to CIIOs. Any violation of the Cyber Security Law may subject a network operator to warnings, fines, confiscation of illegal gains, revocation of licenses, cancellation of filings, shutdown of websites, or criminal liabilities.

In addition to government regulation, privacy advocates and industry groups have and may in the future propose self-regulatory standards from time to time. These and other industry standards may legally or contractually apply to us, or we may elect to comply with such standards. We expect that there will continue to be new proposed laws and regulations concerning data privacy and security, and we cannot yet determine the impact such future laws, regulations, and standards may have on our business. New laws, amendments to or re-interpretations of existing laws, regulations, standards, and other obligations may require us to incur additional costs and restrict our business operations. Because the interpretation and application of laws, regulations, standards, and other obligations relating to data privacy and security are still uncertain, it is possible that these laws, regulations, standards, and other obligations may be interpreted and applied in a manner that is inconsistent with our data processing practices and policies or the features of our products and services. If so, in addition to the possibility of fines, lawsuits, regulatory investigations, public censure, other claims and penalties and significant costs for remediation and damage to our reputation, we could be required to fundamentally change our business activities and practices, which could adversely affect our business. We may be unable to make such changes and modifications in a commercially reasonable manner, or at all. Any inability to adequately

address data privacy or security-related concerns, even if unfounded, or to comply with applicable laws, regulations, standards, and other obligations relating to data privacy and security, could result in additional cost and liability to us, harm our reputation and brand, damage our relationship with important clients, and affect our financial condition, operating results, and our reputation.

We make public statements about our use and disclosure of personal information through our privacy policy, information provided on our website and press statements. Also, we enter into contracts with third parties (such as our partners and clients) that contain provisions regarding the collection, sharing, and processing of personal information. Although we endeavor to comply with our public statements and documentation as well as our contractual and other privacy-related obligations, we may at times fail to do so or be alleged to have failed to do so. The publication of our privacy policy and other statements that provide promises and assurances about data privacy and security can subject us to potential government or legal action if they are found to be deceptive, unfair or misrepresentative of our actual practices. In addition, from time to time, concerns may be expressed about whether our products and services compromise the privacy of clients and others. Any concerns about our data privacy and security practices (even if unfounded), or any failure, real or perceived, by us to comply with our posted privacy policies, contractual obligations, or any legal or regulatory requirements, standards, certifications, or orders, or other privacy or consumer protection-related laws and regulations applicable to us, could cause our clients to reduce their use of our L4 autonomous semi-trucks and could affect our financial condition, operating results, and our reputation, and may result in governmental or regulatory investigations, enforcement actions, regulatory fines, criminal compliance orders, litigations, breach of contract claims, or public statements against us by government regulatory authorities, our partners and/or clients, data subjects, consumer advocacy groups, or others, all of which could be costly and have an adverse effect on our business.

Furthermore, enforcement actions and investigations by regulatory authorities related to data security incidents and privacy violations continue to increase. Non-compliance could result in proceedings against us by data protection authorities, governmental entities or others, including class action privacy litigation in certain jurisdictions, which would subject us to significant fines, penalties, judgments, and negative publicity, and may otherwise affect our financial condition, operating results, and our reputation. Given the complexity of operationalizing the GDPR and other data privacy and security laws and regulations to which we are subject, the maturity level of proposed compliance frameworks and the relative lack of guidance in the interpretation of the numerous requirements of the GDPR and other data privacy and security laws and regulations to which we are subject, we may not be able to respond quickly or effectively to regulatory, legislative, and other developments, and these changes may in turn impair our ability to offer our existing or planned products and services and/or increase our cost of doing business. In addition, if our practices are not consistent or viewed as not consistent with legal and regulatory requirements, including changes in laws, regulations, and standards or new interpretations or applications of existing laws, regulations and standards, we may become subject to audits, inquiries, whistleblower complaints, adverse media coverage, investigations, loss of export privileges, or severe criminal or civil sanctions, all of which may affect our financial condition, operating results, and our reputation. Unauthorized access or disclosure of personal or other sensitive or confidential data of Company (including data about third parties which the Company possesses), whether through systems failure, employee negligence, fraud, or misappropriation, by the Company, our service providers or other parties with whom we do business (if they fail to meet the standards we impose, or if their systems on which our data is stored experience any data breaches or security incidents) could also subject us to significant litigation, monetary damages, regulatory enforcement actions, fines, and criminal prosecution in one or more jurisdictions.

Risks Related to Regulations

Our business may be adversely affected by changes in automotive safety regulations or concerns that drive further regulation of the automobile safety market.

Government vehicle safety regulations have a substantial impact on our business, prospects, and our future plans. Government safety regulations are subject to change based on a number of factors that are not within our control, including new scientific or technological data, adverse publicity regarding industry recalls and safety risks associated with autonomous driving technology, accidents involving autonomous vehicles, domestic and foreign political developments or considerations, and litigation relating to autonomous vehicles. Changes in government regulations, especially in autonomous driving and the freight industry could adversely affect our business. If government priorities shift and we are unable to adapt to changing regulations, our business may be materially and adversely affected.

The costs of complying with safety regulations could increase as regulators impose more stringent compliance and reporting requirements in response to product recalls and safety issues in the automotive industry. As the semi-trucks that carry our systems go into production, we would be subject to existing stringent requirements under the National Traffic and Motor Vehicle Safety Act of 1966 (the "Vehicle Safety Act"), including a duty to report, subject to strict timing requirements, safety defects. The Vehicle Safety Act imposes potentially significant civil penalties for violations including the failure to comply with such reporting actions. We are also subject to the existing U.S. Transportation Recall Enhancement, Accountability and Documentation Act (the "TREAD Act"), which requires motor vehicle equipment manufacturers, such as us, to comply with "Early Warning" requirements by reporting certain information to the National Highway Traffic Safety Administration (the "NHTSA") such as information related to defects or reports of injury. The TREAD Act imposes criminal liability for violating such requirements if a defect subsequently causes death or bodily injury. In addition, the National Traffic and Motor Vehicle Safety Act authorizes NHTSA to require a manufacturer to recall and repair vehicles that contain safety defects or fail to comply with U.S. federal motor vehicle safety standards. Sales into foreign countries may be subject to similar regulations. If we cannot rapidly address any safety concerns or defects with our products, our business, results of operations, and financial condition will be adversely affected.

The U.S. Department of Transportation issued regulations in 2016 that require manufacturers of certain autonomous vehicles to provide documentation covering specific topics to regulators, such as how automated systems detect objects on the road, how information is displayed to drivers, what cybersecurity measures are in place and the methods used to test the design and validation of autonomous driving systems. If the obligations associated with complying with safety regulations increase it may require increased resources, divert management's attention, and adversely affect our business.

We are subject to substantial regulations, including regulations governing autonomous vehicles, and unfavorable changes to, or failure by us to comply with, these regulations could substantially harm our business and operating results.

Our L4 autonomous semi-trucks are subject to substantial regulation under international, federal, state, and local laws. Regulations designed to govern autonomous vehicle operation, testing and/or manufacture are still developing and may change significantly. These regulations could include requirements that significantly delay or narrowly limit the commercialization of autonomous vehicles, limit the number of autonomous vehicles that we can manufacture or use on our platform, impose restrictions on the number of vehicles in operation and the locations where they may be operated or impose significant liabilities on manufacturers or operators of autonomous vehicles or developers of autonomous vehicle technology. If regulations of this nature are implemented, we may not be able to commercialize our autonomous vehicle technology in the manner we expect, or at all. In addition, the costs of complying with such regulations could be prohibitive and prevent us from operating our business in the manner we intend.

Further, we are subject to international, federal, state, and local laws and regulations, governing pollution, protection of the environment, and occupational health, and safety, including those related to the use, generation, storage, management, discharge, transportation, disposal, and release of, and human exposure to, hazardous and toxic materials. Such laws and regulations have tended to become more stringent over time.

Fines, penalties, costs or liabilities associated with such existing or new regulations or laws, including as a result of our failure to comply, could be substantial and in certain cases joint and several, and could adversely impact our business, prospects, financial condition, and operating results.

Risks Related to Our International Operations

We face risks associated with our international operations, including unfavorable regulatory, political, tax, and labor conditions, which could harm our business.

While we currently have much of our operations in the United States, we still face risks associated with our current and future international operations. We have international operations in China and subsidiaries in China, Hong Kong, and Japan that are subject to the legal, political, regulatory, and social requirements, and economic conditions in these jurisdictions. Additionally, as part of our long-term growth strategy, we intend to expand our services into other international locations. We are and will be subject to a number of risks associated with international business activities that may increase our costs, impact our ability to expand on a global basis, and require significant management attention. These risks include:

- conforming the semi-trucks equipped with our autonomous technology to various international regulatory requirements as applicable,
- difficulty in staffing and managing foreign operations;
- difficulties attracting users in new jurisdictions;
- differing driving and traffic behavior and road designs and infrastructure in a range of countries, which could delay our ability to enter and expand in different markets;
- foreign government taxes, regulations, and permit requirements;
- fluctuations in foreign currency exchange rates and interest rates;
- United States and foreign government trade restrictions, tariffs, and price or exchange controls;
- compliance by us and our business partners with anti-corruption laws, import and export control laws, tariffs, trade barriers, economic sanctions, and other regulatory limitations on our ability to provide our services and products in certain international markets;
- attract, recruit, and retain talents internationally;
- foreign labor laws, regulations, and restrictions;
- changes in diplomatic and trade relationships;
- political instability, natural disasters, war or events of terrorism; and
- the strength of international economies.

If we fail to successfully address these risks, our business, prospects, operating results and financial condition could be materially harmed.

Changes to trade policy, tariffs, and import/export regulations may have a material adverse effect on our business, financial condition, and results of operations.

Changes in global political, regulatory and economic conditions, or in laws and policies governing foreign trade, manufacturing, development, and investment in the territories or countries where we currently purchase components, seek to offer our services, or conduct our business, could adversely affect our business. The United States has recently instituted or proposed changes in trade policies that include the negotiation or termination of trade agreements, the imposition of higher tariffs on imports into the United States, economic sanctions on individuals, corporations or countries, and other government regulations affecting trade between the United States and other countries. A number of other nations have proposed or instituted similar measures directed at trade with the United States in response. As a result of these developments, there may be greater restrictions and economic disincentives on international trade that could adversely affect our business. For example, such changes could adversely affect the automotive market, our ability to access key components. It may be time-consuming and expensive for us to alter our business operations to adapt to or comply with any such changes, and any failure to do so could have a material adverse effect on its business, financial condition and results of operations.

As we expand our operations to international markets, we may become subject to various restrictions under U.S. export control laws and regulations, including the U.S. Department of Commerce's Export Administration Regulations (EAR). The U.S. export control laws include restrictions or prohibitions on the sale or supply of certain products and services to U.S. embargoed or sanctioned countries, governments, persons, and entities, and also require authorization for the export of certain products using encryption technology. In addition, various countries regulate the import of certain artificial intelligence technology, including through import permitting and licensing requirements and have enacted or could enact laws that could limit our ability to distribute our services in those countries. Changes in our offerings, technologies, or semi-trucks, or changes in export and import laws, may delay the introduction and growth of our business in international markets, prevent our users with international operations from using our services or, in some cases, prevent the access or use of our services to and from certain countries, governments, persons, or entities altogether. Further, any change in export or import regulations or related laws, shift in the enforcement or scope of existing regulations, or change in the countries, governments, persons, or technology targeted by such regulations could result in decreased use of our services or in our decreased ability to export or sell our services to existing or potential users with international operations. Any decreased use of our services or products or limitation on our ability to export or sell our services or products would likely harm our business.

Among the future potential changes to the U.S. export control laws and regulations that could limit our ability to export or sell our services or products is the ongoing review being conducted pursuant by an interagency committee chaired by the U.S. Department of Commerce (the Commerce Department) pursuant to the Export Control Reform Act of 2018 (ECRA) to identify so-called "emerging and foundational technologies" that might warrant additional export controls under section 1758 of the ECRA. On November 19, 2018, the Commerce Department published an Advanced Notice of Proposed Rulemaking seeking public comment on the definition of, and criteria for, identifying "emerging technologies" that might warrant such additional export control. Among the "representative general categories of technology" for which Commerce sought comment were "[a]rtificial intelligence (AI) and machine learning technology," "AI cloud technologies," and "Position, Navigation, and Timing (PNT) technology." The process of considering potential "emerging and foundational technologies" controls continues.

Should any of our services or products become controlled as "emerging and foundational technologies," one impact is that future foreign investment in our shares could be subject to mandatory review by the Committee on Foreign Investment in the United States ("CFIUS" or the "Committee"). CFIUS is a committee comprised of multiple U.S. government agencies, led by the Department of the Treasury, authorized to review and investigate certain transactions in which a foreign person acquires an interest in a U.S. business (including certain minority investments) in order to determine the effect of such transactions on the national security of the United States. CFIUS reviews and investigations are confidential, civil regulatory processes. With respect to any transaction within its jurisdiction, CFIUS may negotiate, enter into or impose, and enforce any agreement or condition with any party to the transaction in order to mitigate any risk to the national security of the United States that arises as a result of the transaction. Such conditions could include, for example, restrictions on the foreign investor's access to sensitive information in the possession of the U.S. business, ongoing reporting requirements to the U.S. government, a requirement to retain a third-party auditor to monitor compliance with security control measures, or other conditions. If a transaction presents national security concerns that CFIUS determines are not capable of mitigation, CFIUS can recommend to the President that the investment transaction be prohibited, or, if already consummated, that the foreign investor be required to divest its interest.

On March 1, 2021, the CFIUS Staff Chairperson, acting at the direction of the Committee, requested that we file a written notice regarding the 2017 purchase of shares of our Series B redeemable convertible preferred stock by Sun Dream Inc. ("Investor"), an affiliate of Sina Corporation (the "Investment"). Following the acceptance of the filing of our joint notice, CFIUS will have 45 days to conduct a review of the Investment, after which CFIUS could (i) conclude that the Investment is not a covered transaction subject to CFIUS jurisdiction, (ii) clear the Investment by concluding that the Investment presents no unresolved national security concerns, or (iii) initiate a 45-day investigation of the Investment. At the conclusion of the investigation period, CFIUS may clear the Investment or, as a condition to clearing the Investment, require the parties to enter into an agreement to mitigate any unresolved national security concerns. Such a mitigation agreement could, among other things, restrict Investor's governance rights. In addition, if the President concludes that the Investment threatens to impair the national security of the United States, the President may order that Investor divest its interest in our shares. Any restrictions implemented by CFIUS, or the threat of any such action, may adversely impact the market for our Class A common stock. We can provide no assurance regarding the resolution of the CFIUS process.

Risks Related to Our Class A Common Stock and This Offering

The dual class structure of our common stock has the effect of concentrating voting control with certain stockholders, in particular, our Founders, which will limit your ability to influence the outcome of important transactions, including a change in control.

Our Class B common stock has 10 votes per share, and our Class A common stock, which is the stock we are offering in our initial public offering, has one vote per share. Our Founders, Mo Chen and Xiaodi Hou, are the only holders of shares of Class B common stock and will together hold approximately % of the voting power of our outstanding common stock following this offering (without giving effect to any purchases that certain of these holders may make through our directed share program or the exercise of the underwriters' over-allotment option). Although our Founders will hold in excess of 50% of the voting power in the aggregate, neither Mr. Chen nor Mr. Hou will individually control more than 50% of the total voting power of our outstanding voting stock. Accordingly, we do not believe we will be a "controlled company" under the rules of the Nasdaq Global Select Market immediately following the offering. Because of the 10-to-one voting ratio between our Class B and Class A common stock, our Founders will continue to control a majority of the combined voting power of our common stock and therefore be able to control all matters submitted to our stockholders for approval so long as the shares of Class B common stock represent at least 50% of all outstanding voting power of our Class A and Class B common stock. This concentrated control will limit or preclude your ability to influence corporate matters for the foreseeable future.

Future transfers of Class B common stock by our Founders will generally result in those shares converting to Class A common stock, subject to limited exceptions, including the ability of each of our Founders to grant their voting proxy with respect to their Class B common stock to the other Founder. In addition, each share of our Class B common stock will automatically convert, on a one-for-one basis, into shares of Class A common stock on the earliest of (i) the date specified by a vote of the holders of Class B common stock representing 75.0% of the outstanding shares of Class B common stock, (ii) the date that is between 90 days and 270 days, as determined by the board of directors, after the death or incapacitation of the last Founder to die or become

incapacitated or (iii) the date that is between 61 and 180 days, as determined by the board of directors, after the date on which the number of outstanding shares of Class B common stock held by the Founders represents less than 50.0% of the total number of shares of Class B common stock held collectively by the Founders at 11:59 pm Pacific Time on the date that we file our amended and restated certificate of incorporation immediately prior to the completion of this offering. For a description of the dual class structure, see the section titled "Description of Capital Stock—Anti-Takeover Provisions."

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

We cannot predict whether our dual class structure, combined with the concentrated control of our Founders, directors, officers and employees and their affiliates, will result in a lower or more volatile market price of our Class A common stock or in adverse publicity or other adverse consequences. For example, certain index providers have announced restrictions on including companies with multiple class share structures in certain of their indexes. In July 2017, FTSE Russell and Standard & Poor's announced that they would cease to allow most newly public companies utilizing dual or multi-class capital structures to be included in their indices. Under the announced policies, our dual class capital structure would make us ineligible for inclusion in any of these indices. Given the sustained flow of investment funds into passive strategies that seek to track certain indexes, exclusion from stock indexes would likely preclude investment by many of these funds and could make our Class A common stock less attractive to other investors. As a result, the market price of our Class A common stock could be adversely affected.

An active trading market for our Class A common stock may not develop and the trading price for our Class A common stock may fluctuate significantly.

Prior to the completion of this offering, there has been no public market for our Class A common stock, and we cannot assure you that a liquid public market for our Class A common stock will develop. If an active public market for our Class A common stock does not develop following the completion of this offering, the market price and liquidity of our Class A common stock may be materially and adversely affected. The initial public offering price for our Class A common stock will be determined by negotiation between us and the underwriters based upon several factors, and the trading price of our Class A common stock after this offering could decline below the initial public offering price. If you purchase Class A common stock in our initial public offering, you may not be able to resell those shares at or above the initial public offering price. An active or liquid market in our Class A common stock may not develop upon closing of our initial public offering or, if it does develop, it may not be sustainable. The lack of an active market may adversely affect your ability to sell your Class A common stock at the time you wish to sell them or at a price that you consider reasonable. The market price of our Class A common stock may fluctuate significantly in response to numerous factors, many of which are beyond our control, including:

- overall performance of the equity markets;
- our operating performance and the performance of other similar companies;
- changes in the estimates of our operating results that we provide to the public, our failure to meet these projections, or changes in recommendations by securities analysts that elect to follow our Class A common stock;
- announcements of technological innovations, new products, acquisitions, strategic alliances, or significant agreements by us or by our competitors;
- announcements of user additions and user cancellations or delays;
- rumors and market speculation involving us or other companies in our industry.
- detrimental adverse publicity about us, our services, or our industry;
- recruitment or departure of key personnel;
- the impact of the COVID-19 pandemic;
- litigation involving us, our industry, or both, or investigations by regulators into our operations or those of our competitors;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business;
- the economy as a whole, market conditions in our industry, and the industries of our users;
- trading activity by a limited number of stockholders who together beneficially own a majority of our outstanding Class A common stock;
- the expiration of market standoff or contractual lock-up agreements; and
- any other factors discussed in this prospectus.

As the public offering price is substantially higher than our net tangible book value per share of Class A common stock, you will incur immediate and substantial dilution.

If you purchase Class A common stock in this offering, you will experience substantial and immediate dilution in the pro forma net tangible book value per share of $ as of December 31, 2020, based on the initial public offering price of $ per share of Class A common stock, because the price that you pay will be substantially greater than the pro forma net tangible book value per share of Class A common stock that you acquire. This dilution is due in large part to the fact that our earlier investors paid substantially less than the initial public offering price when they purchased their shares. You will experience additional dilution upon exercise of options to purchase Class A common stock or the settlement of share value awards under our equity incentive plans, upon vesting of options to purchase Class A common stock under our equity incentive plans, if we issue restricted shares to our employees under our equity incentive plans or if we otherwise issue additional Class A common stock.

Because we do not expect to pay dividends in the foreseeable future after this offering, investors must rely on price appreciation of our Class A common stock for return on the investment.

We currently intend to retain most, if not all, of our available funds and any future earnings after this offering to fund the growth of our business. As a result, we do not expect to pay any cash dividends in the foreseeable future. Therefore, you should not rely on an investment in our Class A common stock as a source for any future dividend income.

Our board of directors has complete discretion as to whether to distribute dividends. Even if our board of directors decides to declare and pay dividends, the timing, amount, and form of future dividends, if any, will depend on, among other things, our future results of operations and cash flow, our capital requirements and surplus, our financial condition, contractual restrictions, and other factors deemed relevant by our board of directors. Accordingly, the return on your investment in our Class A common stock will likely depend entirely upon any future price appreciation of our Class A common stock. There is no guarantee that our Class A common stock will appreciate in value after this offering or even maintain the price at which you purchased the Class A common stock. You may not realize a return on your investment in our Class A common stock and you may even lose your entire investment in our Class A common stock.

We have not determined a specific use for a portion of the net proceeds from this offering, and we may use these proceeds in ways with which you may not agree.

We have not determined a specific use for a portion of the net proceeds of this offering, and our management will have considerable discretion in deciding how to apply these proceeds. You will not have the opportunity to assess whether the proceeds are being used appropriately before you make your investment decision. You must rely on the judgment of our management regarding the application of the net proceeds of this offering. We cannot assure you that the net proceeds will be used in a manner that will improve our results of operations or increase our Class A common stock price, nor that these net proceeds will be placed only in investments that generate income or appreciate in value.

If securities or industry analysts do not publish research or reports about our business or if they issue an adverse or misleading opinion regarding our Class A common stock, our share price and trading volume could decline.

The trading market for our Class A common stock will be influenced by the research and reports that industry or securities analysts publish about us or our business. We do not currently have and may never obtain research coverage by securities and industry analysts. If no or few securities or industry analysts commence coverage of us, the trading price for our Class A common stock would be negatively impacted. In the event we obtain securities or industry analyst coverage, if any of the analysts who cover us issue an adverse or misleading opinion regarding us, our business model, our financial statement, our intellectual property or our share performance, our share price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our share price or trading volume to decline.

Sales of a substantial number of our Class A common stock in the public market could cause our share price to fall.

Sales of substantial amounts of our Class A common stock in the public market after the completion of this offering, or the perception that these sales could occur, could adversely affect the market price of our Class A common stock and could materially impair our ability to raise capital through equity offerings in the future. In connection with this offering, we, our officers, directors, and substantially all of existing stockholders have agreed not to sell any of our shares of Class A common stock or are otherwise subject to similar lockup restrictions for 121 days after the date of this prospectus (assuming that as of such date we have publicly released our earnings for the second quarter following the most recent period for which financial statements are included in this prospectus) without the prior written consent of Morgan Stanley & Co. LLC on behalf of the underwriters, subject to certain exceptions. However, the underwriters may release these securities from these restrictions at any time, subject to applicable regulations of the Financial Industry Regulatory Authority, Inc. We cannot predict what effect, if any, market sales of securities held by our significant stockholders or any other stockholder or the availability of these securities for future sale will have on the market price of our Class A common stock. See “Underwriting” and “Shares Eligible for Future Sale” for a more detailed description of the restrictions on selling our securities after this offering.

We are an “emerging growth company,” and the reduced disclosures applicable to emerging growth companies may make our Class A common stock less attractive to investors.

We are an “emerging growth company,” as defined in the JOBS Act, and for as long as we are an emerging growth company, we may choose to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not “emerging growth companies,” including, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a non-binding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

The JOBS Act also provides that an emerging growth company does not need to comply with any new or revised financial accounting standards until such date that a private company is otherwise required to comply with such new or revised accounting standards. We cannot predict if investors will find our Class A common stock less attractive if we choose to rely on these exemptions. If some investors find our Class A common stock less attractive as a result of any choices to reduce future disclosure, there may be a less active trading market for our Class A common stock, and our share price may be more volatile.

We will incur costs and demands upon management as a result of complying with the laws and regulations affecting public companies in the United States, which may harm our business Upon completion of this offering, we will become a public company and expect to incur significant legal, accounting and other expenses that we did not incur as a private company. In addition, changing laws, regulations and standards relating to corporate governance and public disclosure, including regulations implemented by the Public Company Accounting Oversight Board, the SEC, and the Nasdaq Global Select Market, may increase legal and financial compliance costs and make some activities more time consuming. These laws, regulations, and standards are subject to varying interpretations, and as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. We intend to invest resources to comply with evolving laws, regulations, and standards, and this investment may result in increased general and administrative expenses and a diversion of management's time and attention from revenue-generating activities to compliance activities. If, notwithstanding our efforts, we fail to comply with new laws, regulations, and standards, regulatory authorities may initiate legal proceedings against us and our business may be harmed.

Failure to comply with these rules might also make it more difficult for us to obtain certain types of insurance, including director and officer liability insurance, and we might be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these events could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, on committees of our board of directors or as members of senior management.

The requirements of being a public company may strain our resources, divert management's attention, and affect our ability to attract and retain qualified board members.

As a public company listed in the United States, we will incur significant additional legal, accounting, and other expenses. In addition, changing laws, regulations, and standards relating to corporate governance and public disclosure, including regulations implemented by the SEC and the Nasdaq Global Select Market, may increase legal and financial compliance costs and make some activities more time consuming. These laws, regulations, and standards are subject to varying interpretations, and as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. We intend to invest resources to comply with evolving laws, regulations, and standards, and this investment may result in increased general and administrative expenses and a diversion of management's time and attention from revenue-generating activities to compliance activities. If, notwithstanding our efforts, we fail to comply with new laws, regulations, and standards, regulatory authorities may initiate legal proceedings against us and our business may be adversely affected.

Failure to comply with these rules might also make it more difficult for us to obtain certain types of insurance, including director and officer liability insurance, and we might be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these events would also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, on committees of our board of directors or as members of senior management.

In addition, as a result of our disclosure obligations as a public company, we will have reduced strategic flexibility and will be under pressure to focus on short-term results, which may adversely affect our ability to achieve long-term profitability.

Our failure to timely and effectively implement controls and procedures required by Section 404(a) of the Sarbanes-Oxley Act could have a material adverse effect on our business.

As a public company, we will be required to provide management's assessment regarding internal control over financial reporting in our second Annual Report on Form 10-K. The standards required for a public company under Section 404(a) of the Sarbanes-Oxley Act are significantly more stringent than those required of TuSimple as a private company. Management may not be able to effectively and timely implement controls and procedures that adequately respond to the increased regulatory compliance and reporting requirements that became applicable after the completion of this offering. If we are not able to implement the additional requirements of Section 404(a) in a timely manner or with adequate compliance, we may not be able to assess whether our internal controls over financial reporting are effective, which may subject us to adverse regulatory consequences and could harm investor confidence and the market price of our securities.

We may be subject to securities litigation, which is expensive and could divert our management's attention.

In the past, companies that have experienced volatility in the market price of their securities have been subject to securities class action litigation. We may be the target of this type of litigation in the future. Regardless of the merits or the ultimate results of such litigation, securities litigation brought against us could result in substantial costs and divert our management's attention from other business concerns.

Certain data and information in this prospectus were obtained from third-party sources and were not independently verified by us. Certain estimates of market opportunity and forecasts of market growth included in this prospectus may prove to be inaccurate.

This prospectus includes third party data as well as our estimates relating to the addressable market for our autonomous driving technology. Market opportunity estimates and growth forecasts are subject to significant uncertainty and are based on assumptions and estimates that may prove to be inaccurate. This risk is particularly heightened due to the uncertain and rapidly changing projections of the severity, magnitude, and duration of the current COVID-19 pandemic. The impact of COVID-19, including changes in consumer and business behavior, pandemic fears, and market downturns, and restrictions on business and individual activities, has created significant volatility in the global economy and led to reduced economic activity. The estimates and forecasts in this prospectus relating to the size and expected growth of our target market, market demand and adoption, capacity to address this demand, and pricing may also prove to be inaccurate. In particular, our estimates regarding our current and projected market opportunity are difficult to predict. The estimated addressable market may not materialize for many years, if ever, and even if the markets in which we compete meet the size estimates and growth forecasted in this prospectus, our business could fail to grow at similar rates, if at all.

Although we believe that these sources are reliable, we have not independently verified the data and information contained in the third-party publications and reports. Certain data included in such third-party publications and reports also includes projections based on a number of assumptions. The autonomous trucking and freight transport industry may not grow at the rate projected by market data, or at all. Any failure of the autonomous trucking and

freight transport industry to grow at the projected rate may have a material adverse effect on our business and the market price of our Class A common stock. Furthermore, if any one or more of the assumptions underlying the market data is later found to be incorrect, actual results may differ from the projections based on these assumptions.

Anti-takeover provisions in our charter documents may discourage our acquisition by a third party, which could limit our stockholders' opportunity to sell their shares, at a premium.

Our amended and restated certificate of incorporation effective immediately prior to the completion of this offering include provisions that could limit the ability of others to acquire control of our company, could modify our structure or could cause us to engage in change-of-control transactions. These provisions could have the effect of depriving our stockholders of an opportunity to sell their shares at a premium over prevailing market prices by discouraging third parties from seeking to obtain control in a tender offer or similar transaction. Among other things, the charter documents will provide:

- for a dual class common stock structure, which provides our Founders with the ability to control the outcome of matters requiring stockholders approval;
- until the first date on which the outstanding shares of Class B common stock represent less than 40% of the total voting power of our common stock, we shall not consummate any transaction that would result in a change in control of us without first obtaining the affirmative vote of the holders of a majority of the then-outstanding shares of Class B common stock voting as a separate class;
- certain amendments to our restated certificate of incorporation or bylaws will require the approval of two-thirds of the combined vote of our then-outstanding shares of Class A and Class B common stock;
- at any time after our 2022 annual meeting of stockholders when the outstanding shares of our Class B common stock represent less than 40% of the total voting power of our common stock (the "Voting Threshold Date"), directors will be able to be removed only for cause and only by the affirmative vote of the holders of at least two-thirds of the voting power of our common stock;
- at any time after the Voting Threshold Date, our board of directors will be classified into three classes of directors with staggered three-year terms;
- at any time after the Voting Threshold Date, subject to the rights of any series of preferred stock then outstanding, stockholders will no longer be able to act by written consent in lieu of a meeting; and
- our board of directors has the authority, without further action by our stockholders, to issue preferred stock in one or more series and to fix their designations, powers, preferences, privileges, and relative participating, optional, or special rights, and the qualifications, limitations, or restrictions, including dividend rights, conversion rights, voting rights, terms of redemption, and liquidation preferences, any or all of which may be greater than the rights associated with our Class A common stock.

Our proposed amended and restated certificate of incorporation to be in effect after this offering designates the Court of Chancery of the State of Delaware and federal court within the State of Delaware as the exclusive forum for certain types of actions and proceedings that our stockholders may initiate, which could limit a stockholder's ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation to be in effect after this offering provides that, subject to limited exceptions, the Court of Chancery of the State of Delaware and federal court within the State of Delaware will be exclusive forums for any:

- derivative action or proceeding brought on our behalf;
- 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;
- action asserting a claim against us arising pursuant to any provision of the DGCL, our amended and restated certificate of incorporation or bylaws; or
- other action asserting a claim against us that is governed by the internal affairs doctrine.

This choice of forum provision does not apply to actions brought to enforce a duty or liability created under the Exchange Act. Our amended and restated certificate of incorporation also provides that the federal district courts of the United States are the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. We intend for this provision to apply to any complaints asserting a cause of action under the Securities Act despite the fact that Section 22 of the Securities Act creates concurrent jurisdiction for the federal and state courts over all actions brought to enforce any duty or liability created by the Securities Act or the rules and regulations promulgated thereunder. There is uncertainty as to whether a court would enforce such a provision with respect to claims under the Securities Act, and our stockholders will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and to have consented to the provisions of our amended and restated certificate of incorporation described above.

These choice of forum 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 amended and restated certificate of incorporation 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.

Future sales and issuances of our share capital or rights to purchase share capital could result in additional dilution of the percentage ownership of our stockholders and could cause our share price to decline.

We may issue additional securities following the completion of this offering. Future sales and issuances of our share capital or rights to purchase our share capital could result in substantial dilution to our existing stockholders. We may sell Class A common stock, convertible securities, and other equity securities in one or more transactions at prices and in a manner as we may determine from time to time. If we sell any such securities in subsequent transactions, investors may be materially diluted. New investors in such subsequent transactions could gain rights, preferences, and privileges senior to those of holders of our Class A common stock.

Information Regarding Forward-looking Statements

INFORMATION REGARDING FORWARD-LOOKING STATEMENTS This prospectus includes forward-looking statements. All statements other than statements of historical facts contained in this prospectus are forward-looking statements. The words "believe," "may," "will," "estimate," "continue," "anticipate," "design," "intend," "expect," "could," "plan," "potential," "predict," "seek," "should," "would," or the negative version of these words and similar expressions are intended to identify forward-looking statements. We have based these forward-looking statements on our current expectations and projections about future events and trends that we believe may affect our financial condition, results of operations, strategy, short- and long-term business operations and objectives, and financial needs. The forward-looking statements are contained principally in "Prospectus Summary," "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Result of Operations," and "Business." Forward-looking statements contained in this prospectus include, but are not limited to, statements about:

- our future performance, including our revenue, cost of revenue, and operating expenses;
- the sufficiency of our cash and cash equivalents to meet our operating requirements;
- our ability to scale our Autonomous Freight Network, which we refer to as our AFN;
- our ability to attract new users to services provided on our AFN;
- our ability to effectively manage our growth and future expenses;
- the estimated timing for when additional routes will be available;
- our ability to compete in a market that is rapidly evolving and subject to technological developments;
- our estimated total addressable market, the market for autonomous truck and freight transport solutions, and our market position;
- our ability to successfully collaborate with business partners;
- our ability to obtain, maintain, protect, and enforce our intellectual property;
- our ability to comply with modified or new laws and regulations applicable to our business or industry;
- our ability to attract and retain employees with the technical skills we require and other key personnel;
- our anticipated investments in research and development and sales and marketing, and the effect of these investments on our results of operations;
- the increased expenses associated with being a public company;
- our use of the net proceeds from this offering; and
- the potential impact of the COVID-19 pandemic on our, and our partners', business and results of operations, and on the global economy generally.

We caution you that the foregoing list may not contain all of the forward-looking statements made in this prospectus.

These forward-looking statements are subject to a number of risks, uncertainties, and assumptions, including those described in "Risk Factors." Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties, and assumptions, the forward-looking events and circumstances discussed in this prospectus may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance, or events and circumstances reflected in the forward-looking statements will be achieved or occur. Moreover, except as required by applicable law, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. The forward-looking statements made in this prospectus relate only to

events as of the date on which the statements are made. We undertake no obligation to update any forward-looking statements made in this prospectus to reflect events or circumstances after the date of this prospectus or to reflect new information or the occurrence of unanticipated events, except as required by applicable law. We may not actually achieve the plans, intentions, or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures, or investments we may make.

In addition, statements that "we believe" and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and investors are cautioned not to unduly rely upon these statements.

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

Market and Industry Data

MARKET AND INDUSTRY DATA We obtained the market and industry data used throughout this prospectus from industry and general publications, and research, surveys, and studies conducted by third parties, including Armstrong & Associates, Inc., the American Transportation Research Institute, American Trucking Associations, DAT Solutions, LLC, the Insurance Institute for Highway Safety, the U.S. Department of Transportation, and other sources identified in footnotes throughout this prospectus. In addition, while we believe that the industry, market, and competitive position data included in this prospectus is based on reasonable assumptions, such data involves risks and uncertainties and are subject to change based on various factors, including those discussed in "Risk Factors—Risks Related to Our Class A Common Stock and This Offering—Certain data and information in this prospectus were obtained from third-party sources and were not independently verified by us. Certain estimates of market opportunity and forecasts of market growth included in this prospectus may prove to be inaccurate." 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.

Use of Proceeds

USE OF PROCEEDS We estimate that the net proceeds to us from this offering will be approximately $ million based upon an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and offering expenses payable by us. We will not receive any proceeds from the sale of shares of our Class A common stock by the selling stockholder.

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) net proceeds to us by $ million, assuming that the number of shares offered by us as set forth on the cover page of this prospectus remains the same, and after deducting assumed underwriting discounts and commissions. Each increase (decrease) of 1.0 million shares offered by us would increase (decrease) net proceeds to us by approximately $ million, assuming an initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, and after deducting assumed underwriting discounts and commissions.

The principal purposes of this offering are to increase our financial flexibility, increase our visibility in the marketplace, and create a public market for our Class A common stock. We expect to use the net proceeds from this offering for working capital and other general corporate purposes, including funding our operating needs. However, we do not currently have specific planned uses for the proceeds.

We may also use a portion of our net proceeds to acquire or invest in complementary products, technologies, or businesses. However, we currently have no agreements or commitments to complete any such transactions.

Since we expect to use the net proceeds from this offering for working capital and other general corporate purposes, our management will have broad discretion over the use of the net proceeds from this offering. See "Risk Factors—Risks Related to Our Class A Common Stock and This Offering—We have not determined a specific use for a portion of the net proceeds from this offering, and we may use these proceeds in ways with which you may not agree." As of the date of this prospectus, we intend to invest the net proceeds in short-term, interest-bearing, investment-grade securities, certificates of deposit, or government securities.

Dividend Policy

DIVIDEND POLICY We have never declared or paid any cash dividends on our Class A common stock or redeemable convertible preferred stock, and we do not currently intend to pay any cash dividends on our Class A common stock in the foreseeable future. We currently intend to retain all available funds and any future earnings to support operations and to finance the growth and development of our business. Any future determination to pay dividends will be made at the discretion of our board of directors, subject to applicable laws, and will depend upon, among other factors, our results of operations, financial condition, contractual restrictions, and capital requirements. From time to time, we may also enter into other loan or credit agreements or similar borrowing

arrangements that may further restrict our ability to declare or pay dividends on our Class A common stock. Our board of directors will have sole discretion in making any future determination to pay dividends, subject to applicable laws, taking into account, among other factors, our results of operations, financial condition, contractual restrictions, and capital requirements.

Capitalization

CAPITALIZATION The following table sets forth our cash and cash equivalents and capitalization as of December 31, 2020:

- on an actual basis;
- on a pro forma basis to reflect: (i) the issuance of 4,650,999 shares of Series E redeemable convertible preferred stock issued after December 31, 2020, (ii) the filing and effectiveness of our amended and restated certificate of incorporation, which will effect the reclassification of our common stock into Class A common stock, (iii) the conversion of redeemable convertible preferred stock into shares of Class A common stock, (iv) the exchange of 24,000,000 shares of Class A common stock for an equal number of shares of Class B common stock by our Founders, Mo Chen and Xiaodi Hou, immediately prior the completion of this offering, (v) the Warrant Exercises and the related reclassification of the warrants liability to Class A common stock and additional paid-in capital and the related gain from the expiration of the unexercised portion of one warrant, reflected as a decrease in accumulated deficit, (vi) stock-based compensation of $12.0 million associated with the RSU and SVA Settlement, reflected as an increase in additional paid-in capital and an increase in accumulated deficit, (vii) stock-based compensation expense of $5.0 million associated with options for which the service-based vesting condition was satisfied as of December 31, 2020 and for which the performance-based vesting condition will be satisfied upon completion of this offering, reflected as an increase in additional paid-in capital and in increase in accumulated deficit, and (viii) compensation expense of $4.7 million associated with amounts payable under separation agreements upon the completion of this offering, reflected as a decrease in cash and cash equivalents and an increase in accumulated deficit, in each case as if such event had occurred on December 31, 2020;
- on a pro forma as adjusted basis to give effect to (i) the pro forma adjustments described above and (ii) the sale by us of shares of Class A common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and offering expenses payable by us.

You should read this information together with our consolidated financial statements and related notes appearing elsewhere in this prospectus and the information set forth in “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

	As of December 31, 2020		
	Actual	Pro Forma	Pro Forma As Adjusted[1]
	(in thousands, except share and per share data)		
Cash and cash equivalents	$310,815	$550,768	$
Restricted Cash	$1,536	$1,536	$
Warrants liability	42,452	—	
Redeemable convertible preferred stock, $0.0001 par value per share; 138,102,770 shares authorized, 102,074,703 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	$664,791	$—	$
Stockholders’ (deficit) equity:			
Preferred stock, $0.0001 par value per share; no shares authorized, issued and outstanding, actual; 100,000,000 shares authorized, no shares issued and outstanding, pro forma and pro forma as adjusted	—	—	
Common stock, $0.0001 par value per share; 361,897,230 shares authorized, 60,543,337 shares issued and outstanding, actual; no shares authorized, issued and outstanding, pro forma and pro forma as adjusted.	6	—	
Class A Common stock, $0.0001 par value per share; no shares authorized, issued and outstanding, actual; 4,876,000,000 shares authorized, 160,290,356 shares issued and outstanding, pro forma; 4,876,000,000 shares authorized, shares issued and outstanding, pro forma as adjusted	—	16	

	As of December 31, 2020		
	Actual	Pro Forma	Pro Forma As Adjusted[1]
	(in thousands, except share and per share data)		
Class B Common stock, $0.0001 par value per share; no shares authorized, issued and outstanding, actual; 24,000,000 shares authorized, 24,000,000 shares issued and outstanding, pro forma and pro forma as adjusted	—	2	
Additional paid-in capital	—	961,235	
Accumulated other comprehensive loss	(301)	(301)	
Accumulated deficit	(405,178)	(419,229)	
Total stockholders’ (deficit) equity	(405,473)	541,723	$
Total capitalization	$301,770	$541,723	$

(1) Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) each of cash and cash equivalents, additional paid-in capital, total stockholders' equity and total capitalization by approximately $, 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 assumed underwriting discounts and commissions. We may also increase or decrease the number of shares we are offering. Each increase (decrease) of 1.0 million shares offered by us would increase (decrease) each of cash and cash equivalents, additional paid-in capital, total stockholders' equity and total capitalization by approximately $, assuming that the assumed initial public offering price to the public remains the same, and after deducting assumed underwriting discounts and commissions. The pro forma as adjusted information discussed above is illustrative only and will adjust based on the actual initial public offering price and other terms of this offering determined at pricing.

The number of shares of our Class A common stock and Class B common stock that will be outstanding after this offering is based on 160,290,356 shares of our Class A common stock outstanding and 24,000,000 shares of our Class B common stock outstanding as of December 31, 2020, and reflects the Warrant Exercises, Preferred Stock Conversion, the Class B Exchange, and the RSU and SVA Settlement and excludes:

- 625,000 shares of Class A common stock subject to restricted stock units outstanding, but for which the time-based vesting condition was not satisfied as of December 31, 2020;
- 915,546 shares of Class A common stock subject to share value awards outstanding, but for which the time-based vesting condition was not satisfied as of December 31, 2020;
- 13,295,497 shares of Class A common stock issuable upon the exercise of stock options outstanding as of December 31, 2020, with a weighted-average exercise price of $1.29 per share;
- 60,360 shares of Class A common stock issuable upon the vesting and settlement of restricted stock units awarded after December 31, 2020;
- 2,665,968 shares of Class A common stock issuable upon the exercise of stock options granted after December 31, 2020;
- 46,928 shares of Class A common stock reserved for future issuance under our 2017 Share Plan, which shares will cease to be available for issuance at the time our 2021 Equity Incentive Plan becomes effective;
- 20,134,146 shares of Class A common stock reserved for issuance under our 2021 Equity Incentive Plan, which will become effective in connection with the completion of this offering. Our 2021 Equity Incentive Plan also provides for automatic annual increases in the number of shares reserved under these plans, as more fully described in "Management—Equity Plans;" and
- 2,013,414 shares of Class A common stock reserved for issuance under our 2021 Employee Stock Purchase Plan, which we expect to become effective as of the effective date of the registration statement. Our 2021 Employee Stock Purchase Plan also provides for automatic annual increases in the number of shares reserved under these plans, as more fully described in "Management—Equity Plans."

Dilution

DILUTION

If you invest in our Class A common stock in this offering, your ownership interest will be immediately diluted to the extent of the difference between the assumed initial public offering price per share and the pro forma as adjusted net tangible book value per share of Class A and Class B common stock after this offering. Dilution in pro forma net tangible book value per share to new investors represents the difference between the amount per share paid by purchasers of Class A common stock in this offering and the pro forma as adjusted net tangible book value per share of Class A common stock immediately after completion of this offering.

Our pro forma net tangible book value as of December 31, 2020, was $541.7 million or $2.94 per share, after giving effect to (i) the issuance of 4,650,999 shares of Series E redeemable convertible preferred stock issued after December 31, 2020, (ii) the filing and effectiveness of our amended and restated certificate of incorporation, which will effect the reclassification of our common stock into Class A common stock, (iii) the conversion of redeemable convertible preferred stock into shares of Class A common stock, (iv) the exchange of 24,000,000 shares of Class A common stock for an equal number of shares of Class B common stock by our Founders, Mo Chen and Xiaodi Hou, immediately prior the completion of this offering, (v) the Warrant Exercises and the related reclassification of the warrants liability to Class A common stock and additional paid-in capital and the related gain from the expiration of the unexercised portion of one warrant, reflected as a decrease in accumulated deficit, (vi) stock-based compensation of $12.0 million associated with the RSU and SVA Settlement, reflected as an increase in additional paid-in capital and an increase in accumulated deficit, (vii) stock-based compensation expense of $5.0 million associated with options for which the service-based vesting condition was satisfied as of December 31, 2020 and for which the performance-based vesting condition will be satisfied upon completion of this offering, reflected as an increase in additional paid-in capital and in increase in accumulated deficit, and (viii) compensation expense of $4.7 million associated with amounts payable under separation agreements upon the completion of this offering, reflected as a decrease in cash and cash equivalents and an increase in accumulated deficit, in each case as if such event had occurred on December 31, 2020.

After giving further effect to (i) the pro forma adjustments described above and (ii) the receipt of the net proceeds of our sale of shares of Class A common stock at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus and after deducting assumed underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of December 31, 2020, would have been $ million, or $ per share. This represents an immediate increase in pro forma as adjusted net tangible book value of $ per share to our existing stockholders and an immediate dilution of $ per share to investors purchasing Class A common stock in this offering.

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

Assumed initial public offering price per share	$
Pro forma net tangible book value (deficit) per share as of December 31, 2020	$2.94
Increase in pro forma net tangible book value (deficit) per share attributable to the adjustments described above	
Increase in pro forma net tangible book value (deficit) per share attributable to new investors in this offering	
Pro forma as adjusted net tangible book value per share immediately after this offering	
Dilution in pro forma net tangible book value per share to new investors in this offering	$

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted net tangible book value, by $ per share and the dilution per share to new investors by $ per share, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, after deducting assumed underwriting discounts and commissions.

We may also increase or decrease the number of shares we are offering. Each increase (decrease) of 1.0 million shares offered by us would increase (decrease) our pro forma as adjusted net tangible book value by approximately $ million, or $ per share, and the pro forma dilution per share to investors in this offering by $ per share, assuming that the assumed initial public offering price remains the same, and after deducting assumed underwriting discounts and commissions. The pro forma information discussed above is illustrative only and will change based on the actual initial public offering price, number of shares and other terms of this offering determined at pricing.

The table below summarizes, as of December 31, 2020, on the pro forma basis described above, the number of our shares of Class A common stock, the total consideration, and the average price per share (i) paid to us by our existing stockholders and (ii) to be paid by new investors participating in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, before deducting assumed underwriting discounts and commissions and estimated offering expenses payable by us.

	Shares Purchased		Total Consideration		Average Price PerShare
	Number	Percent	Amount	Percent	
	(in thousands, except shares, per share amounts and percentages)				
Existing stockholders[1]		%		$%	$
New investors		%		—	
Total		100.0%		$100.0%	

(1) Does not give effect to the sale of Class A common stock sold by the selling stockholder in this offering.

In addition, if the underwriters' right to purchase additional shares is exercised in full, the number of shares held by existing stockholders will be reduced to % of the total number of shares of Class A common stock to be outstanding upon completion of this offering, and the number of shares of Class A common stock held by new investors participating in this offering will be further increased to % of the total number of shares of Class A common stock to be outstanding upon completion of the offering.

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) total consideration paid by new investors by $ and increase (decrease) the percent of total consideration paid by new investors by %, assuming the number of shares we are offering, as set forth on the cover page of this prospectus, remains the same, after deducting assumed underwriting discounts and commissions. We may also increase or decrease the number of shares we are offering. Each increase (decrease) of 1.0 million shares offered by us would increase (decrease) total consideration paid by new investors by $, assuming that the assumed initial public offering price remains the same, and after deducting assumed underwriting discounts and commissions.

To the extent that any outstanding options are exercised or any outstanding share value awards are settled, or we issue other securities or convertible debt in the future, new investors will experience further dilution.

The number of shares of Class A common stock and Class B common stock that will be outstanding after this offering is based on 160,290,356 shares of Class A common stock (including redeemable convertible preferred stock on an as-converted basis and reclassified as shares of Class A common stock) and 24,000,000 shares of Class B common stock outstanding as of December 31, 2020, and reflects the Warrant Exercises, Preferred Stock Conversion, the Class B Exchange, and the RSU and SVA Settlement and excludes:

- 625,000 shares of Class A common stock subject to restricted stock units outstanding, but for which the time-based vesting condition was not satisfied as of December 31, 2020;
- 915,546 shares of Class A common stock subject to share value awards outstanding, but for which the time-based vesting condition was not satisfied as of December 31, 2020;
- 13,295,497 shares of Class A common stock issuable upon the exercise of stock options outstanding as of December 31, 2020, with a weighted-average exercise price of $1.29 per share;
- 60,360 shares of Class A common stock issuable upon the vesting and settlement of restricted stock units awarded after December 31, 2020;
- 2,665,968 shares of Class A common stock issuable upon the exercise of stock options granted after December 31, 2020;

- 46,928 shares of Class A common stock reserved for future issuance under our 2017 Share Plan, which shares will cease to be available for issuance at the time our 2021 Equity Incentive Plan becomes effective; and

- 20,134,146 shares of Class A common stock reserved for issuance under our 2021 Equity Incentive Plan, which will become effective in connection with the completion of this offering. Our 2021 Equity Incentive Plan also provides for automatic annual increases in the number of shares reserved under these plans, as more fully described in "Management—Equity Plans."

- 2,013,414 shares of Class A common stock reserved for issuance under our 2021 Employee Stock Purchase Plan, which we expect to become effective as of the effective date of the registration statement. Our 2021 Employee Stock Purchase Plan also provides for automatic annual increases in the number of shares reserved under these plans, as more fully described in "Management—Equity Plans."

Management's Discussion and Analysis of Financial Condition and Results of Operations

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION

And Results of Operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and related notes included elsewhere in this prospectus. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those discussed below. Factors that could cause or contribute to such differences include, but are not limited to, those identified below and those discussed in "Risk Factors" and "Information Regarding Forward-Looking Statements" included elsewhere in this prospectus. Our fiscal year ends on December 31.

Overview

We are an autonomous technology company that is revolutionizing the estimated $4 trillion global truck freight market. We have developed industry-leading autonomous technology specifically designed for semi-trucks, which has enabled us to build the world's first Autonomous Freight Network ("AFN") in partnership with world-class shippers, carriers, railroads, freight brokers, fleet asset owners, and truck hardware partners. We believe that our technology and our AFN will make long haul trucking significantly safer as well as more reliable, efficient, and environmentally friendly, creating significant benefits for all who rely on the freight ecosystem to deliver essential goods.

Since our founding in 2015, we have developed a fully integrated software and hardware solution enabling what we believe is the world's most advanced Level 4 ("L4")[19] driver-out autonomous semi-truck technology.[20] Hallmarks of our proprietary semi-truck specific technology include our 1,000 meter perception range, 35 second planning horizon, high definition ("HD") maps with accuracy within five centimeters, and an integrated L4 autonomous semi-truck design comprising of a fully redundant sensor suite and components. Long-range perception, advanced planning and decision-making, and highly accurate mapping are critical capabilities for the autonomous operation of semi-trucks, which are heavy, articulated vehicles that need to be able to operate at highway speeds. We believe that we are the first and only company to demonstrate these capabilities and achieve L4 autonomous semi-trucks driving on both highways and surface streets as well as the first company to autonomously haul a paid freight load. We further believe that our technological differentiation and unique go-to-market strategy is a key driver of the over 5,700 reservations that we received for our purpose built L4 autonomous semi-trucks from approximately ten customers with significant freight operations in a period of four months of limited availability. Approximately 75% of our reservations were made by customers who operate commercial truck fleets and who are also equity investors in our company. For further discussion regarding our reservations, please see the section titled "Business—Our Solution—Our Products—Purpose-Built L4 Autonomous Semi-Trucks—Partnership with Navistar."

We are focused specifically on the truck freight market, which is a large and essential industry that moves approximately 80% of the freight in the United States by revenue. E-commerce trends such as same day shipping are expected to further accelerate demand for truck freight and strain traditional freight providers' ability to supply sufficient capacity dynamically and cost effectively. Currently, trucking is facing substantial challenges in several areas including safety, efficiency, and carbon footprint, which we believe cannot be fully addressed without significant technological innovation.

We believe that our AFN will solve the trucking industry's most pressing challenges and will revolutionize the way freight moves. Our AFN is designed to provide a comprehensive, turnkey, autonomous freight solution that supplies users with access to purpose-built L4 autonomous semi-trucks operating on HD digital mapped routes connecting a nationwide network of terminals.

19 Based on the "Levels of Driving Automation" published by the Society of Automotive Engineers ("SAE").

20 L4 autonomous solution expected to be capable of driver-out operations on AFN mapped routes.

Our AFN provides autonomous freight capacity as a service through multiple service models based on users' needs. We believe that allowing our users the flexibility to select different service models is critical to our superior customer experience and will help drive rapid adoption of our network.

- ***Carrier-Owned Capacity.*** Shippers, carriers, and railroads that prefer to own their fleet will be able to purchase our purpose-built L4 autonomous semi-truck from a semi-truck original equipment manufacturer ("OEM") partner and subscribe to TuSimple Path—a comprehensive turnkey product to enable autonomous operations across our network. TuSimple Path includes features such as our on-board autonomous driving software, TuSimple Connect cloud-based autonomous operations oversight system, HD digital route mapping support, and emergency roadside assistance. Users will pay TuSimple a per mile, usage-based fee for access to TuSimple Path and benefit from lower overall freight costs with an expected payback period of less than one year on their upfront incremental capital investment to purchase our purpose-built L4 autonomous semi-trucks.

- ***TuSimple Capacity.*** Our fleet of purpose-built L4 autonomous semi-trucks, financed through third party fleet asset owners, will serve users that desire access to safe, reliable, low cost, and more environmentally friendly freight transportation without owning semi-truck assets. Users of TuSimple Capacity can range from relatively smaller users of freight logistics to large shippers, carriers, and railroads seeking to supplement their own captive fleet for incremental freight capacity. We will charge users of TuSimple Capacity a per mile rate to ship freight, which we expect will be at a meaningful discount to prevailing market freight rates. We believe that our competitive advantage in terms of pricing will be enabled by our anticipated cost structure, which is expected to be significantly lower than that of human-operated semi-trucks. Users will benefit directly from lower shipping costs compared to conventional truck freight.

We are also working in partnership with leading semi-truck OEMs Navistar and TRATON as well as components partners to build the world's first purpose-built L4 autonomous semi-truck to be operated exclusively on our network. We believe that this collaborative approach to create semi-trucks designed and built with integrated auto-grade components and sensors will increase our AFN's reliability at scale. Vertically integrating through partnerships with OEMs and Tier 1 suppliers allows us to maintain strong supply chain and hardware design control while remaining capital light and primarily focusing on developing proprietary autonomous technology.

We have developed a robust ecosystem of shippers, carriers, railroads, freight brokers, fleet asset owners, and third party service providers, including UPS, McLane, U.S. Xpress, Werner, Schneider, and CN, that provide critical validation and enhance the network effect benefits of our approach. We believe that our unmatched partnership network creates a significant and sustainable competitive advantage, especially as we work with shippers, carriers, and railroads to strategically locate our AFN terminals near their distribution centers. The continued growth of our AFN infrastructure and partnerships will continue to improve our user experience and drive more users to our platform which will allow us to further densify our strategic terminal network and reinforce rapid network growth.

Key Factors Affecting Our Performance

We believe that our performance and future success depend on several factors that present significant opportunities for us but also pose risks and challenges, including those set forth in the section entitled "Risk Factors" in this prospectus.

Full Commercialization of our AFN at Scale

To date, we have only recorded limited revenue from the freight capacity services we provide on our AFN. Prior to full commercialization of our AFN at scale, we must increase the number of users, grow our network of terminals, expand our high definition digital mapped routes, increase the number of purpose-built L4 autonomous semi-trucks and achieve several research and development milestones. While not yet commercially available, we have received significant interest from potential users, with over 5,700 reservations of our purpose-built L4 autonomous semi-trucks. Going forward, we expect the size of our committed orders to be an important indicator of our future performance. Due to the fixed costs associated with operating our AFN, including labor for operating terminals, autonomous operations oversight systems, and maintaining our purpose-built L4 autonomous semi-trucks, we expect our margins to improve as more users are added to our AFN. Until we can generate sufficient additional revenue from our AFN, we expect to finance our operations through equity and/or debt financings. The amount and timing of our future funding requirements will depend on many factors, including the pace and results of our development efforts.

Continued Investment in R&D and Innovation

We believe that we are the industry-leading autonomous truck company with the most efficient and reliable autonomous trucking technologies and an unmatched product and service offering. Our financial performance will be significantly dependent on our ability to maintain this leading position. We expect to incur substantial and potentially increasing research and development expenses. We develop most of our key technologies in-house to achieve a rapid pace of innovation. Accordingly, we dedicate significant resources towards research and development and invest heavily in recruiting talent, especially for engineers with high levels of experience in artificial intelligence and designing and developing autonomous driving related algorithms. Our research and development staff accounted for approximately 80% of our total employees as of December 31, 2020. We will continue to recruit and retain talented software developers and engineers to grow our strength in the key technologies. We expect our strategic focus on innovations will further solidify our leadership position.

Improvement of Operating Efficiency

We aim to improve operating efficiency in every aspect of our business, such as research and development, supply chain, collaboration with business partners, and sales and marketing, as well as service offerings. As we continue to scale our AFN, we expect utilization rates across our network, including terminals, routes, and semi-trucks, to increase, leading to improved operating efficiency.

Investment in Sales and Marketing

As our purpose-built L4 autonomous semi-trucks reach commercialization and as our AFN continues to grow, we will need to devote significant resources to our sales and marketing activities and towards building brand awareness but in a cost-effective manner.

Components of Results of Operations

Revenue

To date, all of our revenue recognized has been from freight capacity services provided through the TuSimple Capacity service model on our AFN. Revenue is recognized over time as the goods are transported from one location to another based on the number of miles traveled. Shipments are completed within a short period of time, typically spanning one to two days. As we continue to grow and improve our technology, we expect a new revenue stream through our Carrier-Owned Capacity service model. We expect to derive revenue from per-mile fees charged to users of Carrier-Owned Capacity on our AFN. Recognition of this future revenue will be subject to the terms of any arrangements with our partners or users, which have not yet been negotiated. To date, we have not recorded any revenue under the Carrier-Owned Capacity service model.

Cost of Revenue

Our cost of revenue consists primarily of fuel costs, depreciation of property and equipment (including semi-trucks acquired under capital leases), labor costs, and other costs directly attributable to the provision of freight capacity services. Currently, we operate our semi-trucks with two occupants, a safety engineer and a safety driver. We expect to gradually lower the average number of occupants in our semi-trucks as we continue to improve our autonomous technology and ultimately remove all occupants upon achievement of full driver-out, L4 autonomous operations. This achievement is expected to significantly decrease the cost per mile to operate our purpose-built L4 autonomous semi-trucks.

Research and Development

Research and development costs consist primarily of personnel-related expenses associated with engineering personnel and consultants responsible for the design, development, and testing of our autonomous truck driving solutions, depreciation of equipment used in research and development, and allocated overhead costs. Research and development costs are expensed as incurred. We expect our research and development expenses to increase in absolute dollars as we increase our investment in scaling our AFN through our proprietary technologies.

Sales and Marketing

Sales and marketing costs consist primarily of personnel-related expenses associated with our sales and marketing activities, advertising expenses, sponsorship, public relations, and other related marketing activities. Although we incurred limited sales and marketing expenses in 2018, 2019, and 2020, we expect that our sales and marketing expenses will increase in absolute dollars from period to period as we further scale our AFN, educate market participants on the benefits of autonomous trucking and our autonomous trucking solutions, hire additional sales and marketing personnel, increase our marketing activities, grow our domestic and international operations, and build brand awareness.

General and Administrative

General and administrative costs consist primarily of personnel-related expenses associated with our management and administration activities, professional service fees and other general corporate expenses.

Following the completion of this offering, we expect to incur additional general and administrative expenses as a result of operating as a public company, including expenses related to compliance with the rules and regulations of the SEC and stock exchange listing standards, additional insurance expenses, investor relations activities, and other administrative and professional services. We also expect to increase the size of our general and administrative function to support the growth of our business. As a result, we expect that our general and administrative expenses will increase in absolute dollars.

Change in Fair Value of Warrants Liability

The change in the fair value of warrants liability consists of the net changes in the fair value of our outstanding warrants to purchase redeemable convertible preferred stock that are remeasured at the end of each reporting period. The warrants outstanding as of December 31, 2020, were exercised prior to the consummation of this offering and we will record one final remeasurement at fair value as of the exercise date.

Change in Fair Value of Related Party Convertible Loan

The change in the fair value of related party convertible loan consists of the net changes in the fair value of our related party convertible loan that was remeasured at the end of each reporting period. The related party convertible loan was converted into Series E-1 redeemable convertible preferred stock during December 2020 and a final remeasurement was recorded as of the conversion date.

Other Income (Expense), Net

Other income (expense), net consists primarily of interest income earned on our cash and cash equivalents, interest expense on our related party borrowings, income from government grants, and foreign currency exchange gains (losses), net of remeasurement of transactions and monetary assets and liabilities denominated in currencies other than the functional currency at the end of the period.

Provision for Income Taxes

Provision for income taxes consists primarily of U.S. federal and state income taxes and income taxes in certain foreign jurisdictions in which we conduct business. Since inception, we have incurred operating losses and, accordingly, have not recorded a provision for income taxes for any of the periods presented.

We have a full valuation allowance for net deferred tax assets, including federal and state net operating loss carryforwards and research and development credit carryforwards. We expect to maintain this valuation allowance until it becomes more likely than not that the benefit of our federal and state deferred tax assets will be realized by way of expected future taxable income.

Results of Operations

The results of operations presented below should be reviewed in conjunction with the consolidated financial statements and notes included elsewhere in this prospectus. The following table sets forth our consolidated results of operations data for the periods presented (in thousands):

	Years Ended December 31,		
	2018	2019	2020
Revenue	$9	$710	$1,843
Costs and expenses:			
Cost of revenue	—	1,595	5,293

Research and development (1)	32,278	63,619	132,001
Sales and marketing (1)	1,085	814	1,313
General and administrative (1)	12,175	21,962	37,300
Total costs and expenses	45,538	87,990	175,907
Loss from operations	(45,529)	(87,280)	(174,064)
Change in fair value of related party convertible loan	—	—	(5,556)
Change in fair value of warrants liability	—	—	1,816
Other income (expense), net	495	2,397	(66)
Loss before provision for income taxes	(45,034)	(84,883)	(177,870)
Provision for income taxes	—	—	—
Net loss	$(45,034)	$(84,883)	$(177,870)
Net loss attributable to noncontrolling interests	16	43	—
Net loss attributable to Tusimple (Cayman) Limited	$(45,018)	$(84,840)	$(177,870)
Accretion of redeemable convertible preferred stock	—	(201)	(20,959)
Deemed dividend on exchange of Series A-2 redeemable convertible preferred stock for common stock	—	(60,000)	—
Net loss attributable to common stockholders	$(45,018)	$(145,041)	$(198,829)

(1) Includes stock-based compensation expense as follows (in thousands)

	Years Ended December 31,		
	2018	2019	2020
Research and development	$—	$—	$917
Sales and marketing	—	—	2
General and administrative	—	—	11,844
Total stock-based compensation expense	$—	$—	$12,763

Comparison of the Years Ended December 31, 2018, 2019, and 2020

Revenue

	Years Ended December 31,				
	2018	2019	2020	2018 to 2019 % Change	2019 to 2020 % Change
	(in thousands)				
Revenue	$9	$710	$1,843	*	157.1%

* *Percentage not meaningful*

2019 compared to 2020. Revenue increased by $1.1 million, or 157.1%, from $0.7 million in 2019 to $1.8 million in 2020. The increase in revenue was driven by the expansion of our AFN, including the growth of our L4 autonomous semi-truck fleet, AFN terminals, and HD digital mapped routes.

2018 compared to 2019. Revenue increased by $0.7 million from $9 thousand in 2018 to $0.7 million in 2019. The increase in revenue was related to an increase in freight capacity services provided to our users.

Cost of Revenue

	Years Ended December 31,				
	2018	2019	2020	2018 to 2019 % Change	2019 to 2020 % Change
	(in thousands)				
Cost of Revenue	$—	$1,595	$5,293	*	231.3%

* *Percentage not meaningful*

2019 compared to 2020. Cost of revenue increased by $3.7 million, or 231.3%, from $1.6 million in 2019 to $5.3 million in 2020 due to increased operating costs associated with the expansion of our AFN.

2018 compared to 2019. Cost of revenue increased by $1.6 million from nil in 2018 to $1.6 million in 2019 due to costs associated with the increase in related revenue.

Research and Development

	Years Ended December 31,			2018 to 2019	2019 to 2020
	2018	2019	2020	% Change	% Change
	(in thousands)				
Research and Development	$32,278	$63,619	$132,001	96.9%	107.5%

2019 compared to 2020. Research and development expenses increased by $68.4 million, or 107.5%, from $63.6 million in 2019 to $132.0 million in 2020. The increase was primarily attributable to a one-time, non-cash charge of $32.3 million related to the excess fair value of redeemable convertible preferred stock warrants issued over the cash proceeds received in conjunction with the issuance of shares of Series D-1 redeemable convertible preferred stock and redeemable convertible preferred stock warrants to Traton SE, an increase of $23.8 million in personnel-related costs, mainly driven by an increase in employee headcount, an increase of $6.5 million in depreciation and allocated facility costs, driven by an increase in headcount and expansion of our facilities, an increase of $2.5 million in vehicle and equipment-related costs, mainly driven by an increase in the number of semi-trucks in our fleet, an increase of $2.0 million in joint development cost, mainly driven by our Joint Development Agreement ("JDA") with Navistar, and an increase of $0.9 million in stock-based compensation expense, mainly driven by additional stock-based awards with service-based vesting conditions granted during the period.

2018 compared to 2019. Research and development expenses increased by $31.3 million, or 96.9%, from $32.3 million in 2018 to $63.6 million in 2019. The increase was primarily attributable to an increase of $17.2 million in personnel-related costs, mainly driven by an increase in employee headcount, an increase of $10.0 million in vehicle-related costs, mainly driven by an increase in the number of semi-trucks in our fleet and an increase of $3.9 million in depreciation and allocated facility costs, driven by an increase in headcount and expansion of our facilities.

Sales and Marketing

	Years Ended December 31,			2018 to 2019	2019 to 2020
	2018	2019	2020	% Change	% Change
	(in thousands)				
Sales and Marketing	$1,085	$814	$1,313	(27.3)%	62.5%

2019 compared to 2020. Sales and marketing expenses increased by $0.5 million, or 62.5%, from $0.8 million in 2019 to $1.3 million in 2020. The increase was primarily attributable to an increase of $0.7 million in production costs related to demonstration videos produced during 2020, partially offset by a $0.2 million decrease in costs incurred to attend conferences and trade shows.

2018 compared to 2019. Sales and marketing expenses decreased by $0.3 million, or 27.3%, from $1.1 million in 2018 to $0.8 million in 2019. The decrease was primarily attributable to a decrease of $0.3 million in contributions to universities that were made to promote our company on-campus and attract talent and a decrease of $0.2 million in production costs related to demonstration videos produced during 2018, partially offset by a $0.2 million increase in costs incurred to attend conferences and trade shows.

General and Administrative

	Years Ended December 31,			2018 to 2019	2019 to 2020
	2018	2019	2020	% Change	% Change
	(in thousands)				
General and Administrative	$12,175	$21,962	$37,300	80.3%	69.5%

2019 compared to 2020. General and administrative expenses increased by $15.3 million, or 69.5%, from $22.0 million in 2019 to $37.3 million in 2020. The increase was primarily attributable to an increase of $11.8 million in stock-based compensation expense, mainly driven by additional stock-based awards with service-based vesting conditions granted during the period, an increase of $4.9 million in personnel-related costs, mainly driven by an increase in employee headcount, an increase of $1.3 million in legal, accounting and other professional services, driven mainly by additional rounds of financing and this offering, and an increase of $0.6 million in depreciation and allocated facility costs, driven by an increase in assets purchased and facilities occupied during 2020, partially offset by a decrease of $1.7 million in office and facility-related costs, driven primarily by the transition to a remote working situation and a decrease of $1.6 million in travel costs, driven mainly by reduced traveling due to COVID-19 restrictions.

2018 compared to 2019. General and administrative expenses increased by $9.8 million, or 80.3%, from $12.2 million in 2018 to $22.0 million in 2019. The increase was primarily attributable to an increase of $4.9 million in personnel-related costs, mainly driven by an increase in employee headcount, an increase of $2.5 million in office and facility-related costs, mainly driven by an increase in headcount and expanding our office space, an increase of $2.1 million in legal, accounting and other professional services, driven mainly by additional rounds of financing, and an increase of $0.5 million in recruiting and travel costs, driven mainly by increased recruiting activities and conferences.

Change in Fair Value of Warrants Liability

	Years Ended December 31,			2018 to 2019	2019 to 2020
	2018	2019	2020	% Change	% Change
	(in thousands)				
Change in Fair Value of Warrants Liability	$—	$—	$1,816	*	*

* *Percentage not meaningful*

2019 compared to 2020. Gain from the change in fair value of warrants liability of $1.8 million in the year ended December 31, 2020, was driven by the remeasurement of redeemable convertible preferred stock warrants at fair value each period. There were no such warrants outstanding in the years ended December 31, 2018 or 2019.

Change in Fair Value of Related Party Convertible Loan

	Years Ended December 31,			2018 to 2019	2019 to 2020
	2018	2019	2020	% Change	% Change
	(in thousands)				
Change in Fair Value of Related Party Convertible Loan	$—	$—	$(5,556)	*	*

* *Percentage not meaningful 2019 compared to 2020.* Loss from the change in fair value of related party convertible loan of $5.6 million in the year ended December 31, 2020, was driven by the remeasurement of the related party convertible loan at fair value each period until its conversion into Series E-1 redeemable convertible preferred stock during December 2020. There were no such outstanding convertible loans in the years ended December 31, 2018 or 2019.

Other Income (Expense), Net

	Years Ended December 31,			2018 to 2019	2019 to 2020
	2018	2019	2020	% Change	% Change
	(in thousands)				
Other Income (Expense), Net	$495	$2,397	$(66)	380.0%	(104.2)%

2019 compared to 2020. Other income (expense), net decreased by $2.5 million, or 104.2%, from $2.4 million in 2019 to $(0.1) million in 2020. The decrease was primarily attributable to a decrease in income from government grants of $1.3 million, a decrease of $0.9 million in interest income earned on cash and cash equivalents, an increase of $0.4 million in foreign exchange loss due to fluctuations in exchange rates, and an increase in interest expense of $0.2 million relating to leased vehicles.

2018 compared to 2019. Other income (expense), net increased by $1.9 million, or 380.0%, from $0.5 million in 2018 to $2.4 million in 2019. The increase was primarily attributable to an increase in interest income of $0.8 million due to an increase in the balances of our cash and cash equivalents related to our financing activities, an increase of $1.3 million in non-recurring government grants for the development of autonomous trucking technology, and a decrease of $0.2 million in foreign exchange loss due to fluctuations in exchange rates. The increase was partially offset by increases in interest expenses of $0.4 million due to related party loans that were entered into in October 2018 and were outstanding for the entirety of 2019.

Liquidity and Capital Resources

We have financed our operations primarily through the sale of redeemable convertible preferred stock and loans from stockholders, which have historically been sufficient to meet our working capital and capital expenditure requirements. As of December 31, 2020, our principal sources of liquidity were $310.8 million of cash and cash equivalents, exclusive of restricted cash of $1.5 million. Cash and cash equivalents consist primarily of cash on deposit with banks as well as certificates of deposit. In July and September 2020, we sold 621,447 and 1,232,730 shares of Series D-1 redeemable convertible preferred stock at $8.11 per share for proceeds of approximately $5.0 million and $10.0 million, respectively. In December 2020 and January 2021, we sold 21,044,019 and 4,650,999 shares of Series E redeemable convertible preferred stock at $14.14 per share for proceeds of approximately $288.5 million and $61.6 million, net of issuance costs of $9.0 million and $4.1 million. Additionally, in July 2020, we raised $50.0 million through the issuance of a convertible loan from one of our preferred stockholders, which was converted into 3,928,937 Series E-1 redeemable convertible preferred stock at a conversion price of $12.72609 per share in December 2020. See “Certain Relationships and Related Party Transactions.” In February 2021, a holder of a warrant exercised its right to purchase 4,331,644 shares of Series E-2 redeemable convertible preferred stock at $11.3121 per share for gross proceeds of approximately $49.0 million. In March 2021, a holder of a warrant exercised its right to purchase 9,477,073 shares of Series E redeemable convertible preferred stock at $14.1401 per share for gross proceeds of approximately $134.0 million. We are currently in the process of collecting deposits to hold in escrow for reservations for our purpose-built L4 autonomous semi-truck. Typically, each reservation requires a $500 per truck deposit; however, the deposit requirement has been waived for our equity investors that currently hold reservations (which account for approximately 75% of all reservations). Any cancellations and refunds will be satisfied out of the deposits held in an escrow account and therefore should not affect our liquidity position.

Based on our current operating plan, we believe that the net proceeds from this offering, together with our existing cash and cash equivalents and anticipated cash generated from sales of our services, will be sufficient to meet our anticipated cash needs for at least the next 12 months following the date of this prospectus.

Our future capital requirements will depend on many factors, including, but not limited to, the rate of our growth, our ability to attract and retain users and their willingness to pay for our services, and the timing and extent of spending to support our efforts to develop our L4 autonomous semi-trucks and AFN. Further, we may enter into future arrangements to acquire or invest in businesses, products, services, strategic partnerships, and technologies. As such, we may be required to seek additional equity and/or debt financing. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of common stockholders. The incurrence of indebtedness would result in increased fixed obligations and could result in operating covenants that would restrict our operations. If we are unable to maintain sufficient financial resources, our business, financial condition and results of operations may be materially and adversely affected.

Cash Flows

The following table summarizes our cash flows for the periods presented (in thousands):

	Years Ended December 31,		
	2018	2019	2020
Net cash (used in) provided by:			
Operating activities	$(42,847)	$(76,333)	$(103,848)
Investing activities	41,922	(10,435)	(4,412)
Financing activities	91,662	51,830	356,495

Operating Activities

Net cash used in operating activities of $42.8 million for the year ended December 31, 2018 was primarily due to net loss of $45.0 million, partially offset by non-cash charges for depreciation and amortization expense of $2.5 million. Changes in operating assets and liabilities were unfavorable to cash flows from operations by $0.3 million primarily due to an increase in other assets of $2.0 million and an increase in prepaid expenses and other current assets of $0.9 million, partially offset by an increase in accrued expenses and other current liabilities of $1.7 million, an increase in other liabilities of $0.7 million, an increase in accounts payable of $0.1 million and an increase in amounts due to related parties of $0.1 million.

Net cash used in operating activities of $76.3 million for the year ended December 31, 2019 was primarily due to net loss of $84.9 million, partially offset by non-cash charges for depreciation and amortization expense of $5.6 million and loss on disposal of property and equipment of $0.9 million. Changes in operating assets and liabilities were favorable to cash flows from operations by $2.1 million primarily due to an increase in accrued expenses and other current liabilities of $5.0 million, driven primarily by increased payroll-related accruals due to our increased headcount, an increase in accounts payable of $0.1 million, and an increase in amounts due to related parties of $0.1 million, partially offset by an increase in prepaid expenses and other current assets of $1.5 million, driven by an increase in amounts due to vendors in relation to the expansion of our AFN and semi-truck fleet, an increase in other assets of $0.9 million, a decrease in other liabilities of $0.6 million, and an increase in accounts receivable of $0.1 million.

Net cash used in operating activities of $103.8 million for the year ended December 31, 2020 was primarily due to net loss of $177.9 million and non-cash gain from change in fair value of warrants liability of $1.8 million, offset by a one-time, non-cash charge of $32.3 million related to the excess fair value of redeemable convertible preferred stock warrants issued over proceeds received in conjunction with the issuance of Series D-1 redeemable convertible preferred stock and redeemable convertible preferred stock warrants to Traton SE, non-cash charges for share-based compensation of $12.8 million, depreciation and amortization expense of $7.7 million, and non-cash loss from change in fair value of related party convertible loan of $5.6 million. Changes in operating assets and liabilities were favorable to cash flows from operations by $17.3 million primarily due to an increase in accrued expenses and other current liabilities of $13.1 million, driven primarily by increased payroll-related accruals due to the growth in our headcount and accrued professional fees related to our Series E financing, an increase in accounts payable of $4.2 million, driven primarily by increased vendor activity related to the expansion of our AFN, an increase in amounts due to related parties of $1.1 million, driven primarily by amounts due to Navistar under our JDA, a decrease in prepaid expenses and other current assets of $0.3 million, and an increase in other liabilities of $0.3 million, partially offset by an increase in accounts receivable of $1.0 million and an increase in other assets of $0.7 million.

Investing Activities

Net cash provided by investing activities of $41.9 million for the year ended December 31, 2018 was related to proceeds from the maturity of time deposits of $51.8 million and proceeds from the maturity of short-term investments of $0.8 million, partially offset by capital expenditures of $10.0 million related to maintaining and upgrading our fleet of L4 autonomous semi-trucks and purchases of short-term investments of $0.7 million.

Net cash used in investing activities of $10.4 million for the year ended December 31, 2019 was related to capital expenditures of $10.3 million and purchases of patents of $0.2 million, partially offset by proceeds from disposal of property and equipment of $0.1 million.

Net cash used in investing activities of $4.4 million for the year ended December 31, 2020 was related to capital expenditures of $4.3 million and purchases of patents of $0.3 million, partially offset by proceeds from disposal of property and equipment of $0.2 million.

Financing Activities

Net cash provided by financing activities of $91.7 million for the year ended December 31, 2018 was related to proceeds from the issuance of redeemable convertible preferred stock of $95.0 million and proceeds from related party loan of $2.9 million, partially offset by payments for guarantee deposit on related party loan of $3.7 million and principal payments on related party loan of $2.5 million.

Net cash provided by financing activities of $51.8 million for the year ended December 31, 2019 was related to proceeds from the issuance of redeemable convertible preferred stock of $52.3 million, partially offset by principal payments on capital lease obligations of $0.3 million and principal payments on related party loans of $0.2 million.

Net cash provided by financing activities of $356.5 million for the year ended December 31, 2020 was related to proceeds from the issuance of redeemable convertible preferred stock of $291.7 million, proceeds from issuance of related party convertible loan of $50.0 million, proceeds from issuance of redeemable convertible preferred stock warrants of $11.9 million, proceeds from related party loans of $5.0 million, proceeds from the Small-Business Administration Paycheck Protection Program (“PPP”) loans of $4.1 million, and proceeds of $2.5 million from the exercise of warrants for Series D-1 redeemable convertible preferred stock. These were partially offset by principal payments on related party loans of $7.9 million, principal payments on capital lease obligations of $0.7 million and principal payments on loans of $0.1 million.

Commitments and Contractual Obligations

The following table summarizes our non-cancellable contractual obligations as of December 31, 2020 (in thousands):

	Payment Due by Period				
	Less than 1 year	1-3 Years	3-5 Years	More than 5 Years	Total
Operating leases	$5,187	$10,598	$6,744	$19,793	$42,322
Capital leases	1,386	2,273	2,801	—	6,460
Total	$6,573	$12,871	$9,545	$19,793	$48,782

The contractual commitment obligations in the table above are associated with agreements that are enforceable and legally binding.

For additional discussion on our operating and capital leases, see Note 8. Commitments and Contingencies in our audited consolidated financial statements included elsewhere in this prospectus.

Joint Development Agreement

We have entered into a Joint Development Agreement ("JDA") with Navistar, Inc., under which we will work collaboratively to develop a purpose-built L4 autonomous semi-truck. Pursuant to the JDA we agree to reimburse Navistar up to $10.0 million for research and development expenses incurred. See Note 8. Commitments and Contingencies in our audited consolidated financial statements included elsewhere in this prospectus for further information.

Separation Agreements

We have entered into separation agreements with former employees under which we are required to pay additional compensation in the amount of $4.7 million upon the the completion of this offering.

Off-Balance Sheet Arrangements

We did not have, during the periods presented, any off-balance sheet financing arrangements or any relationships with unconsolidated entities or financial partnerships, including entities sometimes referred to as structured finance or special purpose entities, that were established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Critical Accounting Policies and Estimates

We prepare our consolidated financial statements in accordance with U.S. generally accepted accounting principles ("GAAP"). The preparation of these consolidated financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. We base our estimates on historical experience and other assumptions that we believe are reasonable under the circumstances. Our actual results could differ significantly from these estimates under different assumptions and conditions. We believe that the accounting policies discussed below are critical to understanding our historical and future performance as these policies involve a greater degree of judgment and complexity.

Revenue Recognition

We recognize revenue primarily from providing freight capacity services. Revenue is recognized when the customer obtains control of promised services in an amount that reflects the consideration we expect to receive in exchange for those services.

Satisfaction of Performance Obligation A performance obligation is a promise in a contract to transfer a distinct good or service to the customer and is the basis of revenue recognition in accordance with GAAP. To determine the proper revenue recognition method for contracts, we evaluate whether two or more contracts should be combined and accounted for as one single contract and whether the combined or single contract should be accounted for as more than one performance. For most of our contracts, the customer contracts with us to provide distinct services within a single contract, such as freight capacity services. The majority of our contracts with customers for freight capacity services include only one performance obligation, the freight capacity services. However, if a contract is separated into more than one performance obligation, we allocate the total transaction price to each performance obligation in an amount based on the estimated relative standalone selling prices of the promised goods or services underlying each performance obligation. We frequently sell standard freight capacity services with observable standalone sales prices. In these instances, the observable standalone sales are used to determine the standalone selling price.

For freight capacity services, revenue is recognized over time as we perform the services in the contract because of the continuous transfer of control to the customer. Our customers receive the benefit of our services as the goods are transported from one location to another. If we were unable to complete delivery to the final location, another entity would not need to reperform the transportation service already performed. As control transfers over time, revenue is recognized based on the extent of progress towards completion of the performance obligation. The selection of the method to measure progress towards completion requires judgment and is based on the nature of the products or services to be provided. As control transfers over time, revenue is recognized based on the extent of progress towards completion of the performance obligation. Management estimates the progress based on mileage completed to total mileage to be transported. Revenues are recorded net of value-added taxes and surcharges.

Contract Modification Contracts may be modified to account for changes in the rates we charge our customers or to add additional distinct services. We consider contract modifications to exist when the modification either creates new enforceable rights and obligations or alters the existing arrangement. Contract modifications that add distinct goods or services are treated as separate performance obligations. Contract modifications that do not add distinct

goods or services typically change the price of existing services. These contract modifications are accounted for prospectively as the remaining performance obligations are executed.

Contract Assets and Liabilities Contract assets include billed and unbilled amounts resulting from in-transit packages, as we have an unconditional right to payment only once all performance obligations have been completed (e.g., packages have been delivered). Contract assets are generally classified as current and the full balance is converted each quarter based on the short-term nature of the transactions. Our contract liabilities consist of advance payments and billings in excess of revenue. The full balance of contract liabilities is converted each quarter based on the short-term nature of the transactions.

Payment Terms

Under the typical payment terms of our customer contracts, the customer pays at periodic intervals (i.e. every 14 days, 30 days etc.) for shipments included on invoices received. It is not customary business practice to extend payment terms past 90 days, and as such, we do not have a practice of including a significant financing component within its contracts with customers.

Stock-Based Compensation

We account for stock-based compensation expense in accordance with the fair value recognition and measurement provisions of GAAP, which requires compensation cost for the grant-date fair value of stock-based awards to be recognized over the requisite service period. We determine the fair value of stock-based awards granted or modified on the grant date (or modification date, if applicable) at fair value, using appropriate valuation techniques.

Time-Based Service Awards For stock-based awards with time-based vesting conditions only, generally being stock options, the fair value of each stock option granted is estimated using the Black-Scholes option-pricing model. The Black-Scholes option-pricing model requires the input of highly subjective assumptions, including the fair value of the underlying common stock, the expected share price volatility over the term of the award, actual and projected employee stock option exercise behaviors, the risk-free interest rate for the expected term of the award and expected dividends. Stock-based compensation is recognized straight-line over the requisite service period, which is generally four years. We account for forfeitures as they occur instead of estimating the number of awards expected to be forfeited.

Performance-Based Awards We grant awards consisting of restricted stock units (“RSUs”), share value awards (“SVAs”), and stock options that vest only upon the satisfaction of both time-based service and performance-based conditions. The time-based service condition for these awards generally is satisfied over three years. The performance-based condition is satisfied upon the occurrence of a qualifying event, defined as the earlier of (i) the closing of certain specific liquidation or change in control transactions, or (ii) an IPO. We record stock-based compensation expense for these awards on an accelerated attribution method over the requisite service period, which is generally three years, and only if performance-based condition is considered probable to be satisfied.

Because no qualifying events have occurred, we have not recognized stock-based compensation expense for awards with performance-based conditions. In the period in which the qualifying event is probable, we will record a cumulative one-time stock-based compensation expense determined using the grant-date fair values. Stock-based compensation related to remaining time-based service after the qualifying event will be recorded over the remaining requisite service period.

For performance-based RSUs and SVAs, we determine the grant-date fair value as the fair value of our common stock on the grant date.

For performance-based stock options, we determine the grant-date fair value utilizing the Black-Scholes option-pricing model.

Redeemable Convertible Preferred Stock Warrants Liability

Warrants to purchase shares of redeemable convertible preferred stock are freestanding financial instruments classified as warrants liability in our consolidated balance sheets as the underlying shares of preferred stock are considered redeemable or contingently redeemable upon the occurrence of events that are outside of our control. The preferred stock warrants are recorded at their respective fair values upon issuance and are subject to remeasurement at the end of each reporting period. Changes in the fair value of the preferred share warrants are recognized as change in fair value of warrants liability in the consolidated statements of operations. We continue to remeasure the warrants until the earlier of their expiration or exercise.

The fair value of the warrants liability was estimated at issuance using a Monte Carlo simulation model as the series of redeemable convertible preferred stock issued upon exercise is contingent upon the outcome of multiple discrete scenarios. The warrants were exercisable into shares of Series D-1 redeemable convertible preferred stock if exercised prior to a subsequent equity financing, or shares of a series of redeemable convertible preferred stock issued in our next equity financing. The fair value of the underlying shares of redeemable convertible preferred stock used within the Monte Carlo simulation model was estimated using a hybrid between a probability-weighted expected return method (“PWERM”) and option pricing model (“OPM”), estimating the probability-weighted value across multiple scenarios, while using an OPM to estimate the allocation of value within one or more of these scenarios. Discrete future outcomes considered under the PWERM include an IPO of the Company’s common stock, as well as continued operation as a private company. The significant unobservable inputs into the valuation model include the timing and probability of occurrence of these discrete future outcomes and a discount for the lack of marketability of the redeemable convertible preferred stock.

As of December 31, 2020, the fair value of the warrants is estimated using the Black-Scholes option-pricing model as the variability surrounding which series of redeemable convertible preferred stock the warrants are exercisable into has been resolved due to the consummation of our Series E redeemable convertible preferred stock financing. The fair value of the underlying shares of redeemable convertible preferred stock used within the Black-Scholes option-pricing model was estimated using a hybrid between a PWERM and OPM, estimating the probability-weighted value across multiple scenarios, while using an OPM to estimate the allocation of value within one or more of these scenarios. Discrete future outcomes considered under the PWERM include an IPO of the Company’s ordinary shares, as well as continued operation as a private company. The significant unobservable inputs into the valuation model include the timing and probability of occurrence of these discrete future outcomes and a discount for the lack of marketability of the redeemable convertible preferred stock.

Related Party Convertible Loan

As permitted under ASC 825, Financial Instruments ("ASC 825"), we have elected the fair value option to account for our related party convertible loan. In accordance with ASC 825, we record the related party convertible loan at fair value with changes in fair value recorded in the consolidated statements of operations in change in fair value of related party convertible loan, with the exception of changes in fair value due to instrument-specific credit risk which are required to be recognized in accumulated other comprehensive loss. There were no changes in the fair value due to instrument-specific credit risk recorded due to the short-term nature of the loan.

The fair value of the related party convertible loan is calculated as the sum of the value of the straight-debt cash flows and the value of the embedded conversion features. A Discounted Cash Flow model was used to estimate the value of the straight-debt cash flows, and a Monte-Carlo model was used to estimate the value of the embedded conversion features. The significant unobservable inputs into the valuation model include the timing and probability of certain discrete future outcomes which dictate the series of redeemable convertible preferred shares issued upon exercise.

Capital Leases

We categorize leases at their inception as either operating or capital leases. As the lessee, a lease is a capital lease if any of the following conditions exists: (i) ownership is transferred to the lessee by the end of the lease term, (ii) there is a bargain purchase option, (iii) the lease term is at least 75% of the property's estimated remaining economic life, or (iv) the present value of the minimum lease payments at the beginning of the lease term is 90% or more of the fair value of the leased property to the lessor at the inception date. A capital lease is accounted for as if there was an acquisition of an asset and an incurrence of an obligation at the inception of the lease. As of December 31, 2019 and 2020, assets under capital leases represent semi-trucks used for research and development and providing transportation services.

Common Stock Valuations

The fair value of our common stock and underlying stock options has historically been determined by our Board of Directors, with assistance from management and contemporaneous third-party valuations. Given the absence of a public trading market for our common stock and in accordance with the American Institute of Certified Public Accountants Practice Aid, *Valuation of Privately Held Company Equity Securities Issued as Compensation*, our board of directors has exercised reasonable judgment and considered numerous objective and subjective factors to determine the best estimate of the fair value of our common stock at each grant date. These factors include:

- independent third-party valuations of our common stock;
- the prices at which we or other holders sold our common and redeemable convertible preferred stock to outside investors in arms-length transactions;
- the rights, preferences and privileges of our redeemable convertible preferred stock relative to those of our common stock;
- our financial condition, results of operations and capital resources;
- the industry outlook;
- the valuation of comparable companies;
- the lack of marketability of our common stock;
- the fact that our equity awards have involved rights in illiquid securities in a private company;
- the likelihood of achieving a liquidity event, such as an initial public offering or a sale of our company given prevailing market conditions;
- the history and nature of our business, industry trends and competitive environment; and
- general economic outlook including economic growth, inflation and unemployment, interest rate environment and global economic trends.

In determining the fair values of our common stock, the third-party valuation estimates the enterprise value of our business using the market approach precedent transaction method. The market approach precedent transaction method estimates value by considering the sale price of stock in a recent financing and "back-solving" to determine the equity value by using an option pricing model that gives consideration to our capitalization structure and rights of preferred and common stockholders.

The resulting equity value is then allocated to each class of stock using combination of the Option Pricing Method ("OPM") and the Probability-Weighted Expected Return Method ("PWERM"). Under the OPM, the value of an equity interest is modeled as a call option with a distinct claim on the enterprise value of the Company. The call right is valued using a Black-Scholes option pricing model. The PWERM employs additional information not used in the OPM, including various market approach enterprise value calculations depending upon the likelihood of various discrete future liquidity scenarios, such as an IPO, as well as the probability of remaining a private company. The PWERM involves the estimation of future potential outcomes for an entity, as well as values and probabilities associated with each respective potential outcome. The common stock per share value determined using this approach is ultimately based upon probability-weighted per share values resulting from various future scenarios. The expected scenarios include an IPO or continued operation as a private company.

After the allocation to the various classes of stock, a discount for lack of marketability ("DLOM") was applied to arrive at the fair value of common stock on a non-marketable basis. A DLOM is applied based on the theory that as an owner of private company stock, the stockholder has limited information and opportunities to sell this stock. A market participant that would purchase this stock would recognize this risk and thereby require a higher rate of return, which would reduce the overall fair market value.

Our assessments of the fair value of common stock for grant dates were based in part on the current available financial and operational information and the common stock per share value provided in the most recent valuation as compared to the timing of each grant. For financial reporting purposes, we considered the amount of time between the valuation date and the grant date to determine whether to use the latest common stock valuation or a straight-line interpolation between the two valuation dates. This determination included an evaluation of whether the subsequent valuation indicated that any significant change in valuation had occurred between the previous valuation date and the grant date.

After the closing of this offering, our board of directors will determine the fair value of each share of underlying common stock based on the closing price of our common stock as reported on the date of the grant.

Quantitative and Qualitative Disclosures about Market Risk

We are exposed to market risks in the ordinary course of our business, which primarily relate to fluctuations in foreign exchange rates.

Foreign Currency Exchange Risk

The functional currency of our foreign subsidiaries is the local currency or U.S. dollar depending on the nature of the subsidiaries' activities. Foreign currency transactions recognized in the consolidated statements of operations are converted to the functional currency by applying the exchange rate prevailing on the date of the transaction. Our results of operations and cash flows are subject to fluctuations due to changes in foreign currency exchange rates. To date, foreign currency transaction gains and losses have not been material to our consolidated financial statements, and we have not engaged in any foreign currency hedging strategies. As our international operations grow, we will continue to reassess our approach to manage our risk relating to fluctuations in currency rates.

Risk Related to the COVID-19 Pandemic

The extensive impact of the pandemic caused by the novel coronavirus ("COVID-19") has resulted and will likely continue to result in significant disruption to the global economy, as well as businesses and capital markets around the world. In an effort to halt the outbreak of COVID-19, a number of countries, states, counties and other jurisdictions have imposed, and may impose in the future, various measures, including but not limited to, voluntary and mandatory quarantines, stay-at-home orders, travel restrictions, limitations on gatherings of people, reduced operations and extended closures of businesses.

The impact of COVID-19 and measures to prevent its spread have had the following impact:

- *Our Workforce.* Employee health and safety is our priority. In response to COVID-19, we established new protocols to help protect the health and safety of our workforce. We continue to stay up-to-date and follow county and CDC guidelines regarding requirements for a healthy work environment. Although the majority of our workforce now works remotely, there has been minimal disruption to our ability to continue to build our AFN.
- *Operations and Supply Chain.* As a result of COVID-19, we have experienced some delays in our supply chains which temporarily limited our ability to outfit semi-trucks with key components during the second quarter of 2020. We have not noticed a decrease in our shipping activity or in our ability to continue mapping activity or engage in further software development.
- *Liquidity and Working Capital.* We have not experienced any significant change in our liquidity or working capital, and from July 2020 through January 2021, we raised additional funds through the issuance of Series D-1 and E redeemable convertible preferred stock.

While the broader and long-term implications of the COVID-19 pandemic on our workforce, operations and supply chain, user demand, results of operations, and overall financial performance remain uncertain, we currently do not expect significant disruptions to our business due to the COVID-19 pandemic going forward See "Risk Factors" for further discussion of the possible impact of COVID-19 on our business.

JOBS Act Accounting Election

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"). As such, we are eligible for exemptions from various reporting requirements applicable to other public companies that are not emerging growth companies, including, but not limited to, presenting only two years of audited financial statements in addition to any required unaudited interim financial statements with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure in this prospectus, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation, and an exemption from the requirements to obtain a non-binding advisory vote on executive compensation or golden parachute arrangements. We have elected to take advantage of certain of the reduced disclosure obligations in this prospectus and may elect to take advantage of other reduced reporting requirements in our future filings with the SEC. As a result, the information that we provide to our stockholders may be different than you might receive from other public reporting companies in which you hold equity interests.

In addition, an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This provision allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this provision of the JOBS Act. As a result, we will not be subject to new or revised accounting standards at the same time as other public companies that are not emerging growth companies. Therefore, our consolidated financial statements may not be comparable to those of companies that comply with new or revised accounting pronouncements as of public company effective dates.

We will remain an emerging growth company until the earliest of: (i) the last day of the fiscal year following the fifth anniversary of the consummation of this offering; (ii) the last day of the fiscal year in which we have total annual gross revenue of at least $1.07 billion; (iii) the last day of the fiscal year in which we are deemed to be a "large accelerated filer" as defined in Rule 12b-2 under the Exchange Act, which would occur if the market value of our common stock held by non-affiliates exceeded $700.0 million as of the last business day of the second fiscal quarter of such year; or (iv) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period.

Internal Control over Financial Reporting

Prior to this offering, we have been a private company with limited accounting personnel and other resources with which to address our internal control and procedures over financial reporting. In the course of auditing our consolidated financial statements included elsewhere in this prospectus, we and our independent registered public accounting firm identified a material weakness in our internal control over financial reporting related to our financial statement closing process, primarily related to a lack of appropriately designed and implemented controls over the review and approval of manual journal entries (including consolidation entries) and the related supporting journal entry calculations. As defined in the standards established by the U.S. Public Company Accounting Oversight Board, a "material weakness" is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our company's annual or interim consolidated financial statements will not be prevented or detected on a timely basis.

We are working to remediate the material weakness and are taking steps to strengthen our internal control over financial reporting. In order to do so, we have taken and plan to take the following actions: (i) the hiring of additional finance and accounting personnel over time to augment our accounting staff and to provide more resources for complex accounting matters and financial reporting; (ii) further developing and implementing formal policies, processes and documentation procedures relating to our financial reporting; and (iii) the adoption of new technological solutions. The actions that we are taking are subject to ongoing executive management review and will also be subject to audit committee oversight. To date, we have hired additional financial and accounting personnel with technical accounting experience and implemented new technology solutions to assist with our financial reporting process. We are still implementing formal policies, processes, and documentation procedures related to the review and approval of manual journal entries. We will not be able to fully remediate this material weakness until these steps have been completed and have been operating effectively for a sufficient period of time. We currently expect that the material weakness will be remediated by December 31, 2021, and costs associated with the remediation plan are not expected to be material. If we are unable to successfully remediate the material weakness, or if in the future, we identify further material weaknesses in our internal control over financial reporting, we may not detect errors on a timely basis and our consolidated financial statements may be materially misstated.

Recent Accounting Pronouncements

For information on recently issued accounting pronouncements, refer to Note 2 to our consolidated financial statements included elsewhere in this prospectus.

Business

BUSINESS

Overview of Our Company

We are an autonomous technology company that is revolutionizing the estimated $4 trillion global truck freight market.[21] We have developed industry-leading autonomous technology specifically designed for semi-trucks, which has enabled us to build the world's first Autonomous Freight Network ("AFN") in partnership with world-class shippers, carriers, railroads, freight brokers, fleet asset owners, and truck hardware partners. We believe that our technology and our AFN will make long haul trucking significantly safer as well as more reliable, efficient and environmentally friendly, creating significant benefits for all who rely on the freight ecosystem to deliver essential goods.

Since our founding in 2015, we have developed a fully integrated software and hardware solution enabling what we believe is the world's most advanced Level 4 ("L4") driver-out autonomous semi-truck technology.[22] Hallmarks of our proprietary semi-truck specific technology include our 1,000 meter perception range, 35 second planning horizon, high definition ("HD") maps with accuracy within five centimeters, and an integrated L4 autonomous semi-truck design comprising of a fully redundant sensor suite and components. Long-range perception, advanced planning and decision-making, and highly accurate mapping are critical capabilities for the autonomous operation of semi-trucks, which are heavy, articulated vehicles that need to be able to operate at highway speeds. We believe that we are the first and only company to demonstrate these capabilities and achieve L4 autonomous semi-trucks driving on both highways and surface streets as well as the first company to autonomously haul a paid freight load. We further believe that our technological differentiation and unique go-to-market strategy is a key driver of the over 5,700 reservations which we received in four months of availability for our purpose-built L4 autonomous semi-trucks. For further discussion regarding our reservations, please see the section titled "Business—Our Solution—Our Products—Purpose-Built L4 Autonomous Semi-Trucks—Partnership with Navistar."

We are focused specifically on the truck freight market, which is a large and essential industry that moves approximately 80% of the freight in the United States by revenue.[23] E-commerce trends such as same day shipping are expected to further accelerate demand for truck freight and strain traditional freight providers' ability to supply sufficient capacity dynamically and cost effectively.[24] Currently, trucking is facing substantial challenges in several areas including safety, efficiency, and carbon footprint, which we believe cannot be fully addressed without significant technological innovation. Specific industry challenges include:

- ***Trucking accidents.*** From 2009 to 2019, the number of persons injured in crashes involving large trucks more than doubled from 74,000 to 159,000.[25]

- ***Driver shortages.*** Driver shortages and high driver turnover continue to lead to increasing labor costs for the freight industry, placing upward pressure on the cost and availability of reliable truck freight capacity. In 2018, labor costs represented over 40% of total per mile operating costs which is an increase from approximately 33% in 2012.[26]

- ***Underinvestment in technological advancements.*** The truck freight industry today is highly fragmented and is characterized by low profit margins—generally in the single digits—which we believe makes it difficult for existing stakeholders to invest in technological advancement.

- ***High levels of greenhouse gas emissions.*** Rising freight volumes are driving significant levels of commercial truck greenhouse gas emissions. The U.S. Environmental Protection Agency ("EPA") reported in 2018 that medium and heavy duty trucks contribute 23% of annual U.S. transportation greenhouse gas emissions.

21 Armstrong & Associates, Inc., 2019 Global Third-Party Logistics (3PL) Market Analysis.

22 L4 autonomous solution expected to be capable of driver-out operations on AFN mapped routes.

23 American Trucking Associations, U.S. Freight Transportation Forecast 2019 to 2030.

24 American Transportation Research Institute ("ATRI"), E-Commence Impacts on the Trucking Industry, February 2019.

25 The National Highway Traffic Safety Administration, People Killed and Injured in Crashes Involving Large Trucks, by Person Type and Crash Type, 2009-2019.

26 ATRI, An Analysis of the Operational Costs of Trucking: 2019 Update, November 2019.

We believe that our Autonomous Freight Network will address the trucking industry's most pressing challenges and will revolutionize the way freight moves. Our AFN is designed to provide a comprehensive, turnkey, autonomous freight solution that supplies users with access to purpose-built L4 autonomous semi-trucks operating on HD digital mapped routes connecting a nationwide network of terminals. Key advantages of our AFN solution design include:

- ***Safety.*** The National Highway Traffic Safety Administration estimates that 94% of all serious accidents are due to human error. We believe that by developing an autonomous solution for long haul trucking, we can significantly improve safety in the trucking industry.

- ***Reliable freight capacity.*** Our AFN provides users with reliable autonomous freight capacity as a service which is unencumbered by prevailing truck driver shortages.

- ***Efficiency.*** Direct labor costs represent over 40% of the per mile truck freight cost structure. We believe that our purpose-built L4 autonomous semi-truck solution will reduce freight operating costs by up to 50% per mile and will allow our users to allocate scarce driver resources to customer facing first and last mile routes.

- ***Environmental impact.*** Based on a study conducted with the University of California San Diego and empirical data from our users, we expect our solution to deliver over 10% better fuel efficiency than traditional trucking through optimized truck control and driving operations which can deliver a measurable reduction in carbon emissions.

Transformative Benefits for Industry Stakeholders. Our AFN leverages our proprietary L4 autonomous semi-trucks, HD digital route mapping capabilities, and TuSimple Connect cloud-based autonomous operations oversight system to provide substantial benefits to the key truck freight industry stakeholders. The "plug and play" nature of our solution will allow any truck freight market participant to access and benefit from our autonomous freight capacity. Shippers, carriers, and railroads gain access to reliable and safe freight capacity at a substantially lower annual total cost of ownership when direct labor is removed from the per mile cost structure. Removing the driver from long haul operations allows shippers, carriers, and railroads to reallocate scarce driver resources to customer facing first and last mile routes. Freight brokers benefit from the reliability of autonomy, which allows them to more efficiently match demand with the lowest cost long haul freight capacity. We believe that the wide ranging benefits of our solution to industry participants will accelerate the adoption of our network.

AFN Accommodates Multiple Service Models. Our AFN provides autonomous freight capacity as a service through multiple service models based on users' needs. We believe that allowing our users the flexibility to select different service models is critical to our superior customer experience and will help drive rapid adoption of our network.

- ***Carrier-Owned Capacity.*** Shippers, carriers, and railroads that prefer to own their fleet will be able to purchase our purpose-built L4 autonomous semi-truck from a semi-truck original equipment manufacturer ("OEM") partner and subscribe to TuSimple Path—a comprehensive turnkey product to enable autonomous operations across our network. TuSimple Path includes features such as our on-board autonomous driving software, TuSimple Connect cloud-based autonomous operations oversight system, HD digital route mapping support, and emergency roadside assistance. Users will pay TuSimple a per mile, usage-based fee for access to TuSimple Path and benefit from lower overall freight costs with an expected payback period of less than one year on their upfront incremental capital investment to purchase our purpose-built L4 autonomous semi-trucks.

- ***TuSimple Capacity.*** Our fleet of purpose-built L4 autonomous semi-trucks, financed through third party fleet asset owners, will serve users that desire access to safe, reliable, low cost, and more environmentally friendly freight transportation without owning semi-truck assets. Users of TuSimple Capacity can range from relatively smaller users of freight logistics to large shippers, carriers, and railroads seeking to supplement their own captive fleet for incremental freight capacity. We will charge users of TuSimple Capacity a per mile rate to ship freight, which we expect will be at a meaningful discount to prevailing market freight rates. We believe that our competitive advantage in terms of

pricing will be enabled by our anticipated cost structure, which is expected to be significantly lower than that of human-operated semi-trucks. Users will benefit directly from lower shipping costs compared to conventional truck freight.

1. Based on preliminary conversations with AFN users. Pricing listed for Carrier-Owned Capacity is illustrative and will be eventually determined based on market dynamics.

2. Based on a 10–15% discount to prevailing freight rates. Pricing listed for TuSimple Capacity is illustrative and will be eventually determined based on market dynamics.

Leading Autonomous Technology Specifically Designed for Trucking. We are developing a Level 4 autonomous technology solution specifically designed for the unique demands of semi-trucks. L4 autonomy is characterized by the ability of the vehicle to perform all driving functions under a given set of pre-specified conditions. We believe that our L4 autonomous capabilities are well suited for "middle mile" truck freight—in which fixed, predictable, and primarily highway routes make up the majority of total miles driven on a shipping route—and focusing on this opportunity will optimize our path to commercialization. Autonomous trucking also presents unique challenges, primarily due to the size of long haul semi-trucks and the speed at which these semi-trucks typically operate. We believe that being the first company to focus exclusively on semi-truck autonomy positions us to lead the development of the solutions to these challenges and capitalize on the autonomous truck freight opportunity. Our leading autonomous technology enables semi-trucks to drive day or night on both the highway and surface streets in rain and in other poor weather conditions. Semi-trucks with our leading autonomous technology can travel at speeds of up to 75 miles per hour.

Ecosystem Approach with Unmatched Partnerships to Scale. We have created a world class ecosystem of partners consisting of shippers, carriers, railroads, freight brokers, fleet asset owners, OEMs, Tier 1 components suppliers, and third party service providers that we believe will de-risk commercialization of the AFN, enable rapid adoption of our autonomous freight solution, and allow us to build an attractive, network based business model.

We are working in partnership with leading semi-truck OEMs Navistar and TRATON as well as components partners to build the world's first purpose-built L4 autonomous semi-truck to be operated exclusively on our network. We believe that this collaborative approach to create semi-trucks designed and built with integrated auto-grade components and sensors will increase our AFN's reliability at scale. Vertically integrating through partnerships with OEMs and Tier 1 suppliers allows us to maintain strong supply chain and hardware design control while remaining capital light and primarily focusing on developing proprietary autonomous technology.

In parallel, we have developed a robust ecosystem of shippers, carriers, railroads, freight brokers, fleet asset owners, and third party service providers, including UPS, McLane, U.S. Xpress, Werner, Schneider, and CN, that provide critical validation and enhance the network effect benefits of our approach. We believe that our unmatched partnership network creates a significant and sustainable competitive advantage, especially as we work with shippers, carriers, and railroads to strategically locate our AFN terminals near their distribution centers. The continued growth of our AFN infrastructure and partnerships will continue to improve our user experience and drive more users to our platform which will allow us to further densify our strategic terminal network and reinforce rapid network growth.

The Traditional Truck Freight Industry

Overview of the Freight Market. The global truck freight market is estimated to generate approximately $4 trillion[27] in annual revenue. Truck freight comprises approximately 80% of the $1 trillion total U.S. freight market.[28] The U.S. truck freight market was the third highest contributor to U.S. GDP growth in 2017.[29] The U.S. truck freight market has been characterized by strong economic cycle resiliency with consistent long term increases in miles driven per year evidenced by approximately 3% compound annual growth rates ("CAGR") from 1990-2018,[30] and we believe that it has growth tailwinds from recent industry trends, including increased penetration of e-commerce.

Truck freight volumes in the U.S. are concentrated along a small number of corridors. Nearly 80% of truck freight goods hauled in the U.S. are moved via 10% of the nation's trade corridors, with the most valuable corridors connecting the 100 largest metropolitan areas. This concentration of corridors means that our AFN is able to address a significant portion of the truck freight market by focusing on select routes.

27 Armstrong & Associates, Inc., 2019 Global Third-Party Logistics (3PL) Market Analysis.

28 American Trucking Associations, U.S. Freight Transportation Forecast 2019 to 2030.

29 Bureau of Economic Analysis (BEA); Haver Analytics LP.

30 Bureau of Transportation Statistics, Table 1-35: U.S. Vehicle-Miles, September 2020.

Sources: U.S. Department of Transportation ("DoT"), Bureau of Transportation Statistics, Freight Analysis Framework. Freight Analysis Framework integrates data from various sources and is produced through a partnership between the Bureau of Transportation Statistics and the Federal Highway Administration.

Trucking's Role in the Freight Market. Trucking represents approximately 80% of the U.S. freight market primarily due to its distinct blend of flexibility, cost, and speed relative to alternative transportation modes. Rail (9% of the U.S. freight market) is generally lower cost than truck freight on a per mile basis, but lacks the operational speed and flexibility to reach the breadth of delivery locations that semi-trucks are able to serve, adding time to the overall delivery process. This dynamic makes rail generally less suitable for same and next day shipping and renders it incapable of first and last mile delivery. Air freight (3% of the U.S. freight market) is attractive for specific use cases such as same and next day shipping due to its superior speed, but its significantly higher cost and larger carbon footprint makes it unattractive in many circumstances. We believe that the steady growth of the market and tailwinds from industry trends such as same and next day shipping will drive a further shift in demand for truck freight over rail and air.

Truck Freight Industry Characteristics. While trucking is the most frequently utilized mode of freight transportation, the industry is currently characterized by low levels of technological differentiation between carriers, minimal barriers to entry, and high levels of price competition. As a result, the market is highly fragmented, and operating margins for incumbent carriers are typically below 10%. Key truck freight industry participants include asset-based carriers, freight brokers, shippers with captive fleets, and semi-truck OEMs.

"Middle Mile" and "First and Last Mile" Truck Freight. The $800 billion U.S. truck freight market is comprised of "middle mile" (long haul) and "last mile" (short haul) freight with an estimated 2.3 million Class 8 semi-trucks in operation accounting for 470 billion total miles driven annually, assuming an illustrative $1.70 per mile prevailing traditional freight rate.[31] Long haul trucking generally occurs over long stretches of interstate highways. These routes tend to be relatively concentrated along a handful of well-defined commercial corridors which span the United States with just 10% of the nation's trade corridors accounting for nearly 80% of all transported goods.[32] Last mile represents the short journey of goods from distribution hubs to their final destination which is completed via surface streets.

Semi-trucks Overview. A Class 8 commercial truck or "semi-truck" is comprised of a tractor unit towing one or more trailers. Standard 53 foot trailers lack a power mechanism and must be attached to a tractor unit in order to be moved. The EPA classifies Heavy Duty Class 8 trucks as semi-trucks weighing in excess of 33,000 pounds. The maximum allowable road weight for fully loaded semi-trucks is 80,000 pounds in the United States. The total cost of a semi-truck typically ranges from $100,000 to $160,000. Trailers are produced in various types and sizes, serving different purposes. The most common trailer in the U.S. is the 53 foot dry van trailer, with other varieties including intermodal and refrigerated or "reefer" trailers. Tractor units are available with "day" cabs or "sleeper" cabs. Sleeper cabs contain additional space for a sleeping area which allows semi-truck drivers to complete overnight hauls or operate in "sleeper teams" of two drivers alternating shifts in order to minimize downtime and move freight faster.

Truckload and Less Than Truckload ("LTL") Freight. Full truckload freight represents trailers that are transported while fully stocked with cargo. Truckload freight is contracted exclusively by one shipper and the trailer is completely filled by the goods of that shipper alone. By contrast, LTL shipping is characterized by the aggregation of two or more shippers' goods within a single trailer for transportation. The total size of an LTL shipment may fill a trailer entirely, but by being comprised of multiple shippers' goods, it will still be categorized as LTL. The truckload and LTL distinctions apply to for-hire carriers which represent approximately 55% of the truck freight market based on dollar value transported.[33] Truckload shipments are much more common, representing over 85% of for-hire carrier volumes. Captive fleets own and operate their fleets and comprise the remaining approximately 45% of the market.[34] Captive fleet owners tend to be large companies with significant freight shipping needs, including retailers, manufacturers, and distributors.

Truck Freight Carrier Fragmentation. The U.S. Department of Transportation estimates that over 500,000 for-hire trucking carriers operate more than 3.6 million Class 8 semi-trucks in the United States. The vast majority of these are small carriers with 95% operating fewer than 20 semi-trucks and over 84% operating six or fewer semi-trucks.[35] The top 10 for-hire truck carriers represent less than 10% of total U.S. truck freight revenue. By comparison, the seven "Class I" U.S. railroads account for over 90% of total rail freight revenue. The market fragmentation in commercial truck freight is driven in large part by relatively low barriers to entry to becoming a semi-truck freight carrier or owner-operator. Capital barriers are largely alleviated by semi-truck leasing companies. As a result, owner-operators only face the time requirements to obtain a commercial driver's license and operating authority from the U.S. Department of Transportation. The services of digital freight brokers have served to further decrease the logistical barriers to entry for small operators in recent years. This fragmentation results in a highly competitive truck freight market. This intense price competition drives even the largest carriers' operating margins below 10% on average with labor costs representing over 40% of the per mile truck freight cost structure.[36] ***Labor is the Largest Per Mile Cost.*** The cost of labor, has rapidly increased as a percentage of the per mile truck freight cost structure. Labor costs now represent 43% of total per mile semi-truck operating costs, a ten

31 For the estimated number of Class 8 semi-trucks in operation, see ACT Research Co., LLC, North America Commercial Vehicle Outlook, January 11, 2021. For the size of the U.S. freight market, see American Trucking Associations, U.S. Freight Transportation Forecast 2019 to 2030. The 470 billion total miles driven is an estimate based on the size of the U.S. truck freight market and an estimated $1.70 per mile prevailing traditional freight rate.

32 A. Tomer and J. Kane, Mapping Freight: The Highly Concentrated Nature of Goods Trade in the United States, Metropolitan Policy Program at Brookings, November 2014.

33 American Trucking Associations, U.S. Freight Transportation Forecast 2019 to 2030.

34 American Trucking Associations, U.S. Freight Transportation Forecast 2019 to 2030.

35 Owner-Operator Independent Drivers Association, Industry/Owner-Operator Facts.

36 ATRI, An Analysis of the Operational Costs of Trucking: 2019 Update, November 2019.

percentage point increase since 2012. Labor costs are the largest component of the per mile cost structure and are 79% greater than fuel costs, which represent the second largest per mile cost. These labor costs are not inclusive of costly driver training and retention expenses, which only further increase truck freight costs.

Semi-truck Driver Shortages. The truck freight industry is currently experiencing severe driver shortages. The latest analysis from the American Trucking Associations ("ATA") found that the Class 8 semi-truck driver shortage more than tripled from 2005 to 2018, to approximately 60,000 drivers, representing an approximate 9% CAGR. The driver pool is also aging, with 54% of commercial truckers being 45 years or older, relative to just 44% of the overall U.S. working population.[37] The ATA anticipates the driver shortage will expand a further 2.6 times by 2028, representing an approximate 10% CAGR, as demand growth continues and the aging trucker workforce retires. We believe that the aging driver population, coupled with the continued driving hours

per day regulatory restrictions will continue to put downward pressure on the supply of driver hours and therefore truck freight capacity. From 2012 to 2018, labor costs per mile increased 46% and now represent the largest per mile cost component at 43% of total semi-truck operating costs. The American Transportation Research Institute notes that the workforce turnover percentage for almost all carriers is in the high double digits with levels exceeding 100% in strong economic periods. Additionally, heightened levels of workforce turnover drive additional financial cost as carriers have had to pay increasingly large sign-on bonuses or other financial incentives to compete for qualified drivers in recent years.

Trucking Safety Issues. The truck freight industry is also experiencing an increasing number of issues related to safety and cost of insurance. The significant weight of fully loaded trailers means that commercial semi-trucks require approximately twice as much braking distance as passenger vehicles.[38] From 2009 to 2019 the number of passenger vehicle occupants killed in semi-truck collisions climbed approximately 40%.[39] The resulting compensation for victims of semi-truck accidents has increased more significantly, and as a result, semi-trucking insurance premiums per mile have increased 33% from 2012 to 2018, representing an approximate 5% CAGR.[40]

The Development of Autonomous Trucking

Vehicle Automation. We believe that the past decade has brought significant progress to vehicle automation technology and that these achievements are guiding us toward proliferation of higher levels of vehicle automation including L4 autonomous driving. From 2004 to 2007, The Defense Advanced Research Projects Agency ("DARPA") sponsored several challenges intended to advance development of autonomous driving technology by the private sector. While the most successful entrant in the initial 2004 competition traveled just seven miles over the Mojave Desert, by 2007 the contestant vehicles were capable of avoiding obstacles and obeying traffic laws in a simulated urban environment. The vast economic and safety potential of autonomous vehicles has continued to drive substantial investment, further accelerating the pace of technological development. Advanced Driver Assistance Systems, primarily constituting Level 1 ("L1") and Level 2 ("L2") automation as defined by SAE, continue to become more sophisticated and prevalent. Because 94% of serious crashes are caused by human error, we believe that the safety benefits of vehicle automation are driving a cohesive effort between the private sector and regulators toward developing progressively higher levels of automation such as full driver-out L4 autonomous operation. Studies have shown, however, that lower automation levels still requiring a human driver can have negative impacts on driver attention and fatigue due to lower constant dedication to the driving task. We believe, for this reason, that full driver-out L4 autonomy provides a safer solution.

37 U.S. Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey, 18b. Employed Persons by Detailed Industry and Age, January 22, 2020.

38 Insurance Institute for Highway Safety ("IIHS"), Fatal Facts 2018 – Large Trucks, December 2019.

39 The National Highway Traffic Safety Administration, People Killed and Injured in Crashes Involving Large Trucks, by Person Type and Crash Type, 2009-2019.

40 ATRI, An Analysis of the Operational Costs of Trucking: 2019 Update, November 2019.

Source: National Highway Traffic Safety Administration.

Autonomous Trucking Compared to Autonomous Passenger Vehicles. Solving the safety and cost issues facing the truck freight industry with autonomous technology presents unique opportunities and challenges relative to passenger vehicles. The autonomous design differences stem from the configuration of commercial semi-trucks, their size and weight, the speeds at which they operate, and the way passenger vehicle drivers behave around them. A standard Class 8 semi-truck with a fully loaded trailer has limited rear visibility and can weigh up to 80,000 pounds which is significantly heavier than the average passenger vehicle. Semi-trucks' weight, coupled with typical highway driving speeds exceeding 60 miles per hour, require a longer planning horizon and therefore an integrated autonomous software and hardware solution with more comprehensive camera vision, better predictive artificial intelligence capabilities and the ability to account for other unique conditions such as the impact of high wind speeds on trailers and on-ramp merging are critical.

Despite these technical challenges we believe that the better defined long haul operating environment and ability to map established truck freight corridors significantly limit the number of potential "edge cases," which are uncommon road situations that the autonomous software must be trained to navigate safely. Limiting the number of edge cases is a critical development item towards driver-out operations. Furthermore, even in the rare circumstance that an L4 autonomous semi-truck encounters a previously unsolved edge case, the use case of transporting goods allows for a viable and safe minimal risk condition state of pulling over to the side of the road to allow for safe resolution of the unsolved edge case. In comparison, the occupants in an autonomous passenger vehicle may not accept a comparable emergency maneuver which involves sitting idle or having to find alternative transportation on short notice.

Regulatory Environment for Autonomous Trucking. National- and state-level regulatory authorities share the goal of carriers and shippers to improve the safety of the trucking industry. The U.S. Department of Transportation has stated that "the United States Government is committed to fostering surface transportation innovations to ensure the United States leads the world in automated vehicle (AV) technology development and integration while prioritizing safety, security and privacy and safeguarding the freedoms enjoyed by Americans." Today, 43 states allow L4 autonomous semi-truck testing, of which 24 states allow L4 autonomous semi-truck commercial deployment. We believe that the current regulatory environment exhibits a clear path for L4 autonomous semi-trucks to deploy nationwide and that working collaboratively with regulators and ecosystem partners will create a safer freight industry.

Source: U.S. DoT, Bureau of Transportation Statistics.

Autonomous Trucking Safety. We believe that the adoption of autonomous technology in trucking will significantly reduce the number of accidents caused by distracted or impaired driving, regimenting safer driving practices and operating more predictably. We believe that the middle mile truck freight routes, which we define as long haul freight routes between terminals, are ideally suited for L4 autonomy. Truck freight operations along specific routes, particularly in the middle mile, allows L4 autonomy to reliably fulfill the requirements of the industry while substantially reducing the number of edge cases that must

be solved by the autonomous software. We also believe it is critical for L4 autonomous semi-trucks to travel on surface streets as well as highways to carry freight from terminal to terminal to minimize drayage costs and operational inefficiency. As a result, we also focus our autonomous capabilities on navigating surface streets in order to provide terminal to terminal transportation rather than requiring a highway "off-ramp" location farther from our users.

Autonomous Trucking Efficiency. We believe that autonomy addresses the fundamental supply and demand imbalance facing the truck freight industry today. We believe that removing the driver from middle mile truck freight will provide shippers, carriers, and railroads with significant cost savings and allow them to reallocate scarce driver resources to first and last mile routes.

Sources: ATRI, DAT Solutions, LLC ("DAT") Notes:

1.	2018 average operating cost per ATRI.
2.	Other costs include insurance, permits, licenses, tires, and tolls.
3.	2018 average dry van contracted rate per mile per DAT.
4.	Dollar figures rounded to nearest $0.01.

Rapidly growing freight volumes driven by e-commerce and other trends not only increases the number of miles driven, but more importantly the speed at which deliveries must be made. Trucking's current solution to same and next day shipping challenges is typically to employ "sleeper teams" of two drivers that alternate driving shifts as semi-truck drivers are legally limited to 11 hour shifts. The demand for dynamic freight delivery is exacerbated by the chronic and worsening driver supply shortage. We expect L4 autonomous semi-trucks to be able to operate in excess of 22 hours per day as they are not subject to the same maximum daily operating hours restrictions as a human driver, enhancing asset utilization and availability of freight capacity. In addition, autonomous technology can reduce fuel consumption and maintenance expenses, and we expect it to reduce insurance costs over time once it develops a track record of safety.

Autonomous Trucking Benefits a Wide Array of Industry Stakeholders. We believe that the benefits to stakeholders across the truck freight industry will accelerate the adoption of autonomous trucking. Shippers', carriers', and railroads' needs continue to become increasingly complex as shipping timeline expectations shorten and onerous seasonal shipping requirements further burden the truck freight demand and supply balance. We believe that the shortage of semi-truck drivers is one of the most significant industry challenges and that autonomy provides the most viable solution.

Shippers, which include retailers, manufacturers, and distributors, must constantly manage their captive fleets and additional capacity from carriers to match their freight capacity with current demand. This logistical challenge is exacerbated during peak season which generally occurs in the U.S. leading up to the holiday season from mid-August through October. We believe that a reliable autonomous solution at scale will help shippers guarantee freight capacity, including during peak season. This will also allow shippers to allocate their increasingly scarce driver supply to customer facing first and last mile operations.

Carriers and parcel service providers, which provide full service freight to shippers, face evolving logistical challenges from continually increasing truck freight volumes amid the driver shortage and expanding same and next day shipping requirements. Autonomy alleviates a key logistical issue presented by physical and regulatory daily driving hour restrictions. This barrier significantly impedes the viability of traditional trucking in same and next day long haul shipping as carriers and parcel service providers must frequently utilize expensive teams of two drivers to meet the delivery timeline. Autonomy eliminates this constraint by allowing the long haul semi-trucks to operate 24/7 while allowing for more efficient allocation of driver resources to customer facing first and last mile deliveries. This autonomous middle mile solution also enables an "Intermodal 2.0" freight framework, expanding the reach of truck transportation as an alternative to rail intermodal.

Freight brokers, which match supply and demand between shippers, carriers, and railroads, benefit from autonomy as an additional transportation tool for truck freight. We believe that the reduced expense and increased reliability of autonomous trucking can aid brokers in matching demand with the lowest cost long haul solution, improving customer service and broadening business opportunities.

OEMs, which manufacture Class 8 semi-trucks, stand to benefit from strong demand for new purpose-built L4 autonomous semi-trucks. We believe that the numerous benefits to shippers, carriers, railroads, parcel service providers and brokers will drive strong demand for autonomous truck freight volumes. We further believe that purpose-built L4 autonomous semi-trucks will help meet this autonomous freight capacity demand in a more reliable and efficient manner. We expect that OEMs will be able to command a higher price point per L4 autonomous semi-truck because of operational efficiency and also benefit from increased purpose-built L4 autonomous semi-truck production volumes from the secular shift to autonomous trucking.

Our Solution

Our Autonomous Freight Network is an innovative freight ecosystem that will provide our users with access to safer, lower cost, and reliable freight capacity on demand. To enable our AFN, we are developing highly capable and reliable L4 driver-out autonomous semi-trucks that incorporate our core technologies including our proprietary autonomous software platform and world-class sensor system. We believe that our AFN is the most comprehensive solution to address the freight industry's long term challenges including safety, efficiency, the environment, and supply and demand imbalances. Set forth below are the key elements of our solution enabling us to provide users with autonomous freight capacity as a service, which we believe will revolutionize the freight industry.

A Comprehensive Autonomous Freight Capacity as a Service Solution. The combination of our leading core technology, product and service offerings is designed to enable our comprehensive autonomous freight capacity as a service solution. Our core technology offerings, comprised of our proprietary autonomous software platform and world-class sensor system, form the bedrock of our AFN. These core technologies are the building blocks for our purpose-built L4 autonomous semi-trucks and TuSimple Path which are our primary user products. Our strategic terminal network is the third pillar of our

product suite that provides a highly valuable and accessible infrastructure for our users. The combination of our core technologies and products enable our TuSimple Capacity and Carrier-Owned Capacity offerings which are the two service models through which users can access freight capacity on our AFN. The flexibility of our multiple service models to access the AFN underpins our autonomous freight capacity as a service solution. Each layer of our business model including core technologies, products and services combines to create an unparalleled user experience which we believe will transform the truck freight industry:

Our Services

The Autonomous Freight Network is an expanding nationwide network of HD digital mapped routes and terminals coupled with an operational oversight system operated by TuSimple. It is the infrastructure to enable safe and efficient autonomous freight capacity as a service. Our HD digital mapped routes currently span over 3,000 miles across the U.S., and we expect to map the entire 46,000 mile U.S. Interstate System by 2024. We are scaling our AFN through an ecosystem approach by partnering with world class shippers, carriers, railroads, and service providers to de-risk and accelerate the pace of expansion. We believe that our AFN will offer users a comprehensive network to access autonomous long haul freight capacity.

To provide the most flexible solution for our users, we offer two methods to access autonomous freight capacity on our AFN:

Carrier-Owned Capacity. Many of our users own all or a substantial portion of their semi-truck fleet. Large scale shippers such as McLane, for instance, often prefer the oversight and logistical control that comes with owning and operating their semi-truck fleet rather than utilizing third party carriers and freight brokers. Since the third quarter of 2020, users who prefer to own their semi-trucks have been able to reserve over 5,700 of our purpose-built L4 autonomous semi-trucks built in partnership with Navistar. By subscribing to TuSimple Path, Carrier-Owned Capacity users will be able to seamlessly integrate autonomous freight operations into their existing supply chain. Users will pay TuSimple a per mile subscription fee to operate the purpose-built L4 autonomous semi-truck and receive the full benefit of our AFN, including autonomy-enabled routes mapped directly to users' existing facilities and TuSimple Connect platform. By purchasing our purpose-built L4 autonomous semi-trucks and subscribing to TuSimple Path, we expect to drastically decrease our users' annual total cost of ownership which will yield a payback period of less than one year on the incremental cost of hardware. Assuming an illustrative $0.35 per mile technology subscription fee, we estimate this will save shippers $0.40–0.50 per mile relative to prevailing driver labor costs[41], representing approximately $95 thousand annual savings per truck.

TuSimple Capacity. Access to our full service autonomous freight capacity as a service is available to our users through our TuSimple Capacity. We utilize a capital light business model, financing our L4 autonomous semi-trucks through third party fleet asset owners and financing sources. This model provides us with control of operational logistics and user experience as we offer a seamless terminal to terminal freight service to our users. Our users pay for access to our L4 autonomous semi-trucks operating across our AFN on a per mile basis which we anticipate will be at a 10–15% discount to the per mile rate charged by traditional truck freight carriers. Assuming an illustrative $1.70 per mile prevailing traditional freight rate, a 15% lower rate of $1.45 would lead to approximately $25,000 in savings per 100 thousand truckload miles.

Our Products

Purpose-Built L4 Autonomous Semi-truck. We are developing, with Navistar and TRATON, the first vertically integrated L4 purpose-built autonomous semi-truck that we expect will be manufactured at scale to be

41 ATRI; assumes approximately 210,000 truckload miles.

deployed on our AFN. We believe that this vertical integration, coupling proprietary software with hardware manufactured by world class OEMs and components partners as well as roadside assistance and maintenance partnerships, will deliver the most reliable and first-to-market purpose-built L4 autonomous semi-trucks at scale.

Our hardware partnerships allow us to primarily focus our development on our proprietary, core autonomous software while gaining the benefits of a capital light business model. We believe that leveraging these partnerships significantly de-risks and accelerates our pace to commercializing our AFN at the requisite scale to adequately serve the freight industry. We also believe that leading industry participants' decisions to partner with us further validate our solution.

- ***Partnership with Navistar.*** In July 2020, we announced our formal partnership with Navistar, one of the world's largest commercial truck OEMs. Navistar manufactures its trucks under the International and IC brands. Through our partnership, we intend to produce a line of purpose-built L4 autonomous semi-trucks for the North American market at scale by 2024 in Navistar's manufacturing facilities. This milestone builds upon our two year relationship with Navistar, and we believe that it is a critical step to building our AFN to scale with highly reliable, integrated hardware solutions. Through our first four months of accepting reservations for our purpose-built L4 autonomous semi-truck, we have accepted over 5,700 reservations from approximately ten customers, each of whom has significant freight operations. Approximately 75% of our reservations were made by customers who operate commercial truck fleets and who are also equity investors in our company. Reservation opportunities were made available to a limited selection of potential customers. We work with our reservation holders to integrate our HD mapped routes, TuSimple Connect oversight system, and other critical elements of our AFN into their freight operations in advance of delivery of our purpose-built L4 autonomous semi-trucks. Our current semi-truck reservations typically contemplate delivery over multiple years beginning in 2024 based on our customers' specifications. We expect to have capacity to fulfill all current reservations according to each customer's delivery schedule. We enter into reservation agreements with our customers that allow them to secure a priority position to order and purchase one of our purpose-built L4 autonomous semi-trucks. Typically, each reservation requires a $500 per truck deposit, however, the deposit requirement has been waived for our equity investors that currently hold reservations. We are currently in the process of collecting these deposits to hold in an escrow account, which can be delivered to us within a 12 month period after entering into a reservation agreement. Until the customer enters into a purchase agreement for our purpose-built L4 autonomous semi-truck, which is within the discretion of the customer, the reservation can be canceled and the

customer is entitled to a full refund of its deposit. Any cancellations and refunds will be satisfied out of the deposits held in the escrow account.

- ***Partnership with TRATON.*** In September 2020, we announced a global partnership with TRATON to develop purpose-built L4 autonomous semi-trucks. TRATON, a publicly listed subsidiary of Volkswagen, is one of the world's largest commercial truck OEMs. Scania, MAN Truck & Bus, and Volkswagen Caminhões e Ônibus are the truck brands of the TRATON GROUP. We have already begun developing the first L4 autonomous hub-to-hub truck freight route between Södertälje and Jönköping in Sweden using TRATON's Scania trucks. We believe that, as one of the world's largest commercial vehicle OEMs, TRATON significantly increases our ability to scale globally and bring our transformative autonomous trucking solution to freight users around the world.

- ***Tier 1 Ecosystem.*** Our vertical hardware integration extends beyond OEMs and into Tier 1 supplier partnerships. Tier 1 suppliers manufacture critical components that improve the performance of our system and provide high quality component redundancy. As the architect of the autonomous system, we have important input into which suppliers' parts best meet our design specifications.

Years of testing and design improvement over the course of our six Series A–F autonomous semi-truck models underpins our confidence in our purpose-built L4 autonomous semi-truck. While our Series A semi-truck illustrated proof of concept in 2017, we have innovated rapidly as we develop an increasingly more reliable and safer autonomous semi-truck. Our purpose-built L4 autonomous semi-truck, developed in partnership with Navistar, represents the next major advance in autonomous semi-truck technology which we believe will be the first autonomous semi-truck produced at scale.

TuSimple Path. Our L4 autonomous semi-trucks are powered by our on-board autonomous driving software, our TuSimple Connect cloud-based autonomous operations oversight system, autonomous HD route mapping support, and emergency roadside assistance to provide safe and seamless end-to-end autonomous freight capacity as a service.

Note:

1. Except weather conditions that significantly impede traction or visibility.

AFN Terminals. We believe that to achieve a meaningful share of the truck freight market, the scale of our network solution is critical. While removing the driver from the semi-truck is highly attractive on a unit economics basis, the solution is not viable for major shippers, carriers, and railroads without a scalable and highly reliable network of terminals connected by HD digital mapped routes. Our terminal network is comprised of both users' existing terminals as well as TuSimple operated terminals which we lease. We are actively working with our ecosystem of users to expand our footprint of terminals that we operate and which are strategically located to maximize proximity to our users' facilities. Our AFN connects both our users' existing terminals and our own operated terminals to facilitate freight movement. We intend to continue to finance the terminals that we operate under a facility lease or other similar financing arrangement. We believe that our growing terminal network is highly complementary with our L4 autonomous semi-trucks' capability to operate from terminal to terminal, minimizing drayage and operational inefficiency.

Our Core Technology

Highly Efficient and Reliable Autonomous Trucking Technology. We believe that to deliver an exceptional user experience, our autonomous freight solution must be reliable and must easily integrate into our users' existing supply chains. Our reliability starts with our L4 autonomous semi-trucks powered by our proprietary autonomous software, durable auto-grade hardware, trustworthy maintenance, and on-demand roadside services. We do not believe that an aftermarket or retrofitted autonomous solution can provide long term reliability for scaled commercial development. Furthermore, our advanced, proprietary software and hardware technologies have allowed us to be the first to demonstrate a true terminal to terminal solution, rather than a highway-only ramp to ramp solution. Our L4 autonomous semi-trucks' ability to navigate beyond highways onto surface streets allows our terminals to be strategically located on-site or near our users' distribution centers. We believe that a ramp to ramp highway-only L4 autonomous semi-truck would be insufficient for our users because the semi-trucks would still require human operators to drive the semi-trucks to and from on- and off-ramps, decreasing scalability, increasing the chances of accidents, and incurring significant drayage and incremental real estate costs. We believe that our terminal to terminal ability provides a far superior solution because it ensures seamless integration into our users' existing supply chain—a key minimum hurdle for widespread autonomy adoption.

Full Stack of Proprietary Software Functions. The five core components of our proprietary software stack powering our autonomous system include Perception, Motion Planning, Control, Machine Learning Infrastructure, and Mapping. Each proprietary component is critical and interconnected to meet the unique challenges of operating an autonomous Class 8 semi-truck. Our software and on-board hardware including sensors, steering, braking, and electronic compute unit systems are seamlessly integrated to enable technological breakthroughs such as our camera-centric long range perception system. We believe that our purpose-built L4 autonomous semi-truck will be significantly safer than a human driver, alleviating a primary pain point for the current freight industry. Safely removing the human driver from long haul trucking will not only reduce labor costs as the largest operating expense but can also reduce accidents, increasing safety for work force, reducing operational lost time, and bringing down insurance costs over time. Including additional savings from increased fuel efficiency and reduced wear on the vehicle, we believe that our purpose-built L4 autonomous semi-truck solution will reduce freight operating costs by up to 50% per mile.

Perception. The significantly larger mass of a commercial semi-truck coupled with highway driving speeds requires longer braking distances and thus a long planning horizon—significantly longer than that of passenger vehicles. Long range perception is key to our ability to enable this long planning horizon. Our system has a forward perception range of up to 1,000 meters and is capable of detecting, tracking and analyzing the movement patterns of vehicles, including relative speed and distance. Performing 600 trillion operations per second, our on-board software fuses multiple sensors including cameras, light detection and ranging ("LiDAR") and radar to reconstruct a visual representation of the semi-truck's surroundings. Our cutting edge perception system is powered by our leading computer vision and artificial intelligence technology.

Motion Planning. Our innovative motion planning software complements our perception system by predicting the future paths of surrounding vehicles. Due to our long range perception technology that allows us to accurately capture the road environment up to 1,000 meters ahead, we have over 35 seconds of planning horizon. By utilizing prediction models which assess vehicle speeds and driver intent, we are able to plan better and safer driving trajectories for our semi-trucks. Central to our prediction engine's design is the ability to account for interaction with non-compliant drivers which are encountered frequently. Our systems have found that drivers are increasingly non-compliant when in the vicinity of large semi-trucks which increases the importance of our ability to model erratic behaviors of surrounding drivers. We believe that our systems' ability to accurately forecast the behavior of compliant and non-compliant drivers is highly differentiated and will significantly increase the safety of our purpose-built L4 autonomous semi-trucks relative to human drivers.

Control. Our control algorithms receive input from the motion planning module to put into action a safe and efficient driving trajectory. These algorithms must be designed specifically for the semi-truck use case, as semi-trucks are significantly less nimble than passenger cars, with characteristics including longer gear shift timeframes and the need for higher actuation accuracy. Our control system is designed to dynamically adapt to varying truck trailer cargo weights as well as crosswind speeds which can both drastically alter the movement of and create unique challenges for semi-trucks. We believe that combining long range perception, longer planning horizons, and highly accurate control algorithms makes the driving performance of our on-board software significantly smoother and more fuel efficient than that of a human driver.

Technology Specifically Designed for Semi-Trucks. L4 autonomous semi-trucks present distinct challenges. The combination of a semi-truck's weight and typical highway speeds requires approximately 2x longer stopping distances than passenger vehicles. Due to their length, semi-trucks can take up to 16 seconds to make a left hand turn which requires a significantly longer planning horizon than passenger vehicles. Our proprietary sensor platform and predictive AI allow our trucks to safely navigate these unique challenges.

Sources: Schneider, California Department of Motor Vehicles.

Machine Learning Infrastructure. The accuracy of our perception and motion planning capabilities is augmented by our proprietary machine learning algorithms. Over the course of 2.8 million road miles and 150+ million simulation miles, we have accumulated a vast set of semi-truck specific driving data with which to train our perception and motion planning capabilities. We focus our data collection and storage efforts on both quality and quantity. This enables our database to be informative and relatively easily analyzed by our machine learning software which currently has the capacity to process 100 thousand instances per day. This data analysis trains our software to more accurately predict how the surrounding environment of a semi-truck will change in real time.

HD Mapping. We believe that integrated mapping software is crucial for the operation of an L4 autonomous semi-truck. Our AFN is comprised of HD digital maps of the major freight corridors over which our semi-trucks operate. By developing our own proprietary nationwide freight route maps, we can have control over and visibility of the routes within our AFN, facilitating greater precision, accuracy and reliability of our system. Data collected by the semi-trucks in transit allows us to continually improve map accuracy and affirm semi-truck position. Our proprietary maps are developed by driving camera, LiDAR and GPS equipped commercial vehicles along the target freight route several times. This data collection is followed by fully automated processing which fine tunes and generates full 3D high definition maps at an accuracy of five centimeters or less.

Our Semi-trucks Today. We currently operate 70 L4 autonomous semi-trucks with 50 on our AFN in the U.S. and 20 in China. Our L4 autonomous semi-trucks currently operate with a safety driver and safety engineer in the cabin to ensure adequate oversight as we continue to improve our technology. Our Class 8 semi-trucks are outfitted with autonomous hardware including, what we believe is, the world's most advanced L4 autonomous semi-truck sensor system. Our hardware and software systems are fully redundant for safety. Our L4 autonomous semi-trucks are completing revenue generating routes for our shipper and carrier users via our AFN. By partnering with OEMs and Tier 1 suppliers to vertically integrate the production process, we believe that we can significantly reduce production costs of our purpose-built L4 autonomous semi-truck.

World-Class Sensor System. Our proprietary sensor system is critical to our L4 autonomous semi-trucks' perception range and accuracy. We designed a proprietary camera module coupled with our proprietary software that enables the semi-truck's 1,000 meter perception range, even in low light conditions. This range across lighting environments is designed to provide our semi-trucks with sufficient reaction time to safely operate at highway speeds, ultimately allowing for a planning horizon up to 35 seconds. Our camera-centric system is powered by both primary and backup cameras, providing a fully redundant camera system for increased safety. Augmenting the camera perception is an array of LiDAR, radar systems, GPS, and ultrasonic sensors. Our combined use of cameras and sensors provides our semi-trucks with superior perception range, while also being highly accurate in different road scenarios. With the exception of our specially designed long range high definition camera, we have sourced the balance of our sensor suite from existing third party products in order to reduce the cost of the overall system.

Proprietary HD Mapping Capability. Our in-house mapping technology can quickly map new routes and provide users with more location options for shipping on our AFN. Our proprietary mapping technology and process is accurate to within five centimeters. Precise localization accuracy is crucial to safely operate semi-trucks autonomously given the 8.5 foot average tractor width, particularly when travelling on local streets which average just 10 feet wide. We are able to map new routes at a rate of over 250 miles per week which translates into our ability to map a typical "middle mile" route for a user in approximately four weeks on average. This nimble, flexible approach allows us to quickly meet our users' evolving freight demands while efficiently expanding our network.

Cloud-Based Operational and Monitoring System. Our seamless user experience is enhanced by our proprietary TuSimple Connect system. This cloud-based autonomous operations oversight system is designed to ensure safe operations, reliability, and efficient capacity for our users. The system directly connects to our users' Transportation Management Systems, integrating TuSimple Connect into their supply chain and creating a close user relationship. Our users can book and track their freight seamlessly with real-time two way communication that allows our AFN to dynamically match freight supply with demand.

Network-Based Approach ***Network-Based Approach Encourages Faster Adoption.*** We believe that our AFN will provide a superior user experience by solving truck freight supply and demand pain points while significantly improving safety and lowering emissions. We expect our superior user experience and attractive per mile economics to drive rapid adoption of our solution and increase our AFN network's density. As demand increases, we expect utilization rates of semi-trucks already on our AFN to grow, which will make adding additional semi-trucks, terminals, and routes increasingly attractive. More L4 autonomous semi-trucks, terminals, and routes increase available capacity on our AFN which increases network density and further enables the on-demand nature of our solution. Our capital light business model significantly reduces friction to scale and allows capacity to be added quickly by leveraging third parties to finance additional L4 autonomous semi-trucks and strategic terminal locations. As more semi-trucks, terminals, and routes are added, freight capacity and on-demand availability on the AFN increase as well, leading to a self-perpetuating system and further accelerating network growth.

Our Competitive Strengths

We believe that the following strengths position us well to lead the transition to autonomous trucking and build an attractive, network based business model:

We are the Leader in Autonomous Trucking. We have accomplished many first of their kind milestones for an L4 autonomous semi-truck technology company. We believe that we are further in the development of our autonomous technology and closest to commercialization of any L4 autonomous semi-truck technology company.

- First to announce partnerships with OEMs via our Navistar and TRATON partnerships
- First to announce an investment from a major carrier when UPS invested in our company in 2019
- First to establish a near highway terminal for autonomous commercial freight operations
- First and only to demonstrate L4 autonomous semi-truck driving on both surface streets and highways
- First L4 autonomous semi-truck to haul a paid freight load

We Are Solely Focused on the Truck Freight Market. Autonomous trucking has specific technical and operational challenges. L4 autonomous semi-truck driving operations are materially different than passenger cars, principally as a result of a semi-truck's weight, size, and configuration. Furthermore, a semi-truck engaged in hauling freight is a significantly different use case than a personal vehicle or rideshare vehicle principally engaged in passenger transportation in urban environments. We believe that our focus on the particular challenges of the truck freight market provides a significant competitive advantage relative to companies which have historically focused on autonomous passenger vehicle development.

Autonomous Technology Leadership. Our intellectual property portfolio includes over 240 patents worldwide. Some of the key elements of our technology include our 1,000 meter perception system, multi-sensor fusion, prediction model, and planning capabilities. We believe that our technology is highly differentiated and is a key enabler of bringing our solution to commercialization.

Validation of our Technology and Approach. Our partnerships with, and in some cases investments from, sophisticated companies from the freight and technology industries, such as NVIDIA, UPS, Navistar, TRATON, U.S. Xpress, Werner, Schneider, and CN, validate the strength of our technology and our business model. We believe that we have the most significant and most numerous points of external validation of our technology and approach among autonomous trucking technology companies.

Proprietary Relationships with World Class Hardware Partners. Our partnerships with semi-truck OEMs such as Navistar and TRATON as well as other hardware partners such as NVIDIA help us develop a reliable, scalable production semi-truck. The partnerships allow us to primarily focus our technology development on our proprietary core L4 autonomous semi-truck software while gaining the benefits of capital light vertical integration.

Our AFN has an Unmatched Group of Global Leaders in Freight. We have developed an ecosystem of users and commercial partners including UPS, McLane, JB Hunt, U.S. Xpress, Werner, Schneider, and CN, who are some of the largest and most sophisticated participants in the freight ecosystem. Our partners are critical in helping us test and develop our autonomous trucking solution and accelerate adoption of our AFN.

Environmental Sustainability Benefits. We have demonstrated a 10% improvement in fuel efficiency compared to traditional truck freight through our technology. This was conducted through a study with University of California San Diego and using empirical data with our users. We believe that fuel efficiency is important to large shippers and fleets, both in terms of cost savings and for reducing carbon footprint.

World Class Management Team with Multi-Disciplinary Experience. Our organization is led by a world class team with a diversity of expertise and experience. The team is balanced across entrepreneurial, finance, trucking technology, and logistics expertise with experience at some of the world's foremost organizations in those areas. We believe that this team is critical to our success given the scale and complexity of the market which we are transforming. By drawing from experiences ranging across technology, logistics, investing and other relevant areas, we believe that our team is a core competitive strength as we build out our AFN.

Industry Leading Technology Team. Members of our technical team have made significant contributions to the advancement of artificial intelligence and machine vision technologies. For example, members of our team invented Spectral Saliency Theory, which is one of the most influential theories of the past decade relating to machine vision, which is a key enabler for safe and reliable L4 autonomous truck operations.

Our Strategy

We continue to build on our position as a global leader in autonomous trucking technology, building safer, more reliable, efficient and lower carbon footprint freight transportation. Key elements of our strategy include:

Build Upon Our Track Record of Autonomous Trucking Achievements. Since our founding in 2015, we have pushed the boundaries of autonomous vehicle software and hardware. Our centralized data processing and storage system is designed to maximize the value of our 2.8 million road miles and 150+ million simulation miles, allowing us to become a leader in solving complex autonomous trucking edge cases.

Expand our Autonomous Freight Network Across the U.S. We intend to build out our network of freight terminals, AFN partners, and HD digital mapped routes, expanding from our existing footprint in Arizona, New Mexico, and Texas to nationwide coverage across major interstate highways by 2024. We are currently mapping roadways at a pace of over 250 miles per week. Our goal is to achieve route map coverage of the entire continental U.S. by 2024. We

intend to have revenue sharing agreements with our ecosystem partners, which we believe will incentivize them to help expand and enhance our AFN. In addition, carriers, shippers, and railroads will have the opportunity to significantly improve their operating margins by participating in our AFN as users and commercial partners, creating a powerful network effect.

Demonstrate Driver-Out Testing. In 2021, we expect to demonstrate our semi-truck operating on public roads without a safety driver or passenger on-board. This demonstration is designed to prove out the advanced progress of our technology and will serve as one of the key upcoming milestones toward full autonomous freight operations.

Begin Production of Our Purpose-Built L4 Autonomous Semi-Truck. In partnership with Navistar, we have commenced co-development of a purpose-built L4 autonomous semi-truck for commercial production by 2024 for the U.S. market. In the third quarter of 2020, we, along with Navistar, started taking reservations for the semi-truck, which we expect to be an important indicator of user demand for our offering. We intend to begin filling reservations over a multi-year period commencing in 2024, with actual date of delivery based on our customers' specifications.

Offer Multiple Ways to Serve Our Users. We will offer several ways for users to access our AFN, both for those that prefer an asset light model and those that prefer to own their fleet. A summary of our different user offerings is set forth in the business section under "Our Solution."

Continued Focus on Achievement of Key Technology and Business Milestones. We intend to continue to build on our existing technological and business milestones to advance towards full commercialization. We will continue to enhance our L4 autonomous semi-truck technology and establish additional commercial partnerships in key areas, such as hardware, financing, insurance and freight brokerage.

Global Expansion. In addition to building our U.S. based AFN, we intend to expand commercialization internationally. We plan to build a purpose-built L4 autonomous semi-truck specifically for the Europe and China market with our OEM partner TRATON. Our expansion in both regions will augment and complement our AFN commercialization in the United States. We believe that China and Europe represent significant opportunities given China and Greater Asia represent an approximately $1.7 trillion TAM with 7.6 million heavy duty trucks and Europe represents an estimated $400 billion TAM with 2.3 million heavy duty trucks.[42]

[42] TAM figures per Armstrong & Associates; China truck count per National Bureau of Statistics; Europe truck count per Eurostat.

Competition

We view ourselves as a partner to the key stakeholders in the traditional truck freight industry rather than a competitor. We believe that our AFN solution will address the key supply and demand pain points faced by the industry today and that our technology will make truck freight shipper and carrier operations significantly safer and more efficient. We believe that our partnerships with well-established industry participants validates this collaborative approach.

Despite our partnership approach, we face significant competition from traditional freight carriers and shippers. The truck freight industry is fragmented and highly competitive, historically leading to pricing pressure and low operating margins. We will compete with traditional carriers on reliability, price, and safety. We believe that our technology provides us with a significant advantage across each of these key competitive areas.

While we face technological competition from other autonomous vehicle companies, we believe that our exclusive focus on the semi-truck use case differentiates us from other autonomous vehicle companies. L4 autonomous semi-trucks present distinct challenges relative to autonomous passenger vehicles, and we believe that overlap in technological capabilities is limited. We also believe that our lead in solved semi-truck autonomy edge cases, extensive patent portfolio, and well-established industry partnerships further strengthen our leadership position.

Government Regulation

We believe that the current regulatory environment exhibits a clear path for L4 autonomous semi-trucks to deploy nationwide and that working collaboratively with regulators and ecosystem partners will create a safer freight industry. The U.S. Department of Transportation has stated that "the United States Government is committed to fostering surface transportation innovations to ensure the United States leads the world in automated vehicle (AV) technology development and integration while prioritizing safety, security and privacy and safeguarding the freedoms enjoyed by Americans." Today, 43 states allow autonomous semi-truck testing, of which 24 states allow autonomous semi-truck commercial deployment. We believe that the current regulatory environment exhibits a clear path toward autonomous trucking solutions nationwide and that regulators will be our partners in creating a new, drastically safer freight industry.

At the federal level in the United States, the safety of commercial motor vehicles is regulated by the U.S. Department of Transportation through two federal Agencies – the National Highway Traffic Safety Administration (the "NHTSA") and the Federal Motor Carrier Safety Administration (the "FMCSA"). NHTSA establishes the Federal Motor Vehicle Safety Standards (the "FMVSS") for motor vehicles and motor vehicle equipment and oversees the actions that manufacturers of motor vehicles and motor vehicle equipment are required to take regarding the reporting of information related to defects or injuries related to their products and the recall and repair of vehicles and equipment that contain safety defects or fail to comply with the FMVSS. FMCSA regulates the safety of commercial motor carriers operating in interstate commerce, the qualifications and safety of commercial motor vehicle drivers, and the safe operation of commercial trucks.

While there are currently no federal U.S. regulations expressly pertaining to the safety of autonomous driving systems for trucks, the U.S. Department of Transportation has established recommended voluntary guidelines, and NHTSA and FMCSA have authority to take enforcement action should an automated driving system pose an unreasonable risk to safety or inhibit the safe operation of a commercial motor vehicle. Certain U.S. states have legal restrictions on autonomous driving vehicles, and many other states are considering them. This patchwork increases the legal complexity for our purpose-built autonomous trucks. In Europe, certain vehicle safety regulations apply to self-driving braking and steering systems, and certain treaties also restrict the legality of certain higher levels of autonomous driving vehicles. Autonomous driving laws and regulations are expected to continue to evolve in numerous jurisdictions in the U.S. and foreign countries and may create restrictions on autonomous driving features that we develop.

As the trucks that carry our technology go into production, we are subject to existing stringent requirements overseen by NHTSA under the National Traffic and Motor Vehicle Safety Act of 1966 (the "Vehicle Safety Act"), including a duty to report, subject to strict timing requirements, safety defects with our products. The Vehicle Safety Act imposes potentially significant civil penalties for violations including the failure to comply with such reporting actions. We are also subject to the existing U.S. Transportation Recall Enhancement, Accountability and Documentation Act (the "TREAD Act"), which requires motor vehicle equipment manufacturers, such as us, to comply with "Early Warning" requirements by reporting certain information to NHTSA, such as information related to defects or reports of injury related to our products. The TREAD Act imposes criminal liability for violating such requirements if a defect subsequently causes death or bodily injury.

In addition, the National Traffic and Motor Vehicle Safety Act authorizes NHTSA to require a manufacturer to recall and repair vehicles that contain safety defects or fail to comply with U.S. federal motor vehicle safety standards. Sales into foreign countries may be subject to similar regulations. As the development of federal and state regulation of autonomous machines and vehicles continues to evolve, we may be subject to additional regulatory schemes.

In addition, our operations are subject to various international, federal, state, and local laws and regulations governing pollution and protection of the environment, the use, generation, storage, management, discharge, transportation, disposal, and release of, and human exposure to, hazardous and toxic materials, and the occupational health and safety of our employees. Our truck drivers and trucking operations are subject to the Federal Motor Carrier Safety Regulations (the "FMCSRs") established by FMCSA, and we are subject to the requirements of the federal Occupational Safety and Health Act, as amended ("OSHA"), and comparable international, state, and local laws that protect and regulate employee health and safety.

In order for us to operate in international markets outside the U.S., we must comply with relevant legal regulations regarding autonomous vehicles as well as technology export control, data security, cybersecurity and other related regulations that apply to global technology companies. We have developed robust compliance processes and procedures related to these regulatory requirements and believe that we are in compliance with such requirements. We do not believe there are any regulatory restrictions that would materially restrict our ability to operate in our key markets of the U.S., China or Europe. We are in regular dialogue with the relevant regulatory policy bodies globally and will continue to comply with these regulations or any updates thereof.

On March 1, 2021, the CFIUS Staff Chairperson, acting at the direction of the Committee, requested that we file a written notice regarding the 2017 purchase of shares of our Series B redeemable convertible preferred stock by Sun Dream, Inc. ("Investor"), an affiliate of Sina Corporation (the "Investment"). Investor currently holds shares of our redeemable convertible preferred stock, which will be converted into Class A common stock upon the completion of this offering. After the completion of this offering, Investor will hold approximately % of the outstanding shares of our capital stock, but will only hold approximately % of our outstanding voting power. We intend to file the requested notice jointly with Investor. Once this joint notice is accepted, CFIUS will have 45 days to conduct a review of the Investment, after which CFIUS could (i) conclude that the Investment is not a covered transaction subject to CFIUS jurisdiction, (ii) clear the Investment by concluding that the Investment presents no unresolved national security concerns, or (iii) initiate a 45-day investigation of the Investment. At the conclusion of the investigation period, CFIUS may clear the Investment or, as a condition to clearing the Investment, require the parties to enter into an agreement to mitigate any unresolved national security concerns. Such a mitigation agreement could, among other things, restrict Investor's access to certain information in our possession (which could impose additional costs on us) or revise Investor's governance rights. In addition, if the President concludes that the Investment threatens to impair the national security of the United States, the President may order that Investor divest its interest in our shares. We can provide no assurance regarding the resolution of the CFIUS process. See "Risk Factors—Risks Related to Our International Operations—Changes to trade policy, tariffs, and import/export regulations may have a material adverse effect on our business, financial condition, and results of operations."

Strategic Collaboration with Navistar

In July 2020, we formalized a partnership with Navistar to jointly and collaboratively develop a Level 4 autonomous solution for Class 8 tractors, with the goal of having factory produced purpose-built L4 autonomous semi-trucks available at scale in 2024. As part of this partnership, we have also negotiated with Navistar terms for a production license agreement to commercially market and provide services for autonomous trucks thereafter.

The product development process will follow a stage gate development model for the production of purpose-built L4 autonomous semi-trucks. We are providing the software, system design, and requirements for the autonomous truck while Navistar serves as the system integrator for the truck hardware and is responsible for validation and testing. Navistar and we have also established a reservation program in the third quarter of 2020 for both of our strategic customers to pre-order Level 4 autonomous Class 8 tractors. We received over 5,700 reservations within the first four months of availability from approximately ten customers, each of whom has significant freight operations. Approximately 75% of our reservations were made by customers who operate commercial truck fleets and who are also equity investors in our company. Reservation opportunities were made available to a limited selection of potential customers. We work with our reservation holders to integrate our HD mapped routes, TuSimple Connect oversight system, and other critical elements of our AFN into their freight operations in advance of delivery of our purpose-built L4 autonomous semi-trucks. Our current semi-truck reservations typically contemplate delivery over multiple years beginning in 2024 based on our customers' specifications. We expect to have capacity to fulfill all current reservations according to each customer's delivery schedule. We enter into reservation agreements with our customers that allow them to secure a priority position to order and purchase one of our purpose-built L4 autonomous semi-trucks. Typically, each reservation requires a $500 per truck deposit, however, the deposit requirement has been waived for our equity investors that currently hold reservations. We are currently in the process of collecting these deposits to hold in an escrow account, which can be delivered to us within a 12 month period after entering into a reservation agreement. Until the customer enters into a purchase agreement for our purpose-built L4 autonomous semi-truck, which is within the discretion of the customer, the reservation can be canceled and the customer is entitled to a full refund of its deposit. Any cancellations and refunds will be satisfied out of the deposits held in the escrow account.

Research and Development

We have invested a significant amount of time and effort into research and development of proprietary artificial intelligence, algorithms, and software to solidify our technology leadership in the market. Our ability to maintain this leadership position depends in part on our ongoing research and development activities. Our research and development team is responsible for the design, development, and testing of our technology.

Our research and development is largely conducted at our headquarters in San Diego, California. As of December 31, 2020, we had 673 full time employees engaged in our research and development activities.

Intellectual Property

Our ability to be at the forefront of innovation in the autonomous trucking and freight transport market largely depends on our ability to obtain, maintain, and protect our intellectual property and other proprietary rights relating to our key technology, and our ability to successfully enforce these rights against third parties. To accomplish this, we rely on a combination of intellectual property rights, such as patents, trademarks, copyrights, and trade secrets (including know-how), in addition to employee and third-party nondisclosure agreements, intellectual property licenses, and other contractual rights. Our success also depends in part on our ability to operate without infringing, misappropriating, or otherwise violating the intellectual property and proprietary rights of others, and in part, on our ability to prevent others from infringing, misappropriating, or otherwise violating our intellectual property and proprietary rights. A comprehensive discussion on risks relating to intellectual property is provided under the section titled "Risk Factors—Risks Related to Our Intellectual Property, Information Technology, and Data Privacy."

As of December 31, 2020, we had approximately 247 issued patents and 571 pending patent applications globally, including 77 issued patents in the United States and various counterpart patents in China. Our patents in the United States expire between February 2035 and September 2039, and our patents in China expire between November 2026 and February 2039. Our issued patents and patent applications cover a broad range of system level and component level aspects of autonomous technology, and we intend to continue to file additional patent applications with respect to our technology.

Legal Proceedings

We are currently not a party to any material legal or administrative proceedings. We are from time to time involved in actions, claims, suits, and other proceedings in the ordinary course of our business. In addition, from time to time, third parties may in the future assert intellectual property infringement claims against us in the form of letters and other forms of communication. Litigation or any other legal or administrative proceeding, regardless of the outcome, can result in substantial cost and diversion of our resources, including our management's time and attention.

Our People and Culture

We pride ourselves on the talent, passion, and dedication of our employees, who are united in our goal to revolutionize the global freight market. As of December 31, 2020, we had 839 full-time employees. The majority of our employees are based in San Diego, California, with others located in Arizona and Beijing, China.

We have built a values-based culture that emphasizes values such as striving for excellence, transparency, and support for each other. Our employees have access to development stipends, a wide range of training, different career paths, and, most importantly, challenging and purposeful work. Our culture is also built on diversity, inclusion, camaraderie, and celebration. We organize regular cultural events, teambuilding activities and public recognition forums to celebrate our diversity and invest in strong relationships.

Apart from culture and career development, we offer a robust benefits package. This package includes vacation days, paid parental leave, 401(k), performance bonuses, and a premier health plan for employees and their dependents. We also regularly survey and host roundtables with our employees to better understand their needs and perspectives, and, as a result of these discussions, we have added benefits including conference funds, fitness stipends, teambuilding budgets, and pet insurance.

Facilities

Our corporate headquarters is located in San Diego, California, consisting of approximately 21,000 square feet of office space, primarily for corporate administration as well as research and development. In addition to our headquarters, we have also leased a number of our facilities in Arizona. We believe that our office space is adequate for our current needs, and we believe that we will be able to obtain additional space on commercially reasonable terms if needed.

Management

MANAGEMENT

Executive Officers and Directors

The following table sets forth information regarding our executive officers and directors, as of the date of this prospectus:

Name	Age	Position
Executive Officers		
Mo Chen	36	Director, Co-Founder and Executive Chairman
Xiaodi Hou	36	Director, Co-Founder and Chief Technology Officer
Cheng Lu	38	Director, President and Chief Executive Officer
Patrick Dillon	38	Chief Financial Officer
James Mullen	51	Chief Administrative and Legal Officer

Non-Employee Directors		
Brad Buss	57	Director
Charles Chao	55	Director
Karen Francis	58	Director
Bonnie Yi Zhang	47	Director

Other Key Management		
Charles Price	63	Chief Product Officer

Executive Officers

Mo Chen is our co-founder and has served as our executive chairman since September 2020 and as a member of our Board of Directors since our inception in 2015. Mr. Chen served as our chief executive officer from our inception in 2015 to September 2020. Prior to founding our company, Mr. Chen served as founder and chief executive officer at Deep Blue Brothers, an online gaming platform. Prior to that, he served as founder of startups in the fields of traditional and online advertising and used car online marketplace. He has more than 12 years of entrepreneurship and management experience. We believe that Mr. Chen should serve as a member of our Board of Directors because he is experienced in founding, leading and managing technology companies.

Xiaodi Hou is our co-founder and has served as our chief technology officer and a member of our Board of Directors since our inception in 2015. Mr. Hou has more than ten years of research and development experience in computer vision and machine learning and is responsible for our new technology and advanced product development. Mr. Hou currently holds 13 patents in the field of autonomous vehicles. In the field of computer vision, Mr. Hou has developed leading theories in computational models for visual saliency. Prior to founding our company, Mr. Hou served as co-founder and chief technology officer at Cogtu, an image recognition technology company. Mr. Hou also serves as the reviewer of more than ten major computer vision journals and conferences. He holds a Ph.D. from the California Institute of Technology and a B.Eng in computer science from Shanghai Jiao Tong University. We believe that Mr. Hou should serve as a member of our Board of Directors because of his expertise in, and contributions to, our technologies.

Cheng Lu has served as our president since January 2019, as our chief executive officer since September 2020 and as a member of our Board of Directors since June 2020. Mr. Lu also served as our chief financial officer from January 2019 to December 2020. Mr. Lu has more than 13 years of experience in strategy and corporate finance. Prior to joining us, from 2016 to 2019, Mr. Lu served as co-founder and chief operating officer of KCA Capital Partners, a Pan-Asian growth equity investment fund. Previously, from 2014 to 2016, Mr. Lu served as principal at HOPU Investments, from 2011 to 2014, as principal at CITIC Capital, from 2006 to 2008, as associate at Cerberus Capital, and from 2005 to 2006, as investment banking analyst with Citigroup in New York. Mr. Lu holds a B.S. in computer science and economics from the University of Virginia, and an M.B.A. from Harvard Business School. We believe that Mr. Lu should serve as a member of our Board of Directors because of his leadership experience with our company and his background in corporate finance and strategy.

Patrick Dillon has served as our chief financial officer since December 2020. Mr. Dillon has more than thirteen years of experience working in finance, investment banking and public accounting. Prior to joining us, from August 2011 to December 2020, Mr. Dillon was a member of the investment banking division of Morgan Stanley, co-leading its coverage of vehicle technology companies. During his tenure at Morgan Stanley working in both the New York and Chicago offices, Mr. Dillon advised clients on capital raising, mergers and acquisitions and other strategic transactions. Prior to his work at Morgan Stanley, Mr. Dillon was a member of Deloitte's tax consulting practice in Chicago from 2005 to 2009. Mr. Dillon holds a Bachelor of Business Administration and M.S. in accountancy from the University of Notre Dame Mendoza College of Business and an M.B.A. from the University of Chicago Booth School of Business.

James Mullen has served as our chief administrative and legal officer since September 2020. Mr. Mullen has more than 15 years of executive leadership experience in the trucking industry. Mr. Mullen is also a member of the Board of Directors for the American Trucking Associations, the largest and most comprehensive national trade association for the trucking industry. Prior to joining us, from October 2019 to September 2020, Mr. Mullen was the acting administrator of the Federal Motor Carrier Safety Administration ("FMCSA") where he was responsible for regulating over 500,000 motor carriers and over 3.5 million commercial drivers and was responsible for the agency's $700 million budget and 53 field offices. From June 2018 to October 2019, Mr. Mullen was the chief counsel of the FMCSA rendering legal services and policy direction for the FMCSA. From December 2016 to June 2018, Mr. Mullen was a professional consultant providing services and advice to large motor carriers and trade associations. From June 2006 to December 2016, Mr. Mullen was an executive at Werner Enterprises, Inc., a publicly-traded transportation and logistics company, serving as executive vice president and general counsel from May 2010 to December 2016 and as vice president and general counsel of litigation from June 2006 to May 2010. From 1993 to 2006, Mr. Mullen was in the private practice of law. Mr. Mullen holds a J.D. from the University of Nebraska College of Law and a B.A. in economics from the University of Nebraska.

Non-Employee Directors

Brad Buss has been a member of our Board of Directors since January 31, 2021. From August 2014 until his retirement in February 2016, Mr. Buss served as the Chief Financial Officer of SolarCity. Prior to joining SolarCity, from August 2005 to June 2014, Mr. Buss was the Executive Vice President of Finance and Administration and Chief Financial Officer of Cypress Semiconductor Corporation, a semiconductor design and manufacturing company. From 2009 to 2019, Mr. Buss served as a director of Tesla. Mr. Buss also serves as a director and chair of the Audit Committee of Advance Auto Parts, Inc. and as the chair of the Nominating and Governance Committee and a member of the Audit Committee of Marvell Technology Group Ltd. Additionally, Mr. Buss serves as the chair of the Audit Committee and a member of the Compensation Committee at QuantumScape and the chair of the Nominating and Corporate Governance Committee and a member of the Compensation and Organization Committee at AECOM. Mr. Buss served as a director, chair of the Audit

Committee, and member of the Nominating and Corporate Governance Committee of CafePress Inc. from October 2007 to July 2016 and as a director and member of the Audit and Compensation Committees of Cavium, Inc. from July 2016 until its acquisition by Marvell in July 2018. Mr. Buss holds a B.A. in economics from McMaster University and an honors business administration degree, majoring in finance and accounting, from the University of Windsor. We believe that Mr. Buss possesses specific attributes that qualify him to serve as a member of the Board, including his executive experience and his financial and accounting expertise with both public and private companies in diverse industries.

Charles Chao has been a member of the Board since April 22, 2019. Mr. Chao currently serves as the Chairman of the Board of the Directors and as Chief Executive Officer of Sina Corporation. In his time at Sina Corporation, Mr. Chao also served as President from 2005 to 2013, Chief Financial Officer from 2001 to 2006, Co-Chief Operating Officer from 2004 to 2005, Executive Vice President from 2002 to 2003, and Vice President of Finance from 1999 to 2001. Prior to joining Sina Corporation, Mr. Chao served as an audit manager at PriceWaterhouseCoopers, LLP, an accounting firm. Prior to that, Mr. Chao was a news correspondent at Shanghai Media Group. Mr Chao is currently the Chairman of the board of Sina Corporation's subsidiary, Weibo Corporation, a leading social media company, a director of NetDragon Websoft Inc., a company providing technology for online gaming, and a director of Leju, an online-to-offline (O2O) real estate services provider in China. Mr. Chao holds a B.A. in Journalism from Fudan University in Shanghai and an M.A. in Journalism from University of Oklahoma. He earned his Master of Professional Accounting degree from University of Texas at Austin. We believe Mr. Chao's executive and accounting experience are an excellent asset to the Board of Directors.

Karen C. Francis has been a member of the Board since February 1, 2021. Since September 2020, Ms. Francis has served as the chair of the board, chair of the Compensation & Management Development Committee and a member of the Audit Committee at Vontier Corporation, a public company focused on mobility and transportation businesses. In addition, Ms. Francis serves as Senior Advisor to TPG Capital. Previously, Ms. Francis served on the Board of Directors of Telenav, Inc. from December 2016 to November 2019. Ms. Francis served as lead independent director, chair of the Compensation Committee and a member of the Nominating and Governance Committee of Telenav, Inc. Prior to that, she served as a director of The Hanover Insurance Group, Inc. from May 2014 to May 2017 and AutoNation, Inc. from February 2016 to April 2018. Ms. Francis served as Chief Executive Officer of AcademixDirect, Inc., a technology innovator in education, and as its Executive Chairman from 2009 to 2017. From 2004 to 2007, Ms. Francis was Chairman and Chief Executive Officer of Publicis & Hal Riney. From 2001 to 2002, she served as Vice President of Ford Motor Company. From 1996 to 2000, Ms. Francis held several positions with General Motors, including serving as General Manager of the Oldsmobile Division. Ms. Francis holds an M.B.A. from Harvard Business School and a B.A. in economics from Dartmouth College. Ms. Francis brings to our Board of Directors her experience as a Chief Executive Officer, director, strategic advisor and investor with a deep knowledge of corporate governance and a strong track record of successfully building companies and businesses across multiple industries and sizes.

Bonnie Yi Zhang has been a member of our Board of Directors since September 30, 2020. Ms. Zhang currently serves as a member of the Board of Directors and as Chief Financial Officer of Sina Corporation. Prior to joining Sina Corporation, Ms. Zhang served as Chief Financial Officer of Weibo Corporation, a subsidiary of Sina Corporation from 2014 to 2015. Before working at Weibo Corporation, Ms. Zhang was the Chief Financial Officer of AdChina Ltd., a company operating an integrated internet advertising platform in China, from 2011 to 2014. From 2007 to 2011, Ms. Zhang was an audit partner of Deloitte Touche Tohmatsu based in Shanghai, with a focus on serving Chinese companies listed in the United States and Chinese companies making initial public offerings in the United States. From 2005 to 2007, she served as a senior manager in the National Office SEC Services group of Deloitte & Touche, LLP. While she was with that group, Ms. Zhang was primarily responsible for pre-issuance reviews of securities offering documents and periodic reports to be filed with the SEC and was primarily focused on foreign private issuers. Ms. Zhang graduated summa cum laude in 1997 with a B.A. in Business Administration from McDaniel College in Maryland. She is a certified public accountant in the State of Maryland and is a member of the American Institution of Certified Public Accountants. Ms. Zhang brings to our Board of Directors extensive experience in financial accounting and reporting as well as significant executive experience.

Other Key Management

Charles Price has served as our chief product officer since September 2017. Mr. Price has more than 25 years of experience in research and development, and holds 10 patents, six of which are in the connected and automated vehicles field. Prior to joining us, from 2014 to 2017, Mr. Price served as vice president of Peloton Technology, from 2009 to 2014, as co-founder and CTO of Classic Law in Beijing, China, from 2007 to 2009, as a vice president of Oracle Corporation, from 2005 to 2007, as vice president of Active Reasoning, and from 2001 to 2003, as senior vice president of Hotjobs.com (acquired by Yahoo, Inc.). Mr. Price was the co-founder of Lumenare Networks (acquired by Dell), chief engineer of Broadvision, Inc., served four years at Sun Microsystems and 10 years at Digital Equipment Corporation. Mr. Price was a member of the U.S. Air Force, attending the U.S. Air Force Academy four years and studying in the Electrical Engineering and Computer Science Department.

Board Composition

Our board of directors currently consists of seven members, who were elected pursuant to the amended and restated shareholders' agreement that we entered into with certain holders of our Class A common stock and certain holders of our redeemable convertible preferred stock and the related provisions of our amended and restated certificate of incorporation.

The relevant provisions of this shareholders' agreement will terminate upon the completion of this offering, after which there will be no further contractual obligations regarding the election of our directors. Our directors hold office until their successors have been elected and qualified or appointed, or the earlier of their death, resignation, or removal.

Prior to the Voting Threshold Date, we will not have a classified board of directors, and all directors will be elected for annual terms.

At any time after the Voting Threshold Date, we will have a classified board of directors consisting of three classes of approximately equal size, each serving staggered three-year terms. Our directors will be assigned by the then-current board of directors to a class.

Upon expiration of the term of a class of directors, directors for that class will be elected for three-year terms at the annual meeting of stockholders in the year in which that term expires. As a result, only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Each director's term continues until the election and qualification of his or her successor, or his or her earlier death, resignation, or removal.

So long as our board of directors is classified, only our board of directors may fill vacancies on our board. Any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the total number of directors.

The classification of our board of directors may have the effect of delaying or preventing changes in our control or management. See the section titled "Description of Capital Stock—Anti-Takeover Provisions—Certificate of Incorporation and Bylaw Provisions."

Director Independence

We have applied to have our Class A common stock listed on the Nasdaq Global Select Market. Our board of directors has undertaken a review of the independence of each director. Based on information provided by each director concerning his or her background, employment, and affiliations, our board of directors has determined that all members of the board of directors, except Messrs. Chen, Hou, and Lu, are independent, as determined in accordance with the rules of the Nasdaq Global Select Market. In making such independence determination, our board of directors considered the relationships that each such non-employee director has with us and all other facts and circumstances that the board of directors deemed relevant in determining their independence, including the beneficial ownership of our share capital by each non-employee director. In considering the independence of the directors listed above, our board of directors considered the association of our directors with the holders of more than 5% of our share capital. Upon the closing of this offering, we expect that the composition and functioning of our board of directors and each of our committees will comply with all applicable requirements of and the rules and regulations of the U.S. Securities and Exchange Commission (the "SEC"). There are no family relationships among any of our directors or executive officers.

Board Oversight of Risk

One of the key functions of our board of directors is informed oversight of our risk management process. In particular, our board of directors is responsible for monitoring and assessing strategic risk exposure. Our executive officers are responsible for the day-to-day management of the material risks we face. Our board of directors administers its oversight function directly as a whole and after this offering through various standing committees of our board of directors that address risks inherent in their respective areas of oversight. For example, our audit committee is responsible for overseeing the management of risks associated with our financial reporting, accounting, and auditing matters; our compensation committee oversees the management of risks associated with our compensation policies and programs; and our nominating and corporate governance committee oversees the management of risks associated with director independence, conflicts of interest, composition and organization of our board of directors, and director succession planning.

Board Committees

Upon the completion of this offering, our board of directors will have established an audit committee, a compensation committee, and a nominating and corporate governance committee. Our board of directors may establish other committees to facilitate the management of our business. Our board of directors and its committees set schedules for meeting throughout the year and can also hold special meetings and act by written consent from time to time, as appropriate. Our board of directors has delegated various responsibilities and authority to its committees as generally described below. The committees will regularly report on their activities and actions to the full board of directors. Each member of each committee of our board of directors qualifies as an independent director in accordance with the listing standards of the Nasdaq Global Select Market. Each committee of our board of directors has a written charter approved by our board of directors. Upon the completion of this offering, copies of each charter will be posted on our website at www.tusimple.com under the Investor Relations section. The inclusion of our website address in this prospectus does not include or incorporate by reference the information on our website into this prospectus. Members serve on these committees until their resignation or until otherwise determined by our board of directors.

Audit Committee

The members of our audit committee are Mr. Buss and Mses. Francis and Zhang, each of whom can read and understand fundamental financial statements. Each of Mr. Buss and Ms. Francis, is independent under the rules and regulations of the SEC and the listing standards of the Nasdaq Global Select Market applicable to audit committee members. Ms. Zhang is not independent under the rules and regulations of the SEC and the listing standards of the Nasdaq Global Select Market applicable to audit committee members. As a result, we intend to avail ourselves of the phase-in provisions under these rules. The phase-in rules allow a newly public company to have a fully independent audit committee within one year of the effective date of the registration statement filed in connection with its initial public offering. Mr. Buss is the chair of the audit committee. Our board of directors has determined that each of Mr. Buss and Ms. Zhang qualify as an audit committee financial expert within the meaning of SEC regulations and meet the financial sophistication requirements of the Nasdaq Global Select Market.

Our audit committee assists our board of directors with its oversight of the following: the integrity of our financial statements; our compliance with legal and regulatory requirements; the qualifications, independence, and performance of the independent registered public accounting firm; the design and implementation of our internal audit function and risk assessment and risk management. Among other things, our audit committee is responsible for reviewing and discussing with our management the adequacy and effectiveness of our disclosure controls and procedures. The audit committee also discusses with our management and independent registered public accounting firm the annual audit plan and scope of audit activities, scope and timing of the annual audit of our financial statements, and the results of the audit, quarterly reviews of our financial statements and, as appropriate, initiates inquiries into certain aspects of our financial affairs. Our audit committee is responsible for establishing and overseeing procedures for the receipt, retention, and treatment of any complaints regarding accounting, internal accounting controls or auditing matters, as well as for the confidential and anonymous submissions by our employees of concerns regarding questionable accounting or auditing matters. In addition, our audit committee has direct responsibility for the appointment, compensation, retention, and oversight of the work of our independent registered public accounting firm. Our audit committee has

sole authority to approve the hiring and discharging of our independent registered public accounting firm, all audit engagement terms and fees, and all permissible non-audit engagements with the independent auditor. Our audit committee will review and oversee all related person transactions in accordance with our policies and procedures.

Compensation Committee

The members of our compensation committee are Mses. Francis and Zhang. Ms. Francis is the chair of the compensation committee. Each member of our compensation committee is independent under the rules and regulations of the SEC and the listing standards of the Nasdaq Global Select Market applicable to compensation committee members. Our compensation committee assists our board of directors in discharging certain of our responsibilities with respect to compensating our executive officers, and the administration and review of our incentive plans for employees and other service providers, including our equity incentive plans, and certain other matters related to our compensation programs.

Nominating and Corporate Governance Committee

The members of our nominating and corporate governance committee are Messrs. Chao and Buss. Mr. Chao is the chair of the nominating and corporate governance committee. Our nominating and corporate governance committee assists our board of directors with its oversight of and identification of individuals qualified to become members of our board of directors, consistent with criteria approved by our board of directors, and selects, or recommends that our board of directors selects, director nominees, develops and recommends to our board of directors a set of corporate governance guidelines, and oversees the evaluation of our board of directors.

Code of Conduct

Our board of directors has adopted a Code of Conduct (the "Code"). The Code applies to all of our employees, officers, and directors, as well as all of our contractors, consultants, suppliers, and agents in connection with their work for us. Upon the completion of this offering, the full text of our code of conduct will be posted on our website at www.tusimple.com under the Investor Relations section. We intend to disclose future amendments to, or waivers of, our Code, as and to the extent required by SEC regulations, at the same location on our website identified above or in public filings. Information contained on our website is not incorporated by reference into this prospectus, and you should not consider information contained on our website to be part of this prospectus or in deciding whether to purchase our Class A common stock.

Compensation Committee Interlocks and Insider Participation

None of our executive officers serves, or served in prior years, as a member of the board of directors or compensation committee of any other entity that has or has had one or more executive officers serving as a member of our board of directors or our compensation committee.

Non-Employee Director Compensation

Prior to this offering, we have generally not provided any cash compensation to our non-employee directors for their service on our board. We have a policy of reimbursing all of our non-employee directors for their reasonable out-of-pocket expenses in connection with attending board of directors meetings. From time to time we have granted stock options to certain of our non-employee directors, typically in connection with a non-employee director's initial appointment to our board.

We intend to approve a non-employee director compensation program to become effective following our initial public offering. Pursuant to this program, our non-employee directors will receive both cash and equity compensation for their service as directors.

Equity Plans

2021 Equity Incentive Plan

General. Our board of directors adopted our 2021 Equity Incentive Plan (the "2021 Plan") prior to the offering, and the 2021 Plan was submitted to our stockholders for approval. Our 2021 Plan became effective immediately on adoption although no awards will be made under it until the effective date of the registration statement of which this prospectus is a part. Our 2021 Plan replaces our 2017 Share Plan (the "2017 Plan"). However, awards outstanding under our 2017 Plan will continue to be governed by their existing terms. Our 2021 Plan has the features described below.

Share Reserve. The number of shares of our Class A common stock available for issuance under our 2021 Plan is 20,134,146 plus up to 20,180,166 shares of Class A common stock subject to awards granted under the 2017 Plan that are outstanding on the effective date of the registration statement of which this prospectus is a part and that are subsequently forfeited, expire or lapse unexercised or unsettled. In the event that the aggregate number of common stock outstanding for issuance under our 2021 Plan as of the last day of a fiscal year is less than 5% of our fully-diluted capitalization at such time, then for the duration of our 2021 Plan, on the first day of each fiscal year thereafter, the aggregate number of shares reserved for issuance under our 2021 Plan will be automatically increased by:

- the number of shares of common stock equal to 2.5% of our fully-diluted capitalization on the last day of the preceding fiscal year; or
- the number of shares determined by our board of directors.

In general, to the extent that any awards under our 2021 Plan are forfeited, terminate, expire, or lapse without the issuance of shares, or if we repurchase the shares subject to awards granted under our 2021 Plan, those shares will again become available for issuance under our 2021 Plan, as will shares applied to pay the exercise or purchase price of an award or to satisfy tax withholding obligations related to any award.

Administration. The compensation committee of our board of directors will administer our 2021 Plan. The compensation committee will have complete discretion to make all decisions relating to our 2021 Plan and outstanding awards, including repricing outstanding options and modifying outstanding awards in other ways.

Eligibility. Employees, non-employee directors, consultants, and advisors are eligible to participate in our 2021 Plan.

Under our 2021 Plan, the aggregate grant date fair value of awards granted to our non-employee directors may not exceed $1,000,000 in any one fiscal year, except that the grant date fair value of awards granted to newly appointed non-employee directors may not exceed $2,000,000 in the fiscal year in which such non-employee director is initially appointed to our board of directors.

Types of Awards. Our 2021 Plan provides for the following types of awards:

- incentive and nonstatutory stock options;
- stock appreciation rights;
- restricted stock; and
- restricted stock units.

Options and Stock Appreciation Rights. The exercise price for options granted under our 2021 Plan may not be less than 100% of the fair market value of Class A our common stock on the grant date. Optionees will be permitted to pay the exercise price in cash or, as permitted in the award agreement:

- with Class A common stock that the optionee already owns;
- by an immediate sale of shares through a broker approved by us;
- by instructing us to withhold a number of shares having an aggregate fair market value that does not exceed the exercise price; or
- by other methods permitted by applicable law.

A participant who exercises a stock appreciation right receives the increase in value of our Class A common stock over the base price. The base price for stock appreciation rights may not be less than 100% of the fair market value of our Class A common stock on the grant date. The settlement value of a stock appreciation right may be paid in cash, Class A common stock or a combination thereof as specified in the award agreement.

Options and stock appreciation rights vest as determined by the compensation committee. In general, they will vest over a four-year period following the date of grant or, in the case of grants made to new hires, over the four-year period following their first day of employment. Options and stock appreciation rights expire at the time determined by the compensation committee but in no event more than ten years after they are granted. These awards generally expire earlier if the participant's service terminates earlier, although the vesting of an outstanding award may be accelerated or continued by the compensation committee in connection with the participant's termination of service.

Restricted Stock and Restricted Stock Units. Restricted stock and stock units may be awarded under our 2021 Plan, and participants who receive restricted stock or restricted stock units generally are not required to pay cash for their awards. In general, these awards will be subject to vesting. Vesting may be based on length of service or upon satisfaction of other conditions determined by the compensation committee. The vesting of an outstanding award may be accelerated or continued by the compensation committee in connection with the participant's termination of service.

Settlement of vested restricted stock units may be made in the form of cash, Class A common stock or a combination thereof as specified in the award agreement.

Corporate Transactions. In the event we are a party to a merger, consolidation, or certain change in control transactions, outstanding awards granted under our 2021 Plan, and all shares acquired under our 2021 Plan, will be subject to the terms of the definitive transaction agreement (or, if there is no such agreement, as determined by our compensation committee). Unless an award agreement provides otherwise, such treatment may include any of the following with respect to each outstanding award:

- the continuation, assumption, or substitution of an award by a surviving entity or its parent;
- the cancellation of an option or stock appreciation right without payment of any consideration, provided the participant has been given an opportunity to exercise the vested portion of the award;
- the cancellation of the vested portion of an award (and any portion that becomes vested as of the effective time of the transaction) in exchange for a payment equal to the excess, if any, of the value that the holder of each share of Class A common stock receives in the transaction over (if applicable) the exercise price otherwise payable in connection with the award; or
- the assignment of any reacquisition or repurchase rights held by us in respect of an award of restricted stock to the surviving entity or its parent (with proportionate adjustments made to the price per share to be paid upon exercise of such rights).

Each award held by a participant who remains a service provider with us as of the effective time of a merger or change in control will become fully vested and, if applicable, exercisable immediately prior to the effective time of the transaction, unless the applicable award agreement provides otherwise or the award is continued, assumed, or substituted (as provided above). The compensation committee is not required to treat all awards, or portions thereof, in the same manner.

The vesting of an outstanding award may be accelerated by the compensation committee upon the occurrence of a change in control, whether or not the award is to be assumed or replaced in the transaction, or in connection with a termination of service following a change in control transaction.

A change in control includes:

- certain acquisitions of beneficial ownership of more than 50% of our total voting power;
- certain sales or other dispositions of all or substantially all of our assets;
- certain mergers or consolidations after which our voting securities represent 50% or less of the total voting power of the surviving or acquiring entity; or
- the members of our board cease to constitute a majority of the members of our board over a period of 12 months, excluding any new members appointed or elected by the then incumbent board.

Changes in Capitalization. In the event of certain changes in our capital structure without our receipt of consideration, such as a stock split, reverse stock split, stock consolidation, any increase or decrease in shares of Class A common stock effected without receipt of consideration by the company, or a dividend paid in Class A common stock, proportionate adjustments will automatically be made to:

- the maximum number and kind of shares available for issuance under our 2021 Plan, including the maximum number and kind of shares that may be issued upon the exercise of incentive stock options;
- the maximum number and kind of shares covered by, and exercise price, base price, or purchase price, if any, applicable to each outstanding share award; and
- the maximum number and kind of shares by which the share reserve may increase automatically each year.

In the event that there is a declaration of an extraordinary dividend payable in a form other than our Class A common stock in an amount that has a material effect on the price of our Class A common stock, a recapitalization, a spin-off, or a similar occurrence, the compensation committee may make such adjustments to any of the foregoing as it deems appropriate, in its sole discretion.

Amendments or Termination. Our board of directors may amend or terminate our 2021 Plan at any time. If our board of directors amends our 2021 Plan, it does not need stockholder approval of the amendment unless required by applicable law, regulations or rules. Our 2021 Plan will terminate automatically 10 years after the later of the date when our board of directors adopts our 2021 Plan or it approves a share increase that is also approved by our stockholders.

2017 Share Plan

General. Our board of directors adopted our 2017 Plan in June 2017, and it was approved by our stockholders in June 2017. The 2017 Plan was amended in November 2019. No further awards will be made under our 2017 Plan after this offering; however, awards outstanding under our 2017 Plan will continue to be governed by their existing terms.

Share Reserve. As of March 22, 2021, we have reserved 24,267,964 shares of Class A common stock for issuance under our 2017 Plan for issuance in the form of stock options, restricted stock units or share value awards. As of March 22, 2021, there were outstanding options to purchase 15,372,336 shares of Class A common stock, at exercise prices ranging from $0.0001 to $14.1401 per share, or a weighted-average exercise price of $3.18 per share were outstanding under our 2017 Plan. Additionally, as of March 22, 2021, there were 1,160,360 shares of Class A common stock issuable upon the vesting and settlement of restricted stock units, 3,600,542 shares of Class A common stock issuable upon the vesting and settlement of share value awards, and 46,928 shares of Class A common stock reserved for future issuance under our 2017 Plan. Unissued shares subject to awards that expire or are canceled, shares reacquired by us, and shares withheld in payment of the purchase price or exercise price of an award or in satisfaction of withholding taxes will again become available for issuance under our 2017 Plan or, following consummation of this offering, under our 2021 Plan.

Administration. The board of directors administers our 2017 Plan.

Eligibility. Employees, non-employee directors and consultants are eligible to participate in our 2017 Plan.

Types of Awards. Our 2017 Plan provides for the following types of awards:

- incentive and nonstatutory stock options;
- restricted stock units; and
- share value awards.

Options. The exercise price for options granted under our 2017 Plan may not be less than the par value per Share, provided that if the option is intended to qualify as an incentive stock option, the exercise price may not be less than 100% of the fair market value per Share at the time of grant. Optionees will be permitted to pay the exercise price in cash or, as permitted in the award agreement:

- with Class A common stock that the optionee already owns;
- by services rendered to the Company or its subsidiaries;
- by an immediate sale of shares through a broker approved by us;
- by promissory notes;
- by other methods permitted by applicable law.

Options vest as determined by the board. In general, they will vest annually over a three-year period following the date of grant or, in the case of grants made to new hires, annually over the three-year period following their first day of employment, with 30% of the options vesting on each of the first and second anniversaries of the vesting start date and the remaining 40% of the options vesting on the third anniversary of the vesting start date, in all cases subject to the participant's continuous service. Options expire at the time determined by the board of directors but in no event more than ten years after they are granted. These awards generally expire earlier if the participant's service terminates earlier.

Share Value Awards. Share value awards may be awarded under our 2017 Plan, and participants who receive share value awards generally are not required to pay cash for their awards. In general, these awards will be subject to vesting. Vesting may be based on length of service or upon satisfaction of other conditions determined by the board of directors.

Settlement of share value awards may be made in the form of cash, Class A common stock or a combination thereof as specified in the award agreement.

Restricted Stock Units. Restricted stock units may be awarded under our 2017 Plan, and participants who receive restricted stock units generally are not required to pay cash for their awards. In general, these awards will be subject to vesting. Vesting may be based on length of service or upon satisfaction of other conditions determined by the board of directors.

Settlement of restricted stock units may be made in the form of cash, Class A common stock or a combination thereof as specified in the award agreement.

Corporate Transactions. In the event we are a party to a merger, consolidation, or in the event of a sale or exchange of all or substantially all of the Company's shares or assets, outstanding awards granted under our 2017 Plan, and all shares acquired under our 2017 Plan, will be subject to the terms of the definitive transaction agreement (or, if there is no such agreement, as determined by our board of directors). Unless an award agreement provides otherwise, such treatment may include any of the following with respect to each outstanding award:

- the continuation, assumption, or substitution of an award by a surviving entity or its parent;
- the cancellation of an option without payment of any consideration, provided the participant has been given an opportunity to exercise the vested portion of the option;
- the cancellation of the vested portion of an award (and any portion that becomes vested as of the effective time of the transaction) in exchange for a payment equal to the excess, if any, of the value that the holder of each share of Class A common stock receives in the transaction over (if applicable) the exercise price otherwise payable in connection with the award;
- the suspension of the exercise of the options before the closing of the transaction; or
- the termination of early exercise right.

The vesting of an outstanding award may be accelerated by the board of directors upon the occurrence of a corporate transaction.

Changes in Capitalization. In the event of certain changes in our capital structure without our receipt of consideration, such as a stock split, reverse stock split, stock consolidation, any increase or decrease in Class A common stock effected without receipt of consideration by the company, or a dividend paid in Class A common stock, proportionate adjustments will automatically be made to:

- the maximum number and kind of shares available for issuance under our 2017 Plan, including the maximum number and kind of shares that may be issued upon the exercise of incentive stock options; and
- the maximum number and kind of shares covered by, and exercise price, base price, or repurchase price, if any, applicable to each outstanding share award.

In the event that there is a declaration of an extraordinary dividend payable in a form other than our Class A common stock in an amount that has a material effect on the price of our Class A common stock, a recapitalization, a spin-off, or a similar occurrence, the board of directors may make such adjustments to any of the foregoing as it deems appropriate, in its sole discretion.

Amendments or Termination. Our board of directors may amend or terminate our 2017 Plan at any time. If our board of directors amends our 2017 Plan, it does not need stockholder approval of the amendment unless required by applicable law, regulations or rules or the amendment (i) increases the number of share of Class A common stock available for issuance under our 2017 Plan, or (ii) materially changes the class of persons who are eligible for the grant of

incentive stock options. Our 2017 Plan will terminate automatically 10 years after the later of the date when our board of directors adopts our 2017 Plan or it approves a share increase that is also approved by our stockholders, or may terminate earlier at the discretion of the board of directors.

2021 Employee Stock Purchase Plan

General

Our board of directors intends to adopt our 2021 Employee Stock Purchase Plan (the "2021 ESPP") prior to the offering. If adopted, our 2021 ESPP will be subsequently approved by our stockholders. We expect that our 2021 ESPP will become effective as of the effective date of the registration statement of which this prospectus is a part. Our 2021 ESPP is intended to qualify under Section 423 of the Internal Revenue Code. Although not yet adopted, we expect that our 2021 ESPP will have the features described below.

Share Reserve

Our board of directors intends to reserve 2,013,414 shares of Class A common stock for issuance under our 2021 ESPP. Our board of directors shall have the authority to increase the number of shares of Class A common stock reserved for issuance under our 2021 ESPP, with any increase taking effect at the start of the fiscal year immediately following the fiscal year in which the increase is approved. The aggregate number of shares of our common stock that may be approved for issuance under our 2021 ESPP in any given fiscal year may not exceed 1% of the total number of shares of common stock actually issued and outstanding on the last business day of the prior fiscal year (excluding any rights to purchase common stock that may be outstanding, such as options or warrants).

The number of shares reserved under our 2021 ESPP will automatically be adjusted in the event of a share split, reverse share split, share dividend, or a similar change in our corporate structure effected without payment to us (including an adjustment to the per-purchase period share limit).

Administration

The compensation committee of our board of directors will administer our 2021 ESPP.

Eligibility

Employees will be eligible to participate if they satisfy any criteria established by our board prior to the start of an offering period, in accordance with the terms of the 2021 ESPP and applicable law. Eligible employees may begin participating in our 2021 ESPP at the start of any offering period.

Offering Periods

Each offering period will last a number of months determined by the compensation committee, not to exceed 27 months. A new offering period will begin periodically, as determined by the compensation committee. Offering periods may overlap or may be consecutive. Unless otherwise determined by the compensation committee, each offering period shall be six months in duration, consisting of one 6-month purchase period, and upon its conclusion, a new offering period shall commence.

Amount of Contributions

Our 2021 ESPP will permit each eligible employee to purchase Class A common stock through payroll deductions. Each employee's payroll deductions may not exceed 15% of the employee's cash compensation. Each participant may purchase up to the number of shares determined by our board of directors on any purchase date, not to exceed shares. The value of the shares purchased in any calendar year may not exceed $25,000. Participants may withdraw their contributions at any time before shares are purchased.

Purchase Price

The price of each share of Class A common stock purchased under our 2021 ESPP will not be less than 85% of the lower of the fair market value per share of Class A common stock on the first trading day of the applicable offering period (or, in the case of the first offering period, the price at which one share of Class A common stock is offered to the public in this offering) or the fair market value per share of Class A common stock on the purchase date.

Other Provisions

Employees may end their participation in our 2021 ESPP at any time. Participation ends automatically upon termination of employment with us. If we experience a change in control, our 2021 ESPP will end and shares will be purchased with the payroll deductions accumulated to date by participating employees. Our board of directors or our compensation committee may amend or terminate our 2021 ESPP at any time.

Limitation on Liability and Indemnification of Directors and Officers

Upon the completion of this offering, our amended and restated certificate of incorporation will contain provisions that limit the liability of our current and former executive officers and directors for monetary damages to the fullest extent permitted by Delaware law. Delaware law provides that directors of a corporation will not be personally liable for monetary damages for any breach of fiduciary duties as directors, except liability:

- for any breach of a director's duty of loyalty to the corporation or its stockholders;
- for any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- under Section 174 of the Delaware General Corporation Law (unlawful payment of dividends or redemption of shares); or
- for any transaction from which the director derives an improper personal benefit.

Such limitation of liability does not apply to liabilities arising under federal securities laws and does not affect the availability of equitable remedies, such as injunctive relief or rescission.

Our amended and restated certificate of incorporation and our bylaws will provide that we are required to indemnify our executive officers and directors to the fullest extent permitted by Delaware law. Our bylaws will also provide that, upon satisfaction of certain conditions, we shall advance expenses incurred by an executive officer and director in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee, or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under the provisions of Delaware law. Our amended and restated certificate of incorporation and bylaws will also provide our board of directors with discretion to indemnify our other officers, employees, and other agents when determined appropriate by the board. We have entered and expect to continue to enter into agreements to indemnify our directors and executive officers. With certain exceptions, these agreements provide for indemnification for related expenses, including, among other things, attorneys' fees, judgments, fines, and settlement amounts incurred by any of these individuals in any action or proceeding. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. We also maintain customary directors' and officers' liability insurance.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and bylaws may discourage stockholders from bringing a lawsuit against our directors for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and other stockholders. Furthermore, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage awards against directors and officers as required by these indemnification provisions. At present, there is no pending litigation or proceeding involving any of our directors, officers, or employees for which indemnification is sought, and we are not aware of any threatened litigation that may result in claims for indemnification.

Executive Compensation

EXECUTIVE COMPENSATION

2020 Summary Compensation Table

The following table shows information regarding the compensation of our named executive officers for services performed during the year ended December 31, 2020.

Name andPrincipal Position	Year	Salary ($)	Bonus ($)	Stock Awards($) (1)	Option Awards($) (1)	Non-Equity IncentivePlanCompensation($) (2)	All Other Compensation ($)	Total ($)
Mo Chen[3]	2020	87,000 [4]	—	—	—	—	115,932 [5]	202,932
Executive Chairman and Former Chief Executive Officer								
Xiaodi Hou	2020	280,000	620 [6]	—	—	45,000	73,968 [7]	399,588
Chief Technology Officer								
Cheng Lu[8]	2020	387,500	—	8,241,413	7,785,783 [9]	60,000	1,076,259 [10]	17,550,955
President and Chief Executive Officer								
Patrick Dillon	2020	9,423 [11]	50,000 [12]	494,485	1,528,703	—	—	2,082,611
Chief Financial Officer								
James Mullen	2020	75,000 [13]	35,000 [14]	329,657	1,020,045	20,000		1,479,702
Chief Legal and Risk Officer								

(1) Represents the aggregate grant date fair value of equity compensation awards granted to the named executive officer, computed in accordance with FASB ASC Topic 718. See Note 9 to our consolidated financial statements included elsewhere in this prospectus for a discussion of the assumptions made by us in determining the grant date fair value of our equity awards.

(2) Represents cash amounts earned under our annual bonus plans with respect to 2020 performance. Amounts reflected were paid in February 2021.

(3) Mr. Chen served as our Chief Executive Officer until September 2020.

(4) Mr. Chen received no base salary through October 2020. Commencing in November 2020, he began receiving an annual base salary of $522,000.

(5) Represents (i) $3,798 of life insurance premiums paid by us on behalf of Mr. Chen and (ii) $112,134 paid by us on behalf of Mr. Chen for outside legal and tax advisory services.

(6) Amount reflects a patent bonus paid to Mr. Hou.

(7)	Represents: (1) $36,606 paid by us on behalf of Mr. Hou for outside legal advisory services; (2) $11,010 paid by us on behalf of Mr. Hou for certain estate planning services; (3) $8,500 paid by us on behalf of Mr. Hou for outside tax planning-related services; and (4) $17,852 for life insurance premiums paid by us on behalf of Mr. Hou.
(8)	Mr. Lu became our President in January 2019 and Chief Executive Officer in September 2020.
(9)	The amount reflected in this column comprises $6,718,182 for the fair value of the grant of options to purchase 2,125,000 shares of Class A common stock with an exercise price of $0.46 per share to Mr. Lu on March 4, 2020 and $1,067,681 as incremental additional value resulting from modification of this option when the Company forgave the principal amount and accrued interest on a partial-recourse promissory note Mr. Lu issued to the Company in connection with exercising the options. The loan forgiveness was effective in December 2020.
(10)	Represents (1) $15,312 for life insurance premiums paid by us on behalf of Mr. Lu, (2) $988,947 of income related to Company's forgiveness in December 2020 of principal and accrued interest with respect to a partial-recourse promissory note issued by Mr. Lu to the Company in connection with his exercise of an option to purchase 2,125,000 shares of Class A common stock in March 2020, and (3) $72,000 of travel and relocation benefits.
(11)	Mr. Dillon's employment with us commenced in December 2020. His employment agreement entitles him to an annual base salary of $350,000.
(12)	Represents a one-time sign-on bonus paid to Mr. Dillon at the time of his hire.
(13)	Mr. Mullen's employment with us commenced in September 2020. His employment agreement entitles him to an annual base salary of $325,000.
(14)	Represents a one-time sign-on bonus paid to Mr. Mullen at the time of his hire.

Narrative Explanation of Compensation Arrangements with Our Named Executive Officers

We have entered into confirmatory employment agreements with each of Messrs. Chen, Hou, Lu, Dillon, and Mullen, which in the case of Messrs. Hou, Lu, Dillon, and Mullen supersedes their initial offer letters. Our employment agreements set forth each such named executive officer's annual base salary and, where applicable, target bonus opportunity. In the case of Mr. Dillon, the employment agreement provides for payment of a cash bonus upon our initial public offering. We have also granted equity awards to our named executive officers in connection with their employment arrangements, as well as the terms of the executive's equity awards (see also below under "*—Outstanding Equity Awards at 2020 Year-End*").

The annual base salary of each named executive officer, and such officer's incentive bonus opportunity, are expected to be reviewed from time to time and adjusted when our board of directors or compensation committee determines an adjustment is appropriate. During the year ended December 31, 2020, Mr. Chen received no base salary through October 2020, at which point he began receiving an annual base salary of $522,000; the annual base salary for Mr. Lu was set at $450,000 effective June 2020; the annual base salary for Mr. Dillon was $350,000; and the annual base salary for Mr. Mullen was $325,000; and the annual base salary for Mr. Hou was $280,000. For our 2020 fiscal year, the target bonus opportunity for each of our named executive officers other than Mr. Mullen was 15% of their respective base salaries. For 2020, Mr. Mullen was eligible for a bonus of up to 50% of his base salary. The incentive bonus for our 2020 fiscal year was earned based on achievement of our 2020 strategic goals. In addition, Mr. Dillon is eligible to receive a one-time cash bonus in the amount of $150,000 in the event that we complete an initial public offering in calendar year 2021.

In March 2020, Mr. Lu issued a promissory note in the principal amount of $977,500 in connection with his exercise of an option to purchase 2,125,000 shares of Class A common stock having an exercise price of $0.46 per share. This promissory note was 51% recourse and the remainder was non-recourse, with shares being pledged in connection with the note. In December 2020, the Company forgave principal and accrued interest under the promissory note and all vesting conditions related to the shares were waived.

Severance and Change in Control Benefits

Pursuant to Change in Control and Severance Agreements with each of our named executive officers, if an officer is subject to a termination without cause or resigns for certain good reasons (an involuntary termination), such individual will be eligible to receive, for the 12-month period following such involuntary termination (except as noted below) continued payment of base salary, continued payment of the employer's portion of insurance premiums under COBRA, and vesting acceleration of all outstanding equity awards (unless our board of directors provides otherwise at the time an award is granted) as if the individual had provided continuous service for a period of six months following termination (and the opportunity to vest into certain performance awards during the specified period following such involuntary termination).

Such 12-month period is extended to 18 months if an involuntary termination occurs during the period beginning three months prior to, and ending on the date that is 12 months after, our change in control. Each of our named executive officers is also entitled to a prorated bonus (at 100% of target) if the involuntary termination occurs during this period. Further, in the event of an involuntary termination that occurs three months prior to or within 12 months after our change in control, all of the executive's then-unvested time-based equity awards shall become vested (unless our board of directors provides otherwise at the time an award is granted).

All such payments and benefits are contingent on the officer's execution and non-revocation of a general release of claims against us and satisfaction of other typical conditions.

Employee Benefits and Perquisites

Our named executive officers are eligible to participate in our health and welfare plans to the same extent as are other full-time employees generally. We also pay life insurance premiums on behalf of our named executive officers. We have also reimbursed named executive officers for certain legal, tax, and estate planning advisory services related their ownership of company securities and also reimbursed certain travel and relocation expenses. Other than these

items, we generally do not provide our named executive officers with perquisites or other personal benefits. However, we do reimburse our named executive officers for their necessary and reasonable business and travel expenses incurred in connection with their services to us.

Our named executive officers are also eligible to participant in the 401(k) plan we maintain for our employees generally. The 401(k) plan is intended to qualify under Section 401(k) of the Internal Revenue Service Code, so that contributions to the 401(k) plan, and the investment earnings thereon, are not taxable to the employees until withdrawn. Employees may elect to reduce their current compensation by up to the statutorily prescribed annual limits and to have the amount of such reduction contributed to their 401(k) plans. We did not make during 2020 any matching contributions or other company contributions to or on behalf of any employee, including our named executive officers.

Pension Benefits and Nonqualified Deferred Compensation

Our named executive officers did not participate in, or otherwise receive any benefits under, any pension or retirement plan or non-qualified deferred compensation plan sponsored by us during the year ended December 31, 2020.

Equity Compensation

We offer equity and equity-based awards to our named executive officers as the long-term incentive component of our compensation program. We typically grant equity-based awards to new hires upon their commencing employment with us. Stock options allow employees to purchase shares of our Class A common stock at a price per share at least equal to the fair market value of our Class A common stock on the date of grant and may or may not be intended to qualify as "incentive stock options" for U.S. federal income tax purposes. Restricted stock units allow employees to receive shares of our Class A common stock upon satisfaction of specified vesting criteria. Generally, our equity-based awards vest over four years, subject to the employee's continued employment with us on each vesting date; however, we may grant, and have granted, awards with different vesting schedules from time to time, including awards that vest upon achievement of performance-based milestones.

As described above under *"Severance and Change in Control Benefits,"* equity awards granted to our named executive officers are subject to accelerated vesting under certain circumstances.

Outstanding Equity Awards at 2020 Year-End

The following table provides information regarding outstanding equity awards held by our named executive officers as of December 31, 2020.

Except as otherwise noted below, options to purchase shares of our Class A common stock are exercisable at any time, with unvested shares acquired subject to repurchase by us at the lower of the then-fair market value or the exercise price per share, in each case following termination of the individual's continuous service with us.

The vesting schedule applicable to each outstanding award is described in the footnotes to the table below.

As described above under *"Severance and Change in Control Benefits,"* equity awards granted to our named executive officers are subject to accelerated vesting under certain circumstances.

	Option Awards				
Name	Vesting CommencementDate	Securities UnderlyingUnearned,UnexercisedOptions(#)		Number of SecuritiesUnderlyingUnexercisedOptions (#)Vested	Number of SecuritiesUnderlyingUnexercisedOptions (#)Unvested
Mo Chen	—	—		—	—
Xiaodi Hou	—	—		—	—
Cheng Lu	1/1/2019	—		—	—
	6/30/2019	—		—	—
	12/31/2020	500,000	(3)	—	500,000
	12/31/2020	100,000	(3)	—	100,00
	12/31/2020	100,000	(3)	—	100,00
Patrick Dillon	12/15/2020	—		—	—
	12/15/2020	250,000	(5)	—	250,000
	12/15/2020	50,000	(5)	—	50,000
	12/15/2020	50,000	(5)	—	50,000
James Mullen	9/29/2020	—		—	—
	9/29/2020	150,000	(7)	—	150,000
	9/29/2020	50,000	(7)	—	50,000
	9/29/2020	50,000	(7)	—	50,000

(1) Market value is based on the fair market value of our Class A common stock on December 31, 2020. As there was no public market for our Class A common stock on December 31, 2020, we have used $8.58 per share, which was the fair market value determined by an independent valuation firm.

(2) Represents an award of restricted stock units granted to Mr. Lu, which is subject to both a time-based and a liquidity-event vesting requirement, whereby the time-based vesting requirement shall be satisfied in connection with Mr. Lu's continuous service over three years, with 30% of the time-based vesting requirement becoming satisfied upon completion of one-year of service and 8.75% of the time-based vesting requirement becoming satisfied upon the completion of each quarter of service thereafter. The liquidity-event vesting requirement will be satisfied upon our completion of this offering.

(3) Stock option vests over three years, provided Mr. Lu remains in continuous service following the vesting commencement date set forth above, with 30% vesting upon completion of one year of service and 8.75% vesting every quarter thereafter.

(4) Represents an award of restricted stock units granted to Mr. Dillon, which is subject to both a time-based and a liquidity-event vesting requirement, whereby the time-based vesting requirement shall be satisfied in connection with Mr. Dillon's continuous service over four years, with 25% of the time-based vesting requirement becoming satisfied upon completion of one-year of service and 6.25% of the time-based vesting requirement becoming satisfied upon the completion of each quarter of service thereafter. The liquidity-event vesting requirement will be satisfied upon our completion of this offering.

(5) Stock option vests over four years, provided Mr. Dillon remains in continuous service following the vesting commencement date set forth above, with 25% vesting upon completion of one year of service and 6.25% vesting every quarter thereafter.

(6) Represents an award of restricted stock units granted to Mr. Mullen, which is subject to both a time-based and a liquidity-event vesting requirement, whereby the time-based vesting requirement shall be satisfied in connection with Mr. Mullen's continuous service over four years, with 25% of the time-based vesting requirement becoming satisfied upon completion of one-year of service and 6.25% of the time-based vesting

requirement becoming satisfied upon the completion of each quarter of service thereafter. The liquidity-event vesting requirement will be satisfied upon our completion of this offering.

(7) Stock option vests over four years, provided Mr. Mullen remains in continuous service following the vesting commencement date set forth above, with 25% vesting upon completion of one year of service and 6.25% vesting every quarter thereafter.

Director Compensation

With respect to the year ended December 31, 2020, our non-employee directors did not receive cash, equity, or other compensation for their service on our board of directors, and we did not have a formal non-employee director compensation program in 2020. Messrs. Chen, Hou and Lu, our executive officers during fiscal year 2020, did not and do not receive any additional compensation for their service as a member of our board of directors.

Our board of directors approved the following non-employee director compensation program that will become effective upon the completion of this offering.

Each non-employee director is eligible to receive annual cash retainers for their service on our board of directors and committees. Each non-employee director will earn $50,000 per year for general service on the Board as well as the following additional annual cash retainers for their board committee service:.

	Chair	Member
Audit Committee	$25,000	$15,000
Compensation Committee	$20,000	$10,000
Nominating and Corporate Governance Committee	$10,000	$ 5,000

The Compensation Committee will grant to each non-employee director on or after the completion of this offering an annual award of restricted stock units valued at $250,000 (the "Equity Award"). The Equity Award will be granted on or as soon as reasonably practicable after the date of the non-employee director's appointment or election, and thereafter on or as soon as reasonably practicable after the date of each of our annual stockholder meetings provided that such director continues to serve on our Board after such meeting. Subject to the non-employee director's continuous service, the Equity Award will vest in full over a one-year period, with an Equity Award granted between annual stockholder meetings to a newly-appointed director pro-rated to reflect the portion of the year that the director will serve on the Board. The Equity Award will vest in full if we are subject to a change in control prior to the termination of the non-employee directors' continuous service.

We reimburse reasonable expenses incurred by our non-employee directors in connection with attendance at board or committee meetings.

Certain Relationships and Related Party Transactions

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS In addition to the compensation arrangements, including employment, termination of employment, and change in control arrangements and indemnification arrangements, discussed, when required, in the sections titled "Management" and the registration rights described in the section titled "Description of Share Capital—Registration Rights," the following is a description of each transaction since January 1, 2018 and each currently proposed transaction in which:

- we have been or are to be a participant;
- the amount involved exceeded or exceeds $120,000; and
- any of our directors, executive officers or holders of more than 5% of our share capital, or any immediate family member of, or person sharing the household with, any of these individuals, had or will have a direct or indirect material interest.

Equity Financings

Sale of Series D-1 Redeemable Convertible Preferred Stock

During December 2018 to November 2020, we sold an aggregate of 20,345,131 Series D-1 redeemable convertible preferred stock at a purchase price of $8.1120737 per share to accredited investors for an aggregate purchase price of $165.04 million. Each share of Series D-1 redeemable convertible preferred stock will convert automatically into one share of Class A common stock immediately prior to the completion of this offering.

The following table summarizes purchases of our Series D-1 redeemable convertible preferred stock by our directors and holders of more than 5% of our share capital.

	Series D-1 Redeemable Convertible Preferred Stock	
Purchaser	Number of Shares	Aggregate GrossConsideration($)
Sun Dream Inc [1]	11,094,574	$90,000,000
CT Optimus Limited[2]	616,365	$5,000,000
Total	11,710,939	$95,000,000

(1) Sun Dream Inc holds more than 5% of our share capital.

(2) Composite Capital Master Fund LP and CT Optimus Limited are affiliates. Composite Capital Master Fund LP holds more than 5% of our share capital.

Sale of Series E Redeemable Convertible Preferred Stock

In December 2020 and January 2021, we sold an aggregate of 25,695,018 shares of Series E redeemable convertible preferred stock at a purchase price of $14.1401 per share to accredited investors for an aggregate purchase price of $363.3 million. Each share of Series E redeemable convertible preferred stock will convert automatically into one share of Class A common stock immediately prior to the completion of this offering.

The following table summarizes purchases of our Series E redeemable convertible preferred stock by our directors and holders of more than 5% of our share capital.

	Series E Redeemable Convertible Preferred Shares	
Purchaser	Number of Shares	Aggregate GrossConsideration($)
Trust affiliated with Brad Buss [1]	282,883	$4,000,000
Trust affiliated with Karen C. Francis [2]	40,000	$565,604
Total	322,883	$4,565,604

(1) A trust affiliated with Brad Buss, our director, purchased shares of our Series E redeemable convertible preferred stock.

(2) Trusts affiliated with Karen C. Francis, our director, purchased shares of our Series E redeemable convertible preferred stock.

Convertible Loan Arrangements with Sun Dream Inc

On June 8, 2020, we entered into a convertible loan agreement with Sun Dream Inc, pursuant to which Sun Dream Inc agreed to provide us one or more 1-year convertible loans with an aggregate principal of up to $100.0 million although only $50.0 million was funded. On December 4, 2020, the convertible loan of $50.0 million was converted into 3,928,937 Series E-1 redeemable convertible preferred stock at a conversion price of $12.72609, and the convertible loan agreement and the rights and obligations thereunder were terminated and canceled.

Notes

In March 2020, Cheng Lu, our chief executive officer and president, issued to us a partial-recourse promissory note of an aggregate principal amount of $977,500, for purposes of financing the purchase of Class A common stock by Mr. Lu upon exercise of an option under our 2017 Plan. Interest accrued on amounts due under the promissory note at a rate of 1.53% per annum. The term of note was nine years. We forgave the entire outstanding amount due under the promissory note, including principal and interest, in December 2020.

Loans with Stockholder's Affiliate

In April 2017, our subsidiary Beijing Tusen Weilai Technology Co., Ltd. ("Beijing Tusen") entered into a loan agreement with Jinzhuo Hengbang Technology (Beijing) Co., Ltd. ("Jinzhuo Hengbang"), an entity under common control with our 5% stockholder Sun Dream Inc, pursuant to which Jinzhuo Hengbang provided an interest-free loan of $1.4 million to Beijing Tusen.

In June 2017, Beijing Tusen assumed the obligations under a loan from Jinzhuo Hengbang to Beijing Tusen Hulian Technology Co., Ltd. in the principal amount of $2.3 million, plus accrued interest thereunder. The loan was revised to be interest free.

In October 2018, one of our subsidiaries entered into a loan agreement with Jinzhuo Hengbang pursuant to which Jinzhuo Hengbang provided to our subsidiary a loan in the principal amount of $2.9 million that accrues interest at a rate of 10% per annum.

As of December 31, 2020, the aggregate amount of outstanding principal and accrued interest under the foregoing loans is $3.7 million. During the year ended December 31, 2020, we paid to Jinzhuo Hengbang $3.1 million in principal due under these loans and $0.5 million in accrued interest. For additional information, see Note. 13 (Related Party Transactions) to our audited consolidated financial statements included elsewhere in this prospectus.

In February 2018, we entered into a security agreement with Jinzhuo Hengbang to provide a guarantee deposit of $3,714,682 to secure Beijing Tusen's obligations under its outstanding loans to Jinzhuo Hengbang.

Loan from Executive Officer and Director

In February 2017, our former chief executive officer and current executive chairman made certain short-term, unsecured, interest free loans to us. These loans are repayable on demand. During the years ended December 31, 2018 and 2019, we made repayments on these loans in the amount of $2.5 million and $0.1 million, respectively. We made no repayments on these loans during the year ended December 31, 2020. As of December 31, 2020, the aggregate amount outstanding on these loans was $0.6 million.

Amended and Restated Stockholders' Agreement

We have entered into a stockholders agreement with our stockholders, including entities with which certain of our directors are affiliated. These stockholders are entitled to rights with respect to the registration of their shares following this offering under the Securities Act. For a description of these registration rights, see "Description of Share Capital—Registration Rights."

Indemnification Agreements

Our amended and restated certificate of incorporation, which will be effective upon the completion of this offering, will contain provisions limiting the liability of directors, and provide that we will indemnify each of our directors to the fullest extent permitted under Delaware law. Our amended and restated certificate of incorporation will also provide our board of directors with discretion to indemnify our officers and employees when determined appropriate by our board of directors.

We intend to enter into new indemnification agreements with each of our directors and executive officers and certain other key employees. The indemnification agreements will provide that we will indemnify each of our directors, executive officers, and such other key employees against any and all expenses incurred by that director, executive officer, or other key employee because of his or her status as one of our directors, executive officers, or other key employees, to the fullest extent permitted by Delaware law and our amended and restated certificate of incorporation. In addition, the indemnification agreements will provide that, to the fullest extent permitted by Delaware law, we will advance all expenses incurred by our directors, executive officers, and other key employees in connection with a legal proceeding involving his or her status as a director, executive officer, or key employee.

Other Transactions

To facilitate the Class B Exchange, we will enter into exchange agreements with our Co-Founders, effective as of immediately prior to effectiveness of the filing of our amended and restated certificate of incorporation, pursuant to which 24,000,000 shares of our Class A common stock held by our Co-Founders will automatically be exchanged for an equivalent number of shares of Class B common stock immediately prior to the completion of this offering.

At our request, DSP Underwriters have reserved up to shares of Class A common stock, or % of the shares offered by this prospectus, for sale at the initial public offering price, to our senior management and employees, as well as friends and family members of our executive officers, founders and certain members of senior management, and persons with whom we have a business relationship, including certain partners.

Policies and Procedures for Related Party Transactions

We intend to adopt a written related party transaction policy to be effective upon the completion of this offering. The policy will provide that our executive officers, directors, holders of more than 5% of any class of our voting securities and any member of the immediate family of and any entity affiliated with any of the foregoing persons, will not be permitted to enter into a related-party transaction with us without the prior consent of our audit committee, or other independent members of our board of directors in the event it is inappropriate for our audit committee to review such transaction due to a conflict of interest. Any request for us to enter into a transaction with an executive officer, director, principal stockholder, or any of their immediate family members or affiliates, in which the amount involved exceeds $120,000, must first be presented to our audit committee for review, consideration and approval. In approving or rejecting the proposed transactions, our audit committee will take into account all of the relevant facts and circumstances available.

All of the transactions described in this section were entered into prior to the adoption of this policy. Although we have not had a written policy for the review and approval of transactions with related persons, our board of directors has historically reviewed and approved any transaction where a director or officer had a financial interest, including the transactions described above. Prior to approving such a transaction, the material facts as to a director's or officer's relationship or interest in the agreement or transaction were disclosed to our board of directors. Our board of directors took this information into account when evaluating the transaction and in determining whether such transaction was fair to us and in the best interest of all our stockholders.

Principal and Selling Stockholders

PRINCIPAL AND SELLING STOCKHOLDERS The following table sets forth certain information with respect to the beneficial ownership of our Class A common stock as of the date of this prospectus, and as adjusted to reflect the sale of Class A common stock offered by us and the selling stockholder in this offering, for:

- each of our named executive officers;

- each of our directors;
- all of our executive officers and directors as a group;
- each stockholder known by us to be the beneficial owner of more than 5% of our outstanding Class A common stock or Class B common stock; and
- the selling stockholder

We have determined beneficial ownership in accordance with the rules and regulations of the SEC. Except as indicated in the footnotes below, we believe, based on the information furnished to us, that the persons and entities named in the table below have sole voting and investment power with respect to all Class A common stock or Class B common stock that they beneficially own, subject to applicable community property laws.

Applicable percentage ownership is based on 157,138,372 shares of Class A common stock and 24,000,000 shares of Class B common stock outstanding as of March 15, 2021, after giving effect to the Class B Exchange and the conversion of all outstanding redeemable convertible preferred stock as of that date into an aggregate of 120,534,419 shares of Class A common stock. For purposes of computing percentage ownership after this offering, we have assumed that shares of Class A common stock will be issued by us in this offering. In computing the number of shares of Class A common stock beneficially owned by a person or entity and the percentage ownership of that person or entity, we deemed to be outstanding all shares of Class A common stock subject to options and share value awards held by that person or entity that are currently exercisable, or exercisable or would vest based on the satisfaction of the service-based vesting conditions within 60 days, assuming that the liquidity-based vesting conditions had been satisfied as of such date. We did not deem these shares outstanding, however, for the purpose of computing the percentage ownership of any other person or entity.

The following table does not reflect any shares of Class A common stock that may be purchased pursuant to our directed share program described under "Underwriting—Directed share program." If any shares are purchased by our existing principal stockholders, directors, officers or their affiliated entities, the number and percentage of shares of our Class A common stock beneficially owned by them after this offering will differ from those set forth in the following table.

	Shares Beneficially Owned Prior to This Offering				% of Total Voting PowerBefore OurInitial PublicOffering	Number of Sharesbeing Sold	Shares Beneficially Owned After This Offering				% of Tot Voting Power Af ThisOffe
Name of Beneficial Owner	Class A		Class B				Class A		Class B		
	Shares	%	Shares	%			Shares	%	Shares	%	
Directors and Named Executive Officers:∗											
Mo Chen[(1)]	14,367,314	9.14%	12,000,000	50%	33.83%		14,367,314		12,000,000		50%
Xiaodi Hou[(2)]	13,367,314	8.51	12,000,000	50	33.59		13,367,314		12,000,000		50
Cheng Lu[(3)]	2,745,000	1.74	—	—	*	*	2,745,000		—		—
Patrick Dillon[(4)]	—	—	—	—	—		—		—		—
James Mullen[(5)]	—	—	—	—	—		—		—		—
Brad Buss[(6)]	347,303	*	*	—	—	*	*	347,303		—	—
Charles Chao[(7)]	31,433,464	20.00%		—	—	7.91%		31,433,464		—	—
Karen Francis[(8)]	104,420	*	*	—	—	*	*	104,420		—	—
Bonnie Yi Zhang[(9)]	—	—	—	—	—		—		—		—
All Executive Officers and Directors as a Group (9 persons)	62,364,815	39.51%	24,000,000	100			62,364,815		24,000,000		100

	Shares Beneficially Owned Prior to This Offering				% of Total Voting PowerBefore OurInitial PublicOffering	Number of Sharesbeing Sold	Shares Beneficially Owned After This Offering				% of Total Voting Power After ThisOffering
Name of Beneficial Owner	Class A		Class B				Class A		Class B		

	Shares	%	Shares	%		Shares	%	Shares	%
Principal Stockholders:									
Sun Dream Inc[10]	31,433,464	20.00%	—	—	7.91%	31,433,464		—	—
Composite Capital Master Fund LP[11]	11,444,365	7.28	—	—	2.88	11,444,365		—	—
Navistar, Inc.[12]	10,217,846	6.50	—	—	2.57	10,217,846		—	—
Selling Stockholder:									

* The business address for our directors and officers is 9191 Towne Centre Drive, Suite 600, San Diego, CA 92122.

** Represents beneficial ownership or voting power of less than one percent (1%).

(1) Represents 8,000,000 shares of Class A common stock and 12,000,000 shares of Class B common stock held by Gray Jade Holding Limited, a company incorporated in British Virgin Islands and beneficially owned by The Chen Family Trust, 75,000 shares of Class A common stock held by THC International Limited, a company incorporated in British Virgin Islands and beneficially owned by Mr. Mo Chen, and 6,292,314 shares of Class A common stock held by Brown Jade Holding Limited, a company incorporated in British Virgin Islands and beneficially owned by Mr. Chen. The registered address of Gray Jade Holdings Limited is Sertus Chambers, P.O. Box 905, Quastisky Building, Road Town, Tortola, British Virgin Islands. The registered address of THC International Limited is Craigmuir Chambers, Road Town, Tortola, VG 1110, British Virgin Islands. The registered address of Brown Jade Holding Limited is Craigmuir Chambers, Road Town, Tortola, VG 1110, British Virgin Islands. The Class A common stock beneficially owned prior to the offering does not include the shares issuable upon conversion of the Class B common stock.

(2) Represents 13,367,314 shares of Class A common stock and 12,000,000 shares of Class B common stock held by White Marble International Limited, a company incorporated in Samoa and beneficially owned by Mr. Xiaodi Hou. The registered address of White Marble International Limited is Sertus Chambers, P.O. Box 603, Apia, Samoa. The Class A common stock beneficially owned prior to the offering does not include the shares issuable upon conversion of the Class B common stock.

(3) Represents 57,500 shares of Class A common stock underlying a stock option grant exercisable within 60 days, 562,500 shares of Class A common stock underlying a restricted stock unit grant exercisable within 60 days, and 1,225,000 shares of Class A common stock held by Mr. Lu, and 900,000 shares of Class A common stock held by Hickory Wood Grove LLC, a limited liability company incorporated in Delaware and beneficially owned by the Lu Family Descendants Trust. The registered address of Hickory Wood Grove LLC is 20 Montchanin Road, Greenville, DE 19807.

(4) Mr. Patrick Dillon does not beneficially own any shares of Class A common stock or Class B common stock.

(5) Mr. James Mullen does not beneficially own any shares of Class A common stock or Class B common stock.

(6) Represents 60,000 shares underlying a stock option grant exercisable within 60 days, 4,420 shares of Class A common stock underlying a restricted stock unit grant exercisable within 60 days, and 282,883 shares of Series E redeemable convertible preferred stock of Class A common stock held by 2011 Buss Family Trust. The registered address of the 2011 Buss Family Trust is c/o Brad Buss, 9191 Towne Centre Drive, Suite 600, San Diego, CA 92122.

(7) Represents 31,433,464 shares of Class A common stock issuable upon the conversion of 3,295,726 Series A redeemable convertible preferred stock, 1,146,117 Series A-2 redeemable convertible preferred stock, 5,080,000 Series B-1 redeemable convertible preferred stock, 3,000,000 Series B-2 redeemable convertible preferred stock, 3,888,110 Series C redeemable convertible preferred stock, 11,094,574 Series D-1 redeemable convertible preferred stock and 3,928,937 Series E-1 redeemable convertible preferred stock held by Sun Dream Inc. Sun Dream Inc is ultimately controlled by Mr. Charles Chao. Upon the completion of this offering, these shares will be in the form of Class A common stock.

(8) Represents 4,420 shares of Class Common stock underlying a restricted stock unit grant exercisable within 60 days, 60,000 shares of Class A Common Stock held by Karen Francis, 20,000 shares of Series E redeemable convertible preferred stock held by the Karen C. Francis Second Restated Revocable Trust dated 1.30.2012, and 20,000 shares of Series E redeemable convertible preferred stock held by the Richard C. DeGolia Trust dated 8.27.2004. The registered address of the Karen C. Francis Second Restated Revocable Trust dated 1.30.2012 is c/o Karen Francis, 9191 Towne Centre Drive, Suite 600, San Diego, CA 92122. The registered address of the Richard C. DeGolia Trust dated 8.27.2004 is c/o Karen Francis, 9191 Towne Centre Drive, Suite 600, San Diego, CA 92122.

(9) Ms. Bonnie Yi Zhang does not beneficially own any shares of Class A common stock or Class B common stock.

(10) Represents 31,433,464 shares of Class A common stock issuable upon the conversion of 3,295,726 Series A redeemable convertible preferred stock, 1,146,117 Series A-2 redeemable convertible preferred stock, 5,080,000 Series B-1 redeemable convertible preferred stock, 3,000,000 Series B-2 redeemable convertible preferred stock, 3,888,110 Series C redeemable convertible preferred stock, 11,094,574 Series D-1 redeemable convertible preferred stock and 3,928,937 Series E-1 redeemable convertible preferred stock held by Sun Dream Inc. Sun Dream Inc is ultimately controlled by Mr. Charles Chao. The registered address of Sun Dream Inc is P. O. Box 31119 Grand Pavilion, Hibiscus Way, 802 West Bay Road, Grand Cayman, KY1–1205 Cayman Islands. Upon the completion of this offering, these shares will be in the form of Class A common stock.

(11) Represents 11,444,365 shares of Class A common stock issuable upon the conversion of 10,828,000 Series C redeemable convertible preferred stock and 616,365 Series D-1 redeemable convertible preferred stock held by Composite Capital Master Fund LP (“Master Fund”). Composite Capital Management (HK) Limited (“Investment Advisor”) acts as the Investment Advisor of the Master Fund. Mr. David Ma serves as the Chief Investment Officer of the Investment Advisor. Each of the foregoing persons expressly disclaims beneficial ownership of these securities. The registered address of the Master Fund is c/o Maples Corporate Services Limited, PO Box 309, Ugland House, Grand Cayman, KY1-1104, Cayman Islands. Upon the completion of this offering, these shares will be in the form of Class A common stock.

(12) Represents 10,217,846 shares of Class A common stock issuable upon the conversion of 621,447 shares of Series D-1 redeemable convertible preferred stock, 119,326 shares of Series E redeemable convertible preferred stock, held by Navistar, Inc. and 9,477,073 shares of Series E redeemable convertible preferred stock held by International Truck and Engine Corporation Cayman Islands Holding Company, a company incorporated in the Cayman Islands and a subsidiary of Navistar, Inc. The registered address of Navistar, Inc. is 251 Little Falls Drive, Wilmington, DE 19808. The registered address of International Truck and Engine Corporation Cayman Islands Holding Company is c/o Maples and Calder, PO Box 309 Ugland House, South Church Street, George Town Grand Cayman, KY1-1104, Cayman Islands.

Description of Capital Stock

DESCRIPTION OF CAPITAL STOCK A description of our capital stock and the material terms and provisions of our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering and affecting the rights of holders of our capital stock is set forth below. The forms of our amended and restated certificate of incorporation and our amended and restated bylaws to be adopted in connection with this offering are filed as exhibits to the registration statement relating to this prospectus.

Upon the completion of this offering, our authorized capital stock will consist of 5,000,000,000 shares, all with a par value of $0.0001 per share, of which:

- 4,876,000,000 shares are designated Class A common stock;
- 24,000,000 shares are designated Class B common stock; and
- 100,000,000 shares are designated preferred stock.

As of December 31, 2020, and after giving effect to (i) the Preferred Stock Conversion, (ii) the RSU and SVA Settlement, and (iii) the Class B Exchange immediately prior to the completion of this offering, assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, there were outstanding:

- 160,290,356 shares of our Class A common stock held of record by approximately 55 stockholders;
- 24,000,000 shares of our Class B common stock held of record by the Founders;
- 13,295,497 shares of our Class A common stock issuable upon exercise of outstanding stock options;
- 1,100,000 shares of our Class A common stock issuable upon the vesting and settlement of restricted stock units; and
- 3,653,146 shares of our Class A common stock issuable upon the vesting and settlement of share value awards.

Common Stock

We have two classes of authorized 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, conversion and transfer rights.

Dividend Rights

Subject to preferences that may apply to shares of preferred stock outstanding at the time, the holders of outstanding shares of our common stock are entitled to receive dividends out of funds legally available if our board of directors, in its discretion, determines to issue dividends and only then at the times and in the amounts that our board of directors may determine. See “Dividend Policy” for more information.

Voting Rights

The holders of our Class A common stock are entitled to one vote per share and the holders of our Class B common stock are entitled to 10 votes per share. Stockholders do not have the ability to cumulate votes for the election of directors. Our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering will provide for, immediately following the Voting Threshold Date, a classified board of directors consisting of three classes of approximately equal size, each serving staggered three-year terms. The board of directors is authorized to assign members of the board of the directors already in office immediately prior to the Voting Threshold Date. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. The holders of our Class A common stock and Class B common stock vote together as a single class, unless otherwise required by law or our amended and restated certificate of incorporation.

Our amended and restated certificate of incorporation will provide as long as any shares of Class B common stock remain outstanding, we shall not, without the prior affirmative vote of the holders of a majority of the outstanding shares of Class B common stock, voting as a separate class, in addition to any other vote required by applicable law or our amended and restated certificate of incorporation:

- amend, alter, or repeal any provision of our amended and restated certificate of incorporation or amended and restated bylaws that modifies the voting, conversion or other powers, preferences, or other special rights or privileges, or restrictions of our Class B common stock; or
- reclassify any of our outstanding shares of Class A common stock into shares having rights as to dividends or liquidation that are senior to our Class B common stock or the right to more than one (1) vote for each share thereof.

Delaware law or our amended and restated certificate of incorporation could require either holders of our Class A common stock or our Class B common stock to vote separately as a single class in the following circumstances:

- if we were to seek to amend our amended and restated certificate of incorporation to increase the authorized number of shares of a class of stock, or to increase or decrease the par value of a class of stock, then that class would be required to vote separately to approve the proposed amendment;
- if we were to seek to amend our amended and restated certificate of incorporation in a manner that alters or changes the powers, preferences or special rights of a class of stock in a manner that affected its holders adversely, then that class would be required to vote separately to approve the proposed amendment; and
- so long as our outstanding shares of Class B common stock represent 40% or more of the total voting power of the company, any transaction that would result in a change in control of our company will require the approval of a majority of our outstanding Class B common stock voting as a separate class.

The holders of common stock will not have cumulative voting rights in the election of directors. Accordingly, holders of a majority of the voting power of the shares of common stock entitled to vote in any election of directors may elect all of the directors standing for election. Except for the election of directors, if a quorum is present, an action on a matter is approved if it receives the affirmative vote of the holders of a majority of the voting power of the shares of capital stock present in person or represented by proxy at the meeting and entitled to vote on the matter, unless otherwise required by applicable law, the DGCL, our amended and restated certificate of incorporation or our amended and restated bylaws. The election of directors will be determined by a plurality of the votes cast in respect of the shares present in person or represented by proxy at the meeting and entitled to vote, meaning that the nominees with the greatest number of votes cast, even if less than a majority, will be elected. The rights, preferences and privileges of holders of common stock are subject to, and may be impacted by, the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

No Preemptive or Similar Rights

Except the conversion provisions with respect to our Class B common stock described below, holders of our common stock have no preemptive rights and are not subject to conversion, redemption, or sinking fund provisions.

Right to Receive Liquidation Distributions

Upon our dissolution, liquidation, or winding-up, the assets legally available for distribution to our stockholders are distributable ratably among the holders of our common stock, subject to prior satisfaction of all outstanding debt and liabilities and the preferential rights and payment of liquidation preferences, if any, on any outstanding shares of preferred stock.

Conversion of our Class B Common Stock

Each share of our Class B common stock is convertible at any time at the option of the holder into one share of our Class A common stock.

Each share of our Class B common stock will automatically convert, on a one-for-one basis, into shares of our Class A common stock on the earliest of (i) the date specified by a vote of the holders of Class B common stock representing 75.0% of the outstanding shares of Class B common stock, (ii) the date that is between 90 days and 270 days, as determined by the board of directors, after the death or incapacitation of the last Founder to die or become incapacitated or (iii) the date that is between 61 and 180 days, as determined by the board of directors, after the date on which the number of outstanding shares of Class B common stock held by the Founders represents less than 50.0% of the total number of shares of Class B common stock held collectively by the Founders at 11:59 pm Pacific Time on the date that we file our amended and restated certificate of incorporation immediately prior to the completion of this offering.

Additionally, each share of our Class B common stock will convert automatically into one share of our Class A common stock upon any transfer, sale, assignment, conveyance, hypothecation or other transfer or disposition of such share, whether or not for value and whether voluntary or involuntary or by operation of law, except certain permitted transfers described in our amended and restated certificate of incorporation, including, but not limited to:

- any transfer of Class B common stock by a holder that is a record holder of such Class B common stock prior to the date that our amended and restated certificate of incorporation is accepted for filing by the Secretary of State of the State of Delaware to (i) one or more family members or such record holder, (ii) any general partnership, limited partnership, limited liability company, corporation or other entity owned exclusively by such record holder or (iii) a Founder; and
- any grant of a voting proxy with respect to Class B common stock by either Founder to the other Founder.

Once transferred and converted into Class A common stock, the Class B common stock will not be reissued.

Preferred Stock

Upon the completion of this offering, no shares of preferred stock will be outstanding, but we will be authorized, subject to limitations prescribed by Delaware law, to issue preferred stock in one or more series, to establish from time to time the number of shares to be included in each series and to fix the designation, powers, preferences, and rights of the shares of each series and any associated qualifications, limitations or restrictions. Our board of directors also can increase or decrease the number of shares of any series, but not below the number of shares of that series then outstanding, without any further vote or action by our stockholders. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the Class A common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of our company and may adversely affect the market price of our Class A common stock and the voting and other rights of the holders of Class A common stock. We have no current plan to issue any shares of preferred stock.

Registration Rights

Upon the completion of this offering, the holders of our registrable shares, as described in the amended and restated stockholders' agreement, including shares issuable upon the conversion of redeemable convertible preferred stock or their permitted transferees, are entitled to rights with respect to the registration of these shares under the Securities Act. These rights are provided under the terms of the amended and restated stockholders' agreement, and include demand registration rights, short-form registration rights and piggyback registration rights. All fees, costs and expenses of underwritten registrations will be borne by us and all selling expenses, including underwriting discounts and selling commissions, will be borne by the holders of the shares being registered.

Demand Registration Rights

At any time following the effectiveness of this offering, the holders of 10% or more of the registrable securities then outstanding, may make a written request that we register all or a portion of such registrable securities, subject to certain specified conditions and exceptions. Such request for registration must cover at least 10% of the registrable securities then outstanding. We are not obligated to effect more than three of these registrations.

Piggyback Registration Rights

If we propose to register any of our securities under the Securities Act either for our own account or for the account of other stockholders, the holders of shares having registration rights will, subject to certain exceptions, be entitled to include their shares in our registration statement. These registration rights are subject to specified conditions and limitations, including, but not limited to, the right of the underwriters to limit the number of shares included in any such offering under certain circumstances, but not below 25% of the total amount of securities included in such offering.

Form S-3 Registration Rights

At any time after we are qualified to file a registration statement on Form S-3, and subject to limitations and conditions specified in the amended and restated stockholders agreement, the holders of a majority of the registrable securities then outstanding may make a written request that we that we prepare and file a registration statement on Form S-3 under the Securities Act covering their shares, so long as the aggregate price to the public is at least $500,000. We are not obligated to effect more than one of these Form S-3 registrations in any 12-month period.

Indemnification

Our stockholders agreement contains customary cross-indemnification provisions, under which we are obligated to indemnify holders of registrable securities in the event of material misstatements or omissions in the registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions attributable to them.

Expiration of Registration Rights

The registration rights granted under the amended and restated stockholders agreement will terminate on the fifth anniversary of the completion of this offering.

Anti-Takeover Provisions

Delaware Law

Upon the completion of this offering, we will be governed by the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. This section prevents some Delaware corporations from engaging, under some circumstances, in a business combination, which includes a merger or sale of at least 10% of the corporation's assets with any interested stockholder, meaning a stockholder 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 the corporation's outstanding voting stock, unless:

- the transaction is approved by the board of directors prior to the time that the interested stockholder became an interested stockholder;
- upon consummation 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 began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (i) by persons who are directors and also officers and (ii) 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 such time that the stockholder became an interested stockholder the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

A Delaware corporation may "opt out" of these provisions with an express provision in its original certificate of incorporation or an express provision in its certificate of incorporation or amended and restated bylaws resulting from a stockholders' amendment approved by at least a majority of the outstanding voting shares. We have not opted out of these provisions. As a result, mergers or other takeover or change in control attempts of us may be discouraged or prevented.

Certificate of Incorporation and Bylaws Provisions

Upon the completion of this offering, our amended and restated certificate of incorporation and our amended and restated bylaws will include a number of provisions that may have the effect of deterring hostile takeovers or delaying or preventing changes in control of our management team, including the following:

- ***Dual Class Stock.*** As described above in "—Common Stock—Voting Rights," our amended and restated certificate of incorporation will provide for a dual class common stock structure pursuant to which our Founders holding Class B common stock will have the ability to control the outcome of matters requiring stockholder approval, even if they own significantly less than a majority of the shares of our outstanding Class A and Class B common stock, including the election of directors and significant corporate transactions, such as a merger or other sale of our company or its assets. Current investors, executives, and employees will have the ability to exercise significant influence over those matters.

- ***Separate Class B Vote for Certain Transactions.*** Our amended and restated certificate of incorporation will provide that so long as our outstanding shares of Class B common stock represent 40% or more of the total voting power of the company, any transaction that would result in a change in control of our company will require the approval of a majority of our outstanding Class B common stock voting as a separate class. This provision could delay or prevent the approval of a change in control that might otherwise be approved by a majority of outstanding shares of our Class A and Class B common stock voting together on a combined basis.

- ***Supermajority Approvals.*** Our amended and restated certificate of incorporation and amended and restated bylaws will provide that certain amendments to our amended and restated certificate of incorporation or amended and restated bylaws by stockholders will require the approval of two-thirds of the combined vote of our then-outstanding shares of Class A and Class B common stock. This will have the effect of making it more difficult to amend our amended and restated certificate of incorporation or amended and restated bylaws to remove or modify certain provisions.

- ***Board of Directors Vacancies.*** Our amended and restated certificate of incorporation and amended and restated bylaws will authorize our board of directors to fill vacant directorships, including newly-created seats. In addition, the number of directors constituting our board of directors will be set only by resolution adopted by a majority vote of our entire board of directors. These provisions will prevent a stockholder from increasing the size of our board of directors and gaining control of our board of directors by filling the resulting vacancies with its own nominees.

- ***Classified Board.*** Our board of directors will not initially be classified. Our amended and restated certificate of incorporation and amended and restated bylaws will provide that, immediately after the Voting Threshold Date, our board of directors will be classified into three classes of directors, each of which will hold office for a three-year term. In addition, after the Voting Threshold Date, directors may only be removed from the board of directors for cause and only by the approval of two-thirds of the combined vote of our then outstanding shares of Class A and Class B common stock. A third party may be discouraged from making a tender offer or otherwise attempting to obtain control of us as it is more difficult and time consuming for stockholders to replace a majority of the directors on a classified board of directors.

- ***Stockholder Action; Special Meeting of Stockholders.*** Our amended and restated certificate of incorporation will provide that after the Voting Threshold Date, stockholders will not be able to take action by written consent, and will only be able to take action at annual or special meetings of our stockholders. Stockholders will not be permitted to cumulate their votes for the election of directors. Our amended and restated certificate of incorporation will further provide that special meetings of our stockholders may be called only by a majority vote of our entire board of directors, the chairman of our board of directors, the executive chairman or our chief executive officer.

- ***Advance Notice Requirements for Stockholder Proposals and Director Nominations.*** Our amended and restated bylaws will provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders, or to nominate candidates for election as directors at any meeting of stockholders. Our amended and restated bylaws will also specify certain requirements regarding the form and content of a stockholder's notice. These provisions may preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our meetings of stockholders.

- ***Issuance of Undesignated Preferred Stock.*** Our board of directors will have the authority, without further action by the holders of Class A common stock, to issue up to 100,000,000 shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by the board of directors. The existence of authorized but unissued shares of preferred stock will enable our board of directors to render more difficult or discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest, or otherwise.

Choice of Forum

Upon the completion of this offering, our amended and restated certificate of incorporation will provide that the Court of Chancery of the State of Delaware will be the exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws or any action asserting a claim against us that is governed by the internal affairs doctrine. This choice of forum provision does not apply to actions brought to enforce a duty or liability created by the Exchange Act or any other claim for which federal courts have exclusive jurisdiction. Furthermore, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. We intend for this provision to apply to any complaints asserting a cause of action under the Securities Act despite the fact that Section 22 of the Securities Act creates concurrent jurisdiction for the federal and state courts over all actions brought to enforce any duty or liability created by the Securities Act or the rules and regulations promulgated thereunder. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions in our certificate of incorporation to be inapplicable or unenforceable.

Transfer Agent and Registrar

Upon the completion of this offering, the transfer agent and registrar for our Class A common stock will be American Stock Transfer and Trust Company, LLC. The transfer agent's address is 6201 15th Avenue, Brooklyn, New York 11219, and its telephone number is +1-(800) 937-5449 or +1-(718) 921-8124.

Listing

We have applied to list our Class A common stock on the Nasdaq Global Select Market under the symbol "TSP."

Shares Eligible for Future Sale

SHARES ELIGIBLE FOR FUTURE SALE Prior to the completion of this offering, there has been no public market for our Class A common stock. Future sales of our Class A common stock in the public market following this offering or the perception that these sales may occur, could adversely affect the prevailing market price for our Class A common stock at such time and our ability to raise equity capital in the future.

Following the completion of this offering, based on the number of our share capital outstanding as of December 31, 2020, a total of shares, will be outstanding. This includes shares of Class A common stock that we are selling in this offering, which shares may be resold in the public market immediately unless purchased by our affiliates, and assumes no additional exercise of outstanding options other than as described elsewhere in this prospectus and 24,000,000 shares of our Class B common stock. Of these outstanding shares, all of the shares of Class A common stock sold in this offering will be freely tradable, except that any shares purchased in this offering by our affiliates, as that term is defined in Rule 144 under the Securities Act, can only be sold in compliance with Rule 144. Shares of our Class B common stock are convertible into an equivalent number of shares of our Class A common stock and generally convert into shares of our Class A common stock upon transfer.

The remaining shares of Class A of common stock that are not sold in this offering will be deemed "restricted securities," as that term is defined in Rule 144 or Rule 701 under the Securities Act of 1933, as amended (the "Securities Act"). These restricted securities are eligible for public sale only if they are registered under the Securities Act or if they qualify for an exemption from registration under Rule 144 or Rule 701 under the Securities Act, which are summarized below.

In addition, all of our executive officers and directors, and substantially all of our security holders have entered into lock-up agreements with the underwriters under which they have agreed, subject to specific exceptions, not to sell any of our share capital, as described below. As a result of these agreements and the provisions of our stockholders' agreement described above under the section titled "Description of Share Capital—Registration Rights," subject to the provisions of Rule 144 or Rule 701, based on an assumed offering date of , 2020, shares will be available for sale in the public market as follows:

Earliest Date Available for Sale in the Public Market	Shares Eligible to be Released from Lock-Up Restriction
The first trading day on which our common stock is traded on the Nasdaq Global Select Market (the "first release window").	Shares of Class A common stock issued or issuable upon the exercise, settlement or exchange of vested restricted stock units, share value awards or stock options held by Employee Stockholders (as defined below) in order to satisfy applicable income tax withholding and remittance obligations, or in the case of vested stock options, applicable income tax withholding or to pay the aggregate exercise price. Excludes securities held by certain employees restricted from trading during the first release window and by "affiliates" for the purposes of Rule 144, as described below under "—Rule 144."
The second trading day immediately following our public release of earnings for the first quarter following the most recent period for which financial statements are included in this prospectus (the "second release window") provided that the closing price of our Class A common stock on the Nasdaq Global Select Market is at least 33% greater than the initial public offering price per share set forth on the cover page of this prospectus for the periods described in the section titled "Underwriting."	Up to % of shares of Class A common stock issued or issuable upon the exercise, settlement or exchange of vested restricted stock units, share value awards or stock options held by Employee Stockholders not previously sold during the first release window.

Earliest Date Available for Sale in the Public Market	Shares Eligible to be Released from Lock-Up Restriction
The second trading day immediately following the later of (i) the opening of trading on the second trading day immediately following our public release of earnings for the second quarter following the most recent period for which financial statements are included in this prospectus and (ii) the 121st day after the date of this prospectus (assuming that as of such date we have publicly released our earnings for the second quarter following the most recent period for which financial statements are included in this prospectus).	All remaining shares held by our stockholders not previously eligible for sale, subject to volume limitations applicable to "affiliates" under Rule 144 as described below.

Based on an assumed tax withholding rate of 41%, approximately million shares of our Class A common stock will be available for sale in the first lock-up release period and an additional million shares of our Class A common stock will be available for sale in the second lock-up release period.

Rule 144

In general, under Rule 144 as currently in effect, a person who has beneficially owned our restricted shares of Class A common stock for at least six months would be entitled to sell their securities provided that 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 we are subject to the periodic reporting requirements of the Exchange Act for at least 90 days before the sale. In addition, under Rule 144, any person who is not an affiliate of ours and has held their shares for at least one year, including the holding period of any prior owner other than one of our affiliates, would be entitled to sell an unlimited number of shares immediately upon the completion of this offering without regard to whether current public information about us is available. Persons who have beneficially owned our restricted Class A 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 our Class A common stock then outstanding, which will equal approximately shares immediately after the completion of this offering assuming no exercise of the underwriters' right to purchase additional shares, based on the number of shares of Class A common stock outstanding as of ; or
- the average weekly trading volume of our Class A common stock during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale;
- provided, in each case, that we have been subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Such sales both by affiliates and by non-affiliates must also comply with the manner of sale, current public information and notice provisions of Rule 144.

Rule 701

Any of our service providers who purchased shares under a written compensatory plan or contract prior to this offering may be entitled to rely on the resale provisions of Rule 701. Rule 701, as currently in effect, permits resales of shares, including by affiliates, in reliance upon Rule 144 but without compliance with certain restrictions, including the holding period requirement, of Rule 144. Rule 701 further provides that non-affiliates may sell such shares in reliance

on Rule 144 without having to comply with the public information, volume limitation, or notice provisions of Rule 144. All holders of Rule 701 shares are required to wait until 90 days after the date of this prospectus before selling such shares if such resale is pursuant to Rule 701. All Rule 701 shares are, however, subject to lock-up agreements and will only become eligible for sale upon the expiration of these lock-up agreements.

Lock-Up Agreements

We and all of our directors, officers, and the holders of substantially all of our outstanding shares and equity awards are subject to lock-up agreements with the underwriters agreeing that, without the prior written consent of Morgan Stanley & Co. LLC on behalf of the underwriters, we and they will not, in accordance with the terms of such agreements, during the period ending on the later of (i) the opening of trading on the second trading day immediately following our public release of earnings for the second quarter following the most recent period for which financial statements are included in this prospectus and (ii) the 121st day after the date of this prospectus (assuming that as of such date we have publicly released our earnings for the second quarter following the most recent period for which financial statements are included in this 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, lend, make any short sale, or otherwise transfer or dispose of, directly or indirectly, any shares of our Class A common stock and securities directly or indirectly convertible into or exchangeable or exercisable for our Class A common stock;

(2) enter into any swap, hedging transaction, or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of our Class A common stock, whether any such transaction described above is to be settled by delivery of our Class A common stock or such other securities, in cash or otherwise; or

(3) publicly disclose the intention to take any of the actions restricted by clause (1) or (2) above.

Notwithstanding the foregoing,

(A) current and former employees, consultants, and contractors (but excluding current directors and executive officers) (the "Employee Stockholders") may, during a 7-trading day period beginning at the commencement of trading on the first trading day on which our common stock is traded on the Nasdaq Global Select Market, sell shares of our outstanding Class A common stock and securities directly or indirectly convertible into or exchangeable or exercisable for our Class A common stock necessary to (x) in the case of vested restricted stock units or share value awards, satisfy the applicable income tax withholding and remittance obligations in connection with the vesting and settlement of restricted stock units or share value awards, and (y) in the case of vested stock options, satisfy applicable income tax withholding and remittance obligations in connection with the exercise of such vested stock options and to permit the Employee Stockholder to pay the aggregate exercise price of such vested stock options; and

(B) Employee Stockholders may sell up to % of shares of our outstanding Class A common stock and securities directly or indirectly convertible into or exchangeable or exercisable for our Class A common stock held by Employee Stockholders not previously sold pursuant to clause (A) above beginning at the opening of trading on the second trading day immediately following our public release of earnings for the first quarter following the most recent period for which financial statements are included in this prospectus (such release, our "first post-public earnings release"), provided that the last reported closing price of our common stock on the Nasdaq Global Select Market is at least 33% greater than the initial public offering price per share set forth on the cover page of this prospectus:

- for any 10 trading days out of the 15-consecutive full trading day period ending on the closing of the first full trading day immediately following our first post-public offering earnings release; and
- at the closing of the first full trading day immediately following our first post-public offering earnings release;

further provided, that no sales pursuant to this clause (B) will be permitted until at least 60 days after the date of this prospectus. We refer to the period during which sales may occur pursuant to this clause (B) as the "second release window."

The lock-up agreements described above are subject to a number of exceptions. See the section titled "Underwriting" for information about these exceptions and a further description of these agreements. Upon the expiration of the restricted period, substantially all of the securities subject to such transfer restrictions will become eligible for sale, subject to the limitations discussed above.

Certain of our employees, including our executive officers, and directors may enter into written trading plans that are intended to comply with Rule 10b5-1 under the Exchange Act. Sales under these trading plans would not be permitted until the expiration of the lock-up agreements relating to our initial public offering described above.

Registration Rights

Upon completion of this offering, the holders of shares of Class A common stock will be entitled to rights with respect to the registration of the sale of Class A common stock under the Securities Act. See "Description of Capital Stock—Registration Rights." All such shares are covered by lock-up agreements. Following the expiration of the lock-up period, registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act immediately upon the effectiveness of the registration.

Registration Statement on Form S-8

We intend to file a registration statement on Form S-8 under the Securities Act covering all of the Class A common stock subject to options and certain share value awards and restricted share units outstanding or reserved for issuance under our equity plans. We expect to file this registration statement as soon as practicable after the completion of this offering. This registration statement will become effective immediately upon filing, and shares covered by this registration statement will thereupon be eligible for sale in the public markets, subject to vesting restrictions, the lock-up agreements described above and Rule 144 limitations applicable to affiliates. For a more complete discussion of our share plans, see "Management—Equity Plans."

Material U.s. Federal Income Tax Consequences for Non-u.s. Holders of Our Class a Common Stock

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES

For Non-u.s. Holders of Our Class a Common Stock

The following is a general discussion of the material U.S. federal income tax considerations applicable to non-U.S. holders (as defined below) with respect to their ownership and disposition of shares of our Class A common stock issued pursuant to this offering. For purposes of this discussion, a non-U.S. holder means a beneficial owner of our Class A common stock (other than an entity or arrangement that is treated as a partnership for U.S. federal income tax purposes) that is not, for U.S. federal income tax purposes, any of the following:

- an individual citizen or resident of the United States;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in the United States or under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is includable in gross income for U.S. federal income tax purposes regardless of its source; or
- a trust if (i) a court within the United States is able to exercise primary supervision over the administration of the trust and one or more "U.S. persons," as defined under the U.S. Internal Revenue Code of 1986 (the "Code"), have the authority to control all substantial decisions of the trust or (ii) such trust has made a valid election to be treated as a U.S. person for U.S. federal income tax purposes.

This discussion is based on current provisions of the Code, existing, temporary and proposed Treasury Regulations promulgated thereunder, judicial opinions, published positions of the Internal Revenue Service (the "IRS"), and other applicable authorities, all of which are subject to change or to differing interpretation, possibly with retroactive effect. This discussion assumes that a non-U.S. holder holds shares of our Class A common stock as a capital asset (generally, property held for investment) for U.S. federal income tax purposes. This discussion does not address all aspects of U.S. federal income taxation that may be important to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances, nor does it address any aspects of the unearned income Medicare contribution tax pursuant to the Health Care and Education Reconciliation Act of 2010, any U.S. gift taxes, any U.S. alternative minimum taxes or any state, local or non-U.S. taxes. 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 U.S. federal income tax laws (such as insurance companies, tax-exempt organizations, financial institutions, brokers or dealers in securities, "controlled foreign corporations," "passive foreign investment companies," non-U.S. holders that hold our Class A common stock as part of a straddle, hedge, conversion transaction or other integrated investment and certain U.S. expatriates). If a partnership (or other entity or arrangement treated as a partnership for U.S. federal income tax purposes) holds our Class A common stock, the tax treatment of a partner therein will generally depend on the status of the partner and the activities of the partnership. Partners of a partnership holding our Class A common stock should consult their tax advisor as to the particular U.S. federal income tax consequences applicable to them.

INVESTORS CONSIDERING THE PURCHASE OF OUR CLASS A COMMON STOCK SHOULD CONSULT THEIR OWN TAX ADVISORS REGARDING THE APPLICATION OF THE U.S. FEDERAL INCOME AND ESTATE TAX LAWS TO THEIR PARTICULAR SITUATIONS AND THE CONSEQUENCES OF NON-U.S., STATE, OR LOCAL LAWS AND TAX TREATIES.

Dividends

We do not expect to declare or make any distributions on our Class A common stock in the foreseeable future. If we do pay dividends on shares of our Class A common stock, however, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Distributions in excess of our current and accumulated earnings and profits will constitute a return of capital that is applied against and reduces, but not below zero, a non-U.S. holder's adjusted tax basis in shares of our Class A common stock. Any excess will be treated as capital gain and will be subject to the treatment described below under "—Gain on Sale or Other Disposition of Class A Common Stock." Any distributions will also be subject to the discussion below under "—Backup Withholding and Information Reporting" and "—Foreign Account Tax Compliance Act."

Any dividend paid to a non-U.S. holder on our Class A common stock that is not effectively connected with a non-U.S. holder's conduct of a trade or business in the United States will generally be subject to U.S. withholding tax at a 30% rate. The withholding tax might apply at a reduced rate, however, under the terms of an applicable income tax treaty between the United States and the non-U.S. holder's country of residence. Non-U.S. holders should consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty. Generally, in order for us or our paying agent to withhold tax at a lower treaty rate, a non-U.S. holder must certify its entitlement to treaty benefits. A non-U.S. holder generally can meet this certification requirement by providing an IRS Form W-8BEN, W-8BEN-E or other appropriate form (or any successor or substitute form thereof) to us or our paying agent. If the non-U.S. holder holds the stock through a financial institution or other agent acting on the holder's behalf, the holder will be required to provide appropriate documentation to the holder's agent. The holder's agent will then be required to provide certification to us or our paying agent, either directly or through other intermediaries. If a non-U.S. holder is eligible for a reduced rate of U.S. federal withholding tax under an income tax treaty, such person may obtain a refund or credit of any excess amounts withheld by filing an appropriate claim for a refund with the IRS in a timely manner.

Dividends received by a non-U.S. holder that are effectively connected with a U.S. trade or business conducted by the non-U.S. holder, and if required by an applicable income tax treaty between the United States and the non-U.S. holder's country of residence, are attributable to a permanent establishment maintained by the non-U.S. holder in the United States, are not subject to U.S. withholding tax. To obtain this exemption, a non-U.S. holder must provide us

or our paying agent with an IRS Form W-8ECI properly certifying such exemption. Such effectively connected dividends, although not subject to withholding tax, are taxed at the same graduated rates applicable to U.S. persons, net of certain deductions and credits. In addition to being taxed at graduated tax rates, dividends received by a corporate non-U.S. holder that are effectively connected with a U.S. trade or business of the corporate non-U.S. holder 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 tax treaty.

Gain on Sale or Other Disposition of Class A Common Stock

Subject to the discussion below under "—Backup Withholding and Information Reporting" and "—Foreign Account Tax Compliance Act," non-U.S. holders will generally not be subject to U.S. federal income tax on any gains realized on the sale, exchange or other disposition of our Class A common stock unless:

- the gain (i) is effectively connected with the conduct by the non-U.S. holder of a U.S. trade or business and (ii) if required by an applicable income tax treaty between the United States and the non-U.S. holder's country of residence, is attributable to a permanent establishment maintained by the non-U.S. holder in the United States (in which case the special rules described below apply);
- the non-U.S. holder is an individual who is present in the United States for 183 days or more in the taxable year of the sale, exchange or other disposition of our Class A common stock, and certain other requirements are met (in which case the gain would be subject to a flat 30% tax, or such reduced rate as may be specified by an applicable income tax treaty, which may be offset by U.S. source capital losses, even though the individual is not considered a resident of the United States); or
- the rules of the Foreign Investment in Real Property Tax Act ("FIRPTA"), treat the gain as effectively connected with a U.S. trade or business.

The FIRPTA rules may apply to a sale, exchange or other disposition of our Class A common stock if we are, or were within the shorter of the five-year period preceding the disposition and the non-U.S. holder's holding period, a "U.S. real property holding corporation" ("USRPHC"). In general, we would be a USRPHC if interests in U.S. real estate comprised at least half of the value of our business assets. We do not believe that we are a USRPHC and we do not anticipate becoming one in the future. Even if we are or were to become a USRPHC, gain arising from the sale or other taxable disposition by a non-U.S. holder will not be subject to U.S. federal income tax if our Class A common stock is "regularly traded," as defined by applicable Treasury Regulations, on an established securities market , and such non-U.S. holder owned, actually and constructively, 5% or less of our Class A common stock throughout the shorter of the five-year period ending on the date of the sale or other taxable disposition or the non-U.S. holder's holding period.

If any gain from the sale, exchange or other disposition of our Class A common stock, (i) is effectively connected with a U.S. trade or business conducted by a non-U.S. holder and (ii) if required by an applicable income tax treaty between the United States and the non-U.S. holder's country of residence, is attributable to a permanent establishment maintained by such non-U.S. holder in the United States, then the gain generally will be subject to U.S. federal income tax at the same graduated rates applicable to U.S. persons, net of certain deductions and credits. If the non-U.S. holder is a corporation, under certain circumstances, that portion of its earnings and profits that is effectively connected with its U.S. trade or business, subject to certain adjustments, generally would be subject also to a "branch profits tax" at a rate of 30% or such lower rate as may be specified by an applicable income tax treaty.

Backup Withholding and Information Reporting

We must report annually to the IRS and to each non-U.S. holder the amount of dividends paid to, and the tax withheld with respect to, each non-U.S. holder. These reporting requirements apply regardless of whether withholding was reduced or eliminated by an applicable tax treaty. Copies of this information reporting may also be made available under the provisions of a specific tax treaty or agreement with the tax authorities in the country in which the non-U.S. holder resides or is established.

A non-U.S. holder will generally be subject to backup withholding for dividends on our Class A common stock paid to such holder unless such holder certifies under penalties of perjury that, among other things, it is a non-U.S. holder (and the payer does not have actual knowledge or reason to know that such holder is a U.S. person) or otherwise establishes an exemption.

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 its shares of Class A common stock through a U.S. broker or the U.S. offices of a foreign broker, the broker will generally be required to report the amount of proceeds paid to the non-U.S. holder to the IRS and impose backup withholding on that amount unless such non-U.S. holder provides appropriate certification to the broker of its status as a non-U.S. holder (and the payer does not have actual knowledge or reason to know that such holder is a U.S. person) or otherwise establishes an exemption.

Backup withholding is not an additional income tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder generally can be credited against the non-U.S. holder's U.S. federal income tax liability, if any, or refunded, provided that the required information is furnished to the IRS in a timely manner. Non-U.S. holders should consult their tax advisors regarding the application of the information reporting and backup withholding rules to them.

Foreign Account Tax Compliance Act

Under the Foreign Account Tax Compliance Act, or FATCA, withholding tax of 30% applies to certain payments to foreign financial institutions, investment funds and certain other non-U.S. persons that fail to comply with certain information reporting and certification requirements pertaining to their direct and indirect U.S. securityholders and/or U.S. accountholders and do not otherwise qualify for an exemption. Under applicable Treasury Regulations and IRS guidance, this withholding currently applies to payments of dividends, if any, on, and, subject to the proposed Treasury Regulations discussed below, gross proceeds from the sale or other disposition of, our Class A common stock. An intergovernmental agreement between the United States and a foreign country may modify the requirements described in this paragraph.

While, beginning on January 1, 2019, withholding under FATCA would have applied also to payments of gross proceeds from the sale or other disposition of our Class A common stock, proposed Treasury Regulations eliminate FATCA withholding on payments of gross proceeds. Taxpayers generally may rely on these proposed Treasury Regulations until final Treasury Regulations are issued.

Prospective investors are encouraged to consult with their own tax advisors regarding the possible implications of FATCA on their investment in our Class A common stock.

Federal Estate Tax

Class A Common stock we have issued that is owned (or treated as owned) by an individual who is not a citizen or a resident of the United States (as defined for U.S. federal estate tax purposes) at the time of death will be included in the individual's gross estate for U.S. federal estate tax purposes unless an applicable estate or other tax treaty provides otherwise, and therefore may be subject to U.S. federal estate tax.

PROSPECTIVE INVESTORS SHOULD CONSULT THEIR OWN TAX ADVISORS REGARDING THE APPLICATION OF THE U.S. WITHHOLDING RULES (INCLUDING UNDER FATCA) AND OTHER U.S. TAX RULES TO THEIR INVESTMENT IN OUR CLASS A COMMON STOCK. THE PRECEDING DISCUSSION OF U.S. FEDERAL TAX CONSIDERATIONS IS FOR GENERAL INFORMATION PURPOSES ONLY. IT IS NOT TAX ADVICE. EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR REGARDING THE PARTICULAR U.S. FEDERAL, GIFT, ESTATE, STATE, LOCAL, AND NON-U.S. TAX CONSEQUENCES OF PURCHASING, HOLDING, AND DISPOSING OF OUR CLASS A COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAWS.

Underwriting

UNDERWRITING Under the terms and subject to the conditions in an underwriting agreement dated the date of this prospectus, the underwriters named below, for whom Morgan Stanley & Co. LLC, Citigroup Global Markets Inc., and J.P. Morgan Securities LLC are acting as representatives, have severally agreed to purchase, and we and the selling stockholder have agreed to sell to them, severally, the number of shares indicated below:

Name	Number of Shares
Morgan Stanley & Co. LLC	
Citigroup Global Markets Inc.	
J.P. Morgan Securities LLC	
Total:	

The underwriters and the representatives are collectively referred to as the "underwriters" and the "representatives," respectively. The underwriters are offering the Class A common stock subject to their acceptance of the Class A common stock from us and the selling stockholder and subject to prior sale. The underwriting agreement provides that the obligations of the several underwriters to pay for and accept delivery of the Class A common stock offered by this prospectus are subject to the approval of certain legal matters by their counsel and to certain other conditions. The underwriters are obligated to take and pay for all of the Class A common stock offered by this prospectus if any such shares are taken. However, the underwriters are not required to take or pay for the shares covered by the underwriters' over-allotment option described below.

The underwriters initially propose to offer part of the Class A common stock directly to the public at the offering price listed on the cover page of this prospectus and part to certain dealers. After the initial offering of the Class A common stock, the offering price and other selling terms may from time to time be varied by the representatives.

The selling stockholder has granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase up to additional Class A common stock at the public offering price listed on the cover page of this prospectus, less underwriting discounts and commissions. The underwriters may exercise this option solely for the purpose of covering over-allotments, if any, made in connection with the offering of the Class A common stock offered by this prospectus. To the extent the option is exercised, each underwriter will become obligated, subject to certain conditions, to purchase about the same percentage of the additional Class A common stock as the number listed next to the underwriter's name in the preceding table bears to the total number of Class A common stock listed next to the names of all underwriters in the preceding table.

The following table shows the per share and total public offering price, underwriting discounts and commissions, and proceeds before expenses to us and the selling stockholder. These amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase up to an additional Class A common stock.

		Total	
	Per Share	No Exercise	Full Exercise
Public offering price		$$	$
Underwriting discounts and commissions to be paid by:		$$	$
Us		$$	$
The selling stockholder		$$	$
Proceeds, before expenses, to us		$$	$
Proceeds, before expenses, to the selling stockholder		$$	$

The estimated offering expenses payable by us, exclusive of the underwriting discounts and commissions, are approximately $ million. We have agreed to reimburse the underwriters for expenses relating to clearance of this offering with the Financial Industry Regulatory Authority up to $.

We have applied to list our Class A common stock on the Nasdaq Global Select Market under the trading symbol "TSP."

The underwriters have informed us that they do not intend sales to discretionary accounts to exceed 5% of the total number of Class A common stock offered by them.

We have also agreed to reimburse the underwriters for certain legal fees incurred by them in connection with the directed share program.

We and our directors and officers and the holders of substantially all of our outstanding shares and share options have agreed that, without the prior written consent of Morgan Stanley & Co. LLC on behalf of the underwriters, we and they will not, and will not publicly disclose an intention to, during the period ending on the later of (i) the opening of trading on the second trading day immediately following our public release of earnings for the second quarter following the most recent period for which financial statements are included in this prospectus and (ii) the 121st day after the date of this prospectus (assuming that as of such date we have publicly released our earnings for the second quarter following the most recent period for which financial statements are included in this prospectus) (such period, the "restricted period"):

- 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, lend or otherwise transfer or dispose of, directly or indirectly, any Class A common stock or any securities convertible into or exercisable or exchangeable for Class A common stock;
- file any registration statement with the Securities and Exchange Commission relating to the offering of any Class A common stock or any securities convertible into or exercisable or exchangeable for Class A common stock; or
- enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the Class A common stock.

whether any such transaction described above is to be settled by delivery of Class A common stock or such other securities, in cash or otherwise. In addition, we and each such person agrees that, without the prior written consent of Morgan Stanley & Co. LLC on behalf of the underwriters, we or such other person will not, during the restricted period, make any demand for, or exercise any right with respect to, the registration of any Class A common stock or any security convertible into or exercisable or exchangeable for Class A common stock.

Notwithstanding the foregoing,

(A) current and former employees, consultants, and contractors (but excluding current directors and executive officers) (the "Employee Stockholders") may, during a 7-trading day period beginning at the commencement of trading on the first trading day on which our common stock is traded on the Nasdaq Global Select Market, sell shares of our outstanding Class A common stock and securities directly or indirectly convertible into or exchangeable or exercisable for our Class A common stock necessary to (x) in the case of vested restricted stock units or share value awards, satisfy the applicable income tax withholding and remittance obligations in connection with the vesting and settlement of restricted stock units or share value awards, and (y) in the case of vested stock options, satisfy applicable income tax withholding and remittance obligations in connection with the exercise of such vested stock options and to permit the Employee Stockholder to pay the aggregate exercise price of such vested stock options; and

(B) Employee Stockholders may sell up to % of shares of our outstanding Class A common stock and securities directly or indirectly convertible into or exchangeable or exercisable for our Class A common stock held by Employee Stockholders not previously sold pursuant to clause (A) above beginning at the opening of trading on the second trading day immediately following our public release of earnings for the first quarter following the most recent period for which financial statements are included in this prospectus (such release, our "first post-public earnings release"), provided that the last reported closing price of our common stock on the Nasdaq Global Select Market is at least 33% greater than the initial public offering price per share set forth on the cover page of this prospectus:

- for any 10 trading days out of the 15-consecutive full trading day period ending on the closing of the first full trading day immediately following our first post-public offering earnings release; and
- at the closing of the first full trading day immediately following our first post-public offering earnings release;

further provided, that no sales pursuant to this clause (B) will be permitted until at least 60 days after the date of this prospectus.

The restrictions described in the immediately preceding paragraphs do not apply to our directors, officers and other securityholders with respect to:

(1) transactions relating to Class A common stock or other securities acquired in open market transactions after the completion of the offering of the shares, provided that no filing under Section 16(a) of the Exchange Act is required or voluntarily made in connection with subsequent sales of the Class A common stock or other securities acquired in such open market transactions during the restricted period;

(2) the sale of Class A common stock pursuant to the underwriting agreement;

(3) transfers of Class A common stock or any security convertible into Class A common stock (i) as a bona fide gift, (ii) to an immediate family member or to any trust for the direct or indirect benefit of the lock-up party or an immediate family member of the lock-up party, (iii) to any entity controlled or managed, or under common control or management by, the lock-up party or (iv) for bona fide estate planning purposes; provided, such transfer does not involve a disposition for value;

(4) the transfer of Class A common stock or any security convertible into Class A common stock that occurs by operation of law pursuant to a qualified domestic order or in connection with a divorce settlement or other court order;

(5) (i) the issuance of Class A common stock by us to the lock-up party upon the vesting, exercise or settlement of options, restricted share units, share value awards or other equity awards granted under a share incentive plan or other equity award plan, which plan is described herein, or the exercise of warrants outstanding and which are described herein (ii) the transfer or other disposition of Class A common stock or any securities convertible into Class A common stock to us upon a vesting or settlement event of our securities or upon the "net" or "cashless" exercise of options, restricted share units, share value awards, warrants or other equity awards to the extent permitted by the instruments representing such securities (including any transfer to us necessary to generate such amount of cash needed for the payment of taxes, including estimated taxes, due as a result of such vesting or exercise whether by means of a "net settlement" or otherwise), so long as such "cashless" or "net" exercise is effected solely by the surrender of outstanding options, restricted share units, share value awards, warrants or other equity awards (or underlying Class A common stock) to us, and our cancellation of all or a portion thereof to pay the exercise price and/or withholding tax obligations;

(6) the reclassification and conversion of shares of our outstanding redeemable convertible preferred stock into Class A common stock prior to or in connection with the consummation of this offering, provided

that, in each case, such shares remain subject to the terms of the lock-up agreement; provided that (i) such conversion or reclassification is disclosed herein and (ii) any such Class A common stock received upon such conversion or reclassification shall be subject to the terms of the lock-up agreement

(7) if the lock-up party is a corporation, partnership, limited liability company, trust or other business entity, any transfer or distribution of Class A common stock or any security convertible into or exercisable or exchangeable for Class A common stock to limited partners, members, managers, stockholders or holders of similar equity interests in the lock-up party or to another corporation, partnership, limited liability company, trust or other business entity that is an affiliate (as defined in Rule 405 as promulgated under the Securities Act of 1933, as amended) of the lock-up party or to any investment fund or other entity controlled or managed by the lock-up party or affiliates of the lock-up party;

(8) transfers of Class A common stock pursuant to a bona fide third-party tender offer, merger, consolidation or other similar transaction after the completion of this offering that is approved by our board of directors and made to all holders of our share capital involving a change of control; provided that such plan does not provide for the transfer of Class A common stock during the restricted period;

(9) facilitating the establishment of a trading plan on behalf of a stockholder, officer or director of the Company pursuant to Rule 10b5-1 under the Exchange Act for the transfer of Class A common stock; provided that such plan does not provide for the transfer of Class A common stock during the restricted period;

(10) a sale of Class A common stock underlying restricted share units, share value awards or similar equity awards that settle in Class A common stock held by the lock-up party that have vested or vest prior to or during the restricted period and settle during the restricted period, but solely to the extent necessary to satisfy income tax withholding and remittance obligations in connection with the vesting or settlement of such restricted share units, share value awards or other similar equity awards that are outstanding as described herein; or

(11) the sale of Class A common stock by the selling stockholder in this offering.

provided that:

- in the case of any transfer or distribution pursuant to clauses (3), (4), (5)(i) and (7) above, each donee, distributee or transferee shall sign and deliver a lock-up agreement,
- in the case of any transfer or distribution pursuant to clauses (3) and (7) above, no filing under the Exchange Act reporting a reduction in beneficial ownership of Class A common stock would be required or be voluntarily made, and
- in the case of any transfer or distribution pursuant to clauses (4), (6) and (8) through (10) above, any filing required by the Exchange Act shall clearly indicate in the footnotes thereto that the such transfer or distribution is being made pursuant to the circumstances described in the applicable clause.

In our case, such restrictions shall not apply to:

- the sale of shares to the underwriters;
- the issuance by the Company of Class A common stock upon the exercise of an option or a warrant or the conversion of a security outstanding on the date of this prospectus of which the underwriters have been advised in writing; or
- facilitating the establishment of a trading plan on behalf of a stockholder, officer or director of the Company pursuant to Rule 10b5-1 under the Exchange Act for the transfer of Class A common stock, provided that (i) such plan does not provide for the transfer of Class A common stock during the restricted period and (ii) to the extent a public announcement or filing under the Exchange Act, if any,

is required of or voluntarily made by or on behalf of the Company regarding the establishment of such plan, such announcement or filing shall include a statement to the effect that no transfer of Class A common stock may be made under such plan during the restricted period.

Morgan Stanley & Co. LLC, in their sole discretion, may release the Class A common stock and other securities subject to the lock-up agreements described above in whole or in part at any time.

In order to facilitate the offering of the Class A common stock, the underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the Class A common stock. Specifically, the underwriters may sell more shares than they are obligated to purchase under the underwriting agreement, creating a short position. A short sale is covered if the short position is no greater than the number of shares available for purchase by the underwriters under the over-allotment option. The underwriters can close out a covered short sale by exercising the over-allotment option or purchasing shares in the open market. In determining the source of shares to close out a covered short sale, the underwriters will consider, among other things, the open market price of shares compared to the price available under the over-allotment option. The underwriters may also sell shares in excess of the over-allotment option, creating a naked short position. The underwriters must close out any naked short position by purchasing shares in the open market. 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 after pricing that could adversely affect investors who purchase in this offering. As an additional means of facilitating this offering, the underwriters may bid for, and purchase, Class A common stock in the open market to stabilize the price of the Class A common stock. These activities may raise or maintain the market price of the Class A common stock above independent market levels or prevent or retard a decline in the market price of the Class A common stock. The underwriters are not required to engage in these activities and may end any of these activities at any time.

We, the selling stockholder, and the underwriters have agreed to indemnify each other against certain liabilities, including liabilities under the Securities Act.

A prospectus in electronic format may be made available on websites maintained by one or more underwriters participating in this offering. The representatives may agree to allocate a number of Class A common stock to underwriters for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters that may make Internet distributions on the same basis as other allocations.

Other Relationships

We have granted Morgan Stanley & Co. LLC ("Morgan Stanley") a right of first refusal, subject to certain limitations, to provide services if we decide to pursue certain transactions, including a sale of greater than 50% of our shares, on or prior to May 14, 2021. The terms of any such engagement of the representative will be determined by separate agreement. In accordance with applicable rules of the Financial Industry Regulatory Authority, Inc. ("FINRA"), Morgan Stanley does not have more than one opportunity to waive or terminate the right of participation in consideration of any payment or fee.

The underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. Certain of the underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various financial advisory and investment banking services for us, for which they received or will receive customary fees and expenses.

In addition, in the ordinary course of their various business activities, the underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve our securities and instruments. The underwriters and their respective affiliates may also make investment recommendations or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long or short positions in such securities and instruments.

Pricing of the Offering

Prior to this offering, there has been no public market for our Class A common stock. The initial public offering price was determined by negotiations between us and the representatives. Among the factors considered in determining the initial public offering price were our future prospects and those of our industry in general, our sales, earnings and certain other financial and operating information in recent periods, and the price-earnings ratios, price-sales ratios, market prices of securities, and certain financial and operating information of companies engaged in activities similar to ours.

Directed Share Program

At our request, the DSP Underwriters have reserved up to shares of common stock, or % of the shares offered by this prospectus, for sale through a directed share program at the initial public offering price to individuals, including certain of our senior management and employees, as well as friends and family members of our executive officers, founders and certain members of senior management, and persons with whom we have a business relationship, including certain customers and partners. If purchased by persons who are not directors, officers, existing equityholders or employees, the shares will not be subject to a lock-up restriction. If purchased by any directors, officers, employee or existing equityholder, the shares will be subject to a 180-day lock-up restriction. The number of shares of common stock available for sale to the general public will be reduced by the number of reserved shares sold to these individuals. Any reserved shares of our common stock that are not so purchased will be offered by the DSP Underwriters to the general public on the same terms as the other shares of our Class A common stock offered by this prospectus. We have agreed to indemnify the DSP Underwriters against certain liabilities and expenses, including liabilities under the Securities Act, in connection with sales of the reserved shares.

Selling Restrictions

European Economic Area

In relation to each Member State of the European Economic Area, or each, a Relevant State, no securities have been offered or will be offered pursuant to the offering to the public in that Relevant State prior to the publication of a prospectus in relation to the securities which has been approved by the competent authority in that Relevant State or, where appropriate, approved in another Relevant State and notified to the competent authority in that Relevant State, all in accordance with the Prospectus Regulation, except that offers of securities may be made to the public in that Relevant State at any time under the following exemptions under the Prospectus Regulation:

(a)	to any legal entity which is a qualified investor as defined under the Prospectus Regulation;
(b)	to fewer than 150 natural or legal persons (other than qualified investors as defined under the Prospectus Regulation), subject to obtaining the prior consent of the representatives; or
(c)	in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of shares shall require us or any of our representatives to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

For the purposes of this provision, the expression an "offer to the public" in relation to any shares in any Relevant State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase any shares, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129 (as amended).

United Kingdom

In relation to the United Kingdom, no shares have been offered or will be offered pursuant to this offering to the public in the United Kingdom prior to the publication of a prospectus in relation to the shares that either (i) has been approved by the Financial Conduct Authority, or (ii) is to be treated as if it had been approved by the Financial Conduct Authority in accordance with the transitional provision in Regulation 74 of the Prospectus (Amendment etc.) (EU Exit) Regulations 2019, except that offers of shares may be made to the public in the United Kingdom at any time under the following exemptions under the UK Prospectus Regulation:

(a)	to any legal entity which is a qualified investor as defined under Article 2 of the UK Prospectus Regulation;
(b)	to fewer than 150 natural or legal persons (other than qualified investors as defined under Article 2 of the UK Prospectus Regulation), subject to obtaining the prior consent of representatives for any such offer; or
(c)	in any other circumstances falling within Section 86 of the Financial Services and Markets Act 2000 (the "FSMA"),

provided that no such offer of the shares shall require the Issuer or any representative to publish a prospectus pursuant to Section 85 of the FSMA or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation.

For the purposes of this provision, the expression an "offer to the public" in relation to the shares in the United Kingdom means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares and the expression "UK Prospectus Regulation" means Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018.

In addition, this prospectus is only being distributed to, and is only directed at, and any investment or investment activity to which this prospectus relates is available only to, and will be engaged in only with, persons who are outside the United Kingdom or persons in the United Kingdom (i) having professional experience in matters relating to investments who fall within the definition of "investment professionals" in Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order"); or (ii) who are high net worth entities falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons"). Persons who are not relevant persons should not take any action on the basis of this prospectus and should not act or rely on it.

Switzerland

This prospectus is not intended to constitute an offer or solicitation to purchase or invest in the Class A common stock. The Class A common stock may not be publicly offered, directly or indirectly, in Switzerland within the meaning of the Swiss Financial Services Act ("FinSA"), and no application has or will be made to admit the Class A common stock to trading on any trading venue (exchange or multilateral trading facility) in Switzerland. Neither this prospectus nor any other offering or marketing material relating to the Class A common stock constitutes a prospectus pursuant to the FinSA, and neither this prospectus nor any other offering or marketing material relating to the Class A common stock may be publicly distributed or otherwise made publicly available in Switzerland.

Canada

The Class A common stock 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 Class A common stock 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 (or, in the case of securities issued or guaranteed by the government of a non-Canadian jurisdiction, section 3A.4) 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.

Cayman Islands

This prospectus does not constitute a public offer of the Class A common stock, whether by way of sale or subscription, in the Cayman Islands.

Hong Kong

Our Class A common stock may not be offered or sold by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap.32, Laws of Hong Kong), (ii) to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap.571, Laws of Hong Kong) and any rules made thereunder or (iii) in other circumstances which do not result in the document being a "prospectus" within the meaning of the Companies Ordinance (Cap.32, Laws of Hong Kong), and no advertisement, invitation or document relating to our Class A common stock may be issued or may be in the possession of any person for the purpose of issue (in each case 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 in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to our Class A common stock which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap.571, Laws of Hong Kong) and any rules made thereunder.

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 our Class A common stock may not be circulated or distributed, nor may the our Class A common stock 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 (SFA) (ii) to a relevant person, 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 our Class A common stock are subscribed or purchased under Section 275 by a relevant person which is: (i) a corporation (which is not an accredited investor) 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 (ii) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary is an accredited investor, shares, debentures and units of shares and debentures of that corporation or the beneficiaries' rights and interest in that trust shall not be transferable for six months after that corporation or that trust has acquired our Class A common stock under Section 275 except: (i) to an institutional investor under Section 274 of the SFA or to a relevant person, or any person pursuant to Section 275(1A), and in accordance with the conditions, specified in Section 275 of the SFA; (ii) where no consideration is given for the transfer; (iii) where the transfer is by operation of law; (iv) as specified in Section 276(7) of the SFA; or (v) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Solely for the purposes of its obligations pursuant to Section 309B of the SFA, we have determined, and hereby notify all relevant persons (as defined in the CMP Regulations 2018), that the Class A common stock are "prescribed capital markets products" (as defined in the CMP Regulations 2018) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

Dubai International Financial Centre

This prospectus relates to an Exempt Offer in accordance with the Offered Securities Rules of the Dubai Financial Services Authority (the DFSA). This prospectus is intended for distribution only to persons of a type specified in the Offered Securities Rules of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for the prospectus. The Class A common stock to which this prospectus relates may be illiquid or subject to restrictions on its resale. Prospective purchasers of the Class A common stock offered should conduct their own due diligence on the Class A common stock. If you do not understand the contents of this prospectus you should consult an authorized financial advisor.

Japan

No registration pursuant to Article 4, paragraph 1 of the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948, as amended) (the "FIEL") has been made or will be made with respect to the solicitation of the application for the acquisition of the Class A common stock.

Accordingly, the Class A common stock have not been, directly or indirectly, offered or sold and will not be, directly or indirectly, offered or sold 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 re-sale, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan except pursuant to an exemption from the registration requirements, and otherwise in compliance with, the FIEL and the other applicable laws and regulations of Japan.

For Qualified Institutional Investors ("QII") Please note that the solicitation for newly-issued or secondary securities (each as described in Paragraph 2, Article 4 of the FIEL) in relation to the Class A common stock constitutes either a "QII only private placement" or a "QII only secondary distribution" (each as described in Paragraph 1, Article 23-13 of the FIEL). Disclosure regarding any such solicitation, as is otherwise prescribed in Paragraph 1, Article 4 of the FIEL, has not been made in relation to the Class A common stock. The Class A common stock may only be transferred to QIIs.

For Non-QII Investors Please note that the solicitation for newly-issued or secondary securities (each as described in Paragraph 2, Article 4 of the FIEL) in relation to the Class A common stock constitutes either a "small number private placement" or a "small number private secondary distribution" (each as is described in Paragraph 4, Article 23-13 of the FIEL). Disclosure regarding any such solicitation, as is otherwise prescribed in Paragraph 1, Article 4 of the FIEL, has not been made in relation to the Class A common stock. The Class A common stock may only be transferred en bloc without subdivision to a single investor.

Australia

No placement document, prospectus, product disclosure statement or other disclosure document has been lodged with the Australian Securities and Investments Commission ("ASIC"), in relation to the offering. This prospectus does not constitute a prospectus, product disclosure statement or other disclosure document under the Corporations Act 2001 (the "Corporations Act"), and does not purport to include the information required for a prospectus, product disclosure statement or other disclosure document under the Corporations Act.

Any offer in Australia of the Class A common stock may only be made to persons (the "Exempt Investors") who are "sophisticated investors" (within the meaning of section 708(8) of the Corporations Act), "professional investors" (within the meaning of section 708(11) of the Corporations Act) or otherwise pursuant to one or more exemptions contained in section 708 of the Corporations Act so that it is lawful to offer the Class A common stock without disclosure to investors under Chapter 6D of the Corporations Act.

The Class A common stock applied for by Exempt Investors in Australia must not be offered for sale in Australia in the period of 12 months after the date of allotment under the offering, except in circumstances where disclosure to investors under Chapter 6D of the Corporations Act would not be required pursuant to an exemption under section 708 of the Corporations Act or otherwise or where the offer is pursuant to a disclosure document which complies with Chapter 6D of the Corporations Act. Any person acquiring Class A common stock must observe such Australian on-sale restrictions.

This prospectus contains general information only and does not take account of the investment objectives, financial situation or particular needs of any particular person. It does not contain any securities recommendations or financial product advice. Before making an investment decision, investors need to consider whether the information in this prospectus is appropriate to their needs, objectives and circumstances, and, if necessary, seek expert advice on those matters.

Legal Matters

LEGAL MATTERS We are being represented by Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP with respect to certain legal matters as to United States federal securities and New York State law. The underwriters are being represented by Davis Polk & Wardwell LLP with respect to certain legal matters as to United States federal securities and New York State law.

Experts

EXPERTS

The consolidated financial statements of Tusimple (Cayman) Limited as of December 31, 2019 and 2020, and for each of the years in the three-year period ended December 31, 2020, have been included herein in reliance upon the report of KPMG LLP, independent registered public accounting firm, appearing elsewhere herein, and upon the authority of said firm as experts in accounting and auditing.

Where You Can Find Additional Information

WHERE YOU CAN FIND ADDITIONAL INFORMATION We have filed with the SEC a registration statement on Form S-1 under the Securities Act of 1933, as amended, with respect to the shares of Class A common stock offered by this prospectus. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement, some of which is contained in exhibits and schedules to the registration statement, as permitted by the rules and regulations of the SEC. For further information with respect to us and our shares of Class A common stock, we refer you to the registration statement, including the exhibits filed as a part of the registration statement. Statements contained in this prospectus regarding the contents of any contract or other document are only summaries and are not necessarily complete. With respect to any contract or document that is filed as an exhibit to the registration statement, you should refer to the exhibit for a copy of the contract or document, and each statement in this prospectus regarding that contract or document is qualified in all respects by reference to the exhibit. The SEC maintains a website that contains reports, proxy and information statements, and other information regarding issuers, like us, that file documents electronically with the SEC. The address of that website is www.sec.gov. The information on the SEC's web site is not part of this prospectus, and any references to this web site or any other web site are inactive textual references only.

Upon completion of this offering, we will become subject to the information and reporting requirements of the Exchange Act and, in accordance with this law, will file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements, and other information will be available at the website of the SEC referred to above. We also maintain a website at www.tusimple.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 on, or that can be accessed through, our website is not a part of this prospectus. Investors should not rely on any such information in deciding whether to purchase our shares of Class A common stock. We have included our website address in this prospectus solely as an inactive textual reference.

Index to Consolidated Financial Statements

TUSIMPLE (CAYMAN) LIMITED

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Report of Independent Registered Public Accounting Firm

Report of Independent Registered Public Accounting Firm To the Shareholders and Board of Directors Tusimple (Cayman) Limited:

Opinion on the Consolidated Financial Statements We have audited the accompanying consolidated balance sheets of Tusimple (Cayman) Limited and subsidiaries (the Company) as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive loss, redeemable convertible preferred shares and shareholders' deficit, and cash flows for each of the years in the three-year period ended December 31, 2020, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2020, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

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

/s/ KPMG LLP

We have served as the Company's auditor since 2020.

San Diego, California March 5, 2021

Tusimple (Cayman) Limited

Consolidated Balance Sheets

CONSOLIDATED BALANCE SHEETS

(in thousands, except share data)

	December 31,	
	2019	**2020**
Assets		
Current assets:		
Cash and cash equivalents	$63,610	$310,815
Restricted cash	500	1,536
Accounts receivable, net	127	1,144
Prepaid expenses and other current assets	2,514	2,280
Amounts due from related parties	3,723	3,708
Total current assets	70,474	319,483
Property and equipment, net	22,283	22,116
Other assets	3,787	4,986
Total assets	$96,544	$346,585
LIABILITIES, REDEEMABLE CONVERTIBLE PREFERRED SHARES AND SHAREHOLDER'S DEFICIT		
Current liabilities:		

Accounts payable	$247	$4,542
Amounts due to related parties	7,148	5,715
Accrued expenses and other current liabilities	9,194	22,961
Short-term debt	—	4,623
Warrants liability	—	42,452
Capital lease liabilities, current	706	805
Total current liabilities	17,295	81,098
Capital lease liabilities, noncurrent	4,579	3,767
Other liabilities	348	2,402
Total liabilities	22,222	87,267
Commitments and contingencies (Note 8)		
Redeemable convertible preferred shares, $0.0001 par value; 82,952,136 and 138,102,770 shares authorized as of December 31, 2019 and 2020, respectively; 74,939,388 and 102,074,703 shares issued and outstanding as of December 31, 2019 and 2020, respectively; aggregate liquidation preference of $233,736 and $598,842 as of December 31, 2019 and 2020, respectively	293,736	664,791
Shareholders' deficit:		
Ordinary shares, $0.0001 par value, 417,047,864 and 361,897,230 shares authorized as of December 31, 2019 and 2020, respectively; 56,516,425 and 60,543,337 shares issued and outstanding as of December 31, 2019 and 2020, respectively	6	6
Additional paid-in capital	—	—
Accumulated deficit	(218,718)	(405,178)
Accumulated other comprehensive income	(658)	(301)
Total TuSimple shareholders' deficit	(219,370)	(405,473)
Noncontrolling interests	(44)	—
Total shareholders' deficit	(219,414)	(405,473)
Total liabilities, redeemable convertible preferred shares and shareholders' deficit	$96,544	$346,585

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

Tusimple (Cayman) Limited

Consolidated Statements of Operations

CONSOLIDATED STATEMENTS OF OPERATIONS

(in thousands, except share and per share data)

	Years Ended December 31,		
	2018	**2019**	**2020**
Revenue	$9	$710	$1,843
Costs and expenses:			
Cost of revenue	—	1,595	5,293
Research and development	32,278	63,619	132,001
Sales and marketing	1,085	814	1,313
General and administrative	12,175	21,962	37,300
Total costs and expenses	45,538	87,990	175,907
Loss from operations	(45,529)	(87,280)	(174,064)
Change in fair value of related party convertible loan	—	—	(5,556)
Change in fair value of warrants liability	—	—	1,816
Other income (expense), net	495	2,397	(66)
Loss before provision for income taxes	(45,034)	(84,883)	(177,870)
Provision for income taxes	—	—	—
Net loss	(45,034)	(84,883)	(177,870)

Net loss attributable to noncontrolling interests	16	43	—
Net loss attributable to TuSimple	$(45,018)	$(84,840)	$(177,870)
Accretion of redeemable convertible preferred shares	—	(201)	(20,959)
Deemed dividend on exchange of Series A-2 redeemable convertible preferred shares for ordinary shares	—	(60,000)	—
Net loss attributable to ordinary shareholders	$(45,018)	$(145,041)	$(198,829)
Net loss per share attributable to ordinary shareholders, basic and diluted	$(0.70)	$(2.47)	$(3.37)
Weighted-average shares used in computing net loss per share attributable to ordinary shareholders, basic and diluted	64,734,628	58,700,441	58,929,271

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

Tusimple (Cayman) Limited

Consolidated Statements of Comprehensive Loss

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS

(in thousands)

	Years Ended December 31,		
	2018	2019	2020
Net loss	$(45,034)	$(84,883)	$(177,870)
Other comprehensive loss:			
Foreign currency translation adjustment	41	(208)	401
Comprehensive loss	(44,993)	(85,091)	(177,469)
Less: Comprehensive loss attributable to noncontrolling interests	(16)	(33)	—
Comprehensive loss attributable to TuSimple	$(44,977)	$(85,058)	$(177,469)

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

Tusimple (Cayman) Limited

Consolidated Statements of Redeemable Convertible Preferred Shares and Shareholders' Deficit

CONSOLIDATED STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED SHARES AND SHAREHOLDERS' DEFICIT

(in thousands, except share data)

	Redeemable Convertible Preferred Shares		Ordinary Shares						
	Shares	Amount	Shares	Amount	Additional Paid-inCapital	Accumulated OtherComprehensiveLoss	Accumulated Deficit	Total Tusimple (Cayman) LimitedShareholders'Deficit	Noncontro Interests
Balance as of December 31, 2017	48,538,413	$86,236	64,734,628	$6	$—	$(481)	$(28,659)	$(29,134)	$5
Issuance of Series D-1 redeemable convertible preferred shares	11,710,939	95,000	—	—	—	—	—	—	—
Foreign currency translation adjustment	—	—	—	—	—	41	—	41	—
Net loss	—	—	—	—	—	—	(45,018)	(45,018)	(16)
Balance as of December 31, 2018	60,249,352	$181,236	64,734,628	$6	$—	$(440)	$(73,677)	$(74,111)	$(11)

Exchange of Series A-2 redeemable convertible preferred shares for ordinary shares	8,218,203	60,000	(8,218,203)	—	—	—	(60,000)	(60,000)	—
Issuance of Series D-1 redeemable convertible preferred shares, net of issuance costs	6,471,833	52,299	—	—	—	—	—	—	—
Accretion of Series D-1 redeemable convertible preferred shares to redemption value	—	201	—	—	—	—	(201)	(201)	—
Foreign currency translation adjustment	—	—	—	—	—	(218)	—	(218)	10
Net loss	—	—	—	—	—	—	(84,840)	(84,840)	(43)
Balance as of December 31, 2019	74,939,388	$293,736	56,516,425	$6	$—	$(658)	$(218,718)	$(219,370)	$(44)
Issuance of Series D-1 redeemable convertible preferred shares, net of issuance costs	1,854,177	3,098	—	—	—	—	—	—	—
Reclassification of Series D-1 redeemable convertible preferred share warrants from equity to liabilities	—	—	—	—	(394)	—	—	(394)	—
Issuance of Series D-1 redeemable convertible preferred shares from the exercise of warrants	308,182	2,894	—	—	—	—	—	—	—
Issuance of Series E redeemable convertible preferred shares, net of issuance costs	21,044,019	288,548	—	—	—	—	—	—	—
Conversion of related party convertible loan to Series E-1 redeemable convertible preferred shares	3,928,937	55,556	—	—	—	—	—	—	—
Issuance of ordinary shares from exercise of options	—	—	2,127,232	—	—	—	—	—	—
Issuance of restricted ordinary shares	—	—	1,899,680	—	—	—	—	—	—
Accretion of redeemable convertible preferred shares to redemption value	—	20,959	—	—	(12,369)	—	(8,590)	(20,959)	—
Share-based compensation	—	—	—	—	12,763	—	—	12,763	—

Acquisition of noncontrolling interest in subsidiary	—	—	—	—	—	(44)	—	(44)	44
Foreign currency translation adjustment	—	—	—	—	—	401	—	401	—
Net loss	—	—	—	—	—	—	(177,870)	(177,870)	—
Balance as of December 31, 2020	102,074,703	$664,791	60,543,337	$6	$—	$(301)	$(405,178)	$(405,473)	$—

The accompanying notes are an integral part of these consolidated financial statements

Tusimple (Cayman) Limited

Consolidated Statements of Cash Flows

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)

	Years Ended December 31,		
	2018	**2019**	**2020**
Cash flows from operating activities:			
Net loss	$(45,034)	$(84,883)	$(177,870)
Adjustments to reconcile net loss to net cash used in operating activities			
Share-based compensation	—	—	12,763
Accretion of asset retirement obligations	14	19	35
Depreciation and amortization	2,525	5,565	7,683
Loss on disposal of property and equipment	24	873	134
Non-cash research and development expense	—	—	32,325
Change in fair value of related party convertible loan	—	—	5,556
Change in fair value of warrants liability	—	—	(1,816)
Changes in operating assets and liabilities:			
Accounts receivable	—	(116)	(1,004)
Prepaid expenses and other current assets	(886)	(1,539)	274
Other assets	(2,023)	(941)	(682)
Accounts payable	108	139	4,196
Amounts due to related parties	61	143	1,150
Accrued expenses and other current liabilities	1,691	5,012	13,112
Other liabilities	673	(605)	296
Net cash used in operating activities	(42,847)	(76,333)	(103,848)
Cash flows from investing activities:			
Proceeds from maturity of time deposits	51,800	—	—
Purchases of short-term investments	(699)	—	—
Proceeds from maturity of short-term investments	821	—	—
Advances to related parties	—	(8)	—
Repayments from advances to related parties	—	—	8
Purchases of property and equipment	(10,009)	(10,328)	(4,303)
Purchases of intangible assets	—	(161)	(306)
Proceeds from disposal of property and equipment	9	62	189
Net cash provided by (used in) investing activities	41,922	(10,435)	(4,412)

Cash flows from financing activities:			
Proceeds from issuance of redeemable convertible preferred shares	95,000	52,299	291,646
Proceeds from exercise of warrants for redeemable convertible preferred shares	—	—	2,500
Proceeds from issuance of related party convertible loan	—	—	50,000
Proceeds from issuance of warrants	—	—	11,943
Proceeds from related party loan	2,877	—	5,000
Proceeds from short-term debt	—	—	4,134
Payments for guarantee deposit on related party loan	(3,715)	—	—
Principal payments on related party loan	(2,500)	(146)	(7,900)
Principal payments on capital lease obligations	—	(323)	(713)
Principal payments on loans	—	—	(115)
Net cash provided by financing activities	91,662	51,830	356,495
Effect of exchange rate changes on cash, cash equivalents and restricted cash	598	234	6
Net increase (decrease) in cash, cash equivalents and restricted cash	91,335	(34,704)	248,241
Cash, cash equivalents and restricted cash at beginning of period	7,479	98,814	64,110
Cash, cash equivalents and restricted cash at end of period	$98,814	$64,110	$312,351
Supplemental disclosure of cash flow information:			
Cash paid for interest	$—	$496	$1,177
Supplemental schedule of non-cash investing and financing activities:			
Acquisitions of property and equipment included in liabilities	$111	$266	$2,765
Purchase of property and equipment under capital lease	$—	$5,608	$—
Exchange of Series A-2 redeemable convertible preferred shares for ordinary shares	$—	$60,000	$—
Accretion of redeemable convertible preferred shares	$—	$201	$20,959
Reclassification of Series D-1 redeemable convertible preferred share warrants to liabilities	$—	$—	$394
Cashless exercise of share options for ordinary shares	$—	$—	$975
Conversion of related party convertible loan into Series E-1 redeemable convertible preferred shares	$—	$—	$55,556

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

Notes to the Consolidated Financial Statements

TUSIMPLE (CAYMAN) LIMITED

Notes to Financial Statements

Note 1. Description of Business

Description of Business

Tusimple (Cayman) Limited (the “Company” or “TuSimple”) is a limited liability company, which was incorporated in the Cayman Islands on October 25, 2016. The Company is principally engaged in the operation and development of autonomous trucks and an autonomous freight network. The Company is headquartered in San Diego, California.

In February 2021, the Company changed its jurisdiction of incorporation from the Cayman Islands to the State of Delaware and changed its name to TuSimple Holdings Inc. Refer to Note 15. Subsequent Events for further information.

Liquidity and Capital Resources

The Company has incurred losses from operations since inception. The Company incurred net losses of $45.0 million, $84.8 million and $177.9 million for the years ended December 31, 2018, 2019, and 2020, respectively. Accumulated deficit amounts to $218.7 million and $405.2 million as of December 31, 2019 and 2020, respectively. Net cash used in operating activities was $42.8 million, $76.3 million, and $103.8 million for the years ended December 31, 2018, 2019, and 2020, respectively.

The Company’s liquidity is based on its ability to enhance its operating cash flow position, obtain capital financing from equity interest investors and borrow funds to fund its general operations, research and development activities and capital expenditures. The Company’s ability to continue as a going concern is dependent on management’s ability to successfully execute its business plan, which includes increasing revenue while controlling operating costs

and expenses to generate positive operating cash flows and obtaining funds from outside sources of financing to generate positive financing cash flows. As of December 31, 2020, the Company's balance of cash and cash equivalents was $310.8 million.

Based on cash flow projections from operating and financing activities and existing balance of cash and cash equivalents, management is of the opinion that the Company has sufficient funds for sustainable operations and it will be able to meet its payment obligations from operations and debt related commitments for at least one year from the issuance date of its December 31, 2020 consolidated financial statements. Based on the above considerations, the Company's consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and liquidation of liabilities during the normal course of operations.

Note 2. Basis of Presentation and Summary of Significant Accounting Policies

Principles of Consolidation

The accompanying consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP") and reflect the accounts and operations of the Company and its subsidiaries. As of September 2020, all of the Company's subsidiaries are consolidated under the voting interest model. Prior to September 2020, the Company consolidated certain subsidiaries that were considered variable interest entities ("VIEs") for which the Company was the primary beneficiary.

A subsidiary is an entity in which (i) the Company directly or indirectly controls more than 50% of the voting power; or (ii) the Company has the power to appoint or remove the majority of the board of directors or to cast a majority of votes at the meeting of the board of directors or to govern the financial and operating policies of the investee pursuant to a statute or under an agreement among the shareholders or equity holders. A VIE is required to be consolidated if the Company has the power to direct the activities of the VIE that most significantly impacts the VIE's economic performance and the obligation to absorb losses of the VIE that could potentially be significant to the VIE or the right to receive benefits from the VIE that could potentially be significant to the VIE (refer to Note 13. Variable Interest Entities for further information). The Company evaluates its relationships with all VIEs on an ongoing basis to ensure that it continues to be the primary beneficiary. All intercompany transactions and balances have been eliminated upon consolidation.

Use of Estimates

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Significant items subject to such estimates and assumptions include, but are not limited to, the useful lives of long-lived assets, the value of ordinary shares and other assumptions used to measure share-based compensation, the fair value of preferred share warrants and related party convertible loans, the measurement of deferred tax assets, the recoverability of long-lived assets, and the fair value of equipment under capital leases. On an ongoing basis, management evaluates these estimates and assumptions; however, actual results could materially differ from these estimates.

Cash, Cash Equivalents, and Restricted Cash

Cash and cash equivalents consist of cash in banks and highly liquid investments, primarily certificates of deposit, purchased with an original maturity of three months or less.

Restricted cash is pledged as security for letters of credit or other collateral amounts established by the Company for certain lease obligations, corporate credit cards, and other contractual arrangements. Restricted cash is classified as current assets based on the term of the remaining restriction.

A reconciliation of cash, cash equivalents and restricted cash to the consolidated statements of cash flows is as follows (in thousands):

	As of December 31,		
	2018	2019	2020
Cash and cash equivalents	$98,814	$63,610	$310,815
Restricted cash	—	500	1,536
Total cash, cash equivalents and restricted cash	$98,814	$64,110	$312,351

Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The Company measures financial assets and liabilities at fair value at each reporting period using a fair value hierarchy which requires the Company to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. A financial instrument's classification within the fair value hierarchy is based upon the lowest level of input that is significant to the fair value measurement. The levels of inputs used to measure fair value are:

- Level 1 — Observable inputs such as quoted prices in active markets for identical assets or liabilities.
- Level 2 — Observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities in active markets, quoted prices in markets that are not active or inputs other than the quoted prices that are observable either directly or indirectly for the full term of the assets or liabilities.
- Level 3 — Unobservable inputs in which there is little or no market data that are significant to the fair value of the assets or liabilities.

The Company's primary financial instruments include cash equivalents, accounts receivable, accounts payable, amounts due to and from related parties, accrued expenses, short-term debt, the related party convertible loan and the warrants liability. The estimated fair value of cash equivalents, accounts receivable, accounts payable, short-term debt, and accrued expenses approximates their carrying value due to the short-term nature of these instruments. Amounts due from related parties is comprised of a guarantee deposit paid in cash, which approximates fair value. Amounts due to related parties approximate fair value due to the short-term nature of these instruments. The warrants liability and related party convertible loan are stated at fair value on a recurring basis. Refer to Note 4. Fair Value Measurements and Note 7. Debt for further information.

Accounts Receivable, Net

Accounts receivable are recorded at invoiced amounts, net of allowance for doubtful accounts, and do not bear interest. The allowance for doubtful accounts is based on the Company's assessment of the collectability of accounts. The Company regularly reviews the adequacy of the allowance for doubtful accounts based on a combination of factors. In establishing any required allowance, the Company considers historical losses adjusted to take into account current market conditions and customers' financial condition, the amount of any receivables in dispute, the current receivables aging, and the current payment terms. Accounts receivable deemed uncollectable are charged against the allowance for doubtful accounts when identified. The Company did not record an allowance for doubtful accounts as of December 31, 2019 and 2020.

Property and Equipment, Net

Property and equipment, net, are stated at cost less accumulated depreciation or amortization and any recorded impairment. Property and equipment under capital leases are initially recorded at the present value of minimum lease payments. Depreciation and amortization is computed using the straight-line method over the estimated useful lives of the assets, as follows:

Property and Equipment	Estimated Useful Life
Electronic equipment	1-4 years
Validation vehicles	3-6 years
Office and other equipment	4-6 years
Leasehold improvements	Shorter of lease term or estimated useful life of the asset

When assets are retired or otherwise disposed of, the cost, accumulated depreciation and amortization are removed from the accounts and any resulting gain or loss is reflected in the consolidated statements of operations in the period realized. Maintenance and repairs that do not enhance or extend the asset's useful life are charged to operating expense as incurred.

Assets acquired under a capital lease are amortized in a manner consistent with the Company's depreciation policy for owned assets if the lease transfers ownership to the Company by the end of the lease term or contains a bargain purchase option. Otherwise, assets acquired under a capital lease are amortized over the lease term.

Intangible Assets, Net

Intangible assets represent patents, which are carried at cost and amortized on a straight-line basis over their estimated useful lives of 20 years and presented within other assets in the Company's consolidated balance sheet. The Company reviews intangible assets for impairment under the long-lived asset model described in the Impairment of Long-Lived Assets section. There have been no impairment charges recorded in any of the periods presented in the accompanying consolidated financial statements. As of December 31, 2019 and 2020, intangible assets are immaterial.

Impairment of Long-Lived Assets

The Company evaluates long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets held and used is measured by comparison of the carrying amount of an asset or asset group to estimated undiscounted future cash flows expected to be generated by the asset or asset group. If the carrying amount of an asset or asset group exceeds estimated undiscounted future cash flows, then an impairment charge is recognized based on the excess of the carrying amount of the asset or asset group over its fair value. There were no impairment charges recognized related to long-lived assets during the periods presented in the accompanying consolidated financial statements.

Redeemable Convertible Preferred Shares

The Company records redeemable convertible preferred shares at their respective fair values on the dates of issuance, net of issuance costs and proceeds allocated at fair value to other freestanding instruments issued in conjunction with the redeemable convertible preferred shares. The Company has applied the guidance in Accounting Standards Codification ("ASC") 480-10-S99-3A, *SEC Staff Announcement: Classification and Measurement of Redeemable Securities* and has therefore classified all of its outstanding redeemable convertible preferred shares as mezzanine equity as the shares will become redeemable at the option of the holder after a defined period of time and in the event of certain deemed liquidation events considered not solely within the Company's control. The Company has elected to adjust the carrying values of the redeemable convertible preferred shares to the redemption value of such shares immediately upon issuance.

Redeemable Convertible Preferred Share Warrants

Warrants to purchase redeemable convertible preferred shares (collectively, the "preferred share warrants") are freestanding financial instruments classified as warrants liability on the Company's consolidated balance sheets as the underlying preferred shares are considered redeemable or contingently redeemable upon the occurrence of events which are outside of the Company's control. The preferred share warrants are recorded at their respective fair values upon issuance and are subject to remeasurement at the end of each reporting period. Any change in the fair value of the preferred share warrants is

recognized as a component of other income (expense), net in the consolidated statements of operations. The Company adjusts the liability for changes in the fair value of the preferred share warrants until the earlier of the expiration or exercise of the warrants. Refer to Note 9. Redeemable Convertible Preferred Shares and Preferred Share Warrants, and Shareholders' Deficit for further information.

Leases

The Company categorizes leases at their inception as either operating or capital leases. As the lessee, a lease is a capital lease if any of the following conditions exists: a) ownership is transferred to the lessee by the end of the lease term, b) there is a bargain purchase option, c) the lease term is at least 75% of the property's estimated remaining economic life, or d) the present value of the minimum lease payments at the beginning of the lease term is 90% or more of the fair value of the leased property to the lessor at the inception date. A capital lease is accounted for as if there was an acquisition of an asset and an incurrence of an obligation at the inception of the lease. As of December 31, 2019 and 2020, assets under capital leases represent semi-trucks used for research and development and providing freight capacity services. Refer to Note 8. Commitments and Contingencies for further information.

All other leases are accounted for as operating leases wherein lease costs are recognized on a straight-line basis once control of the space is obtained, without regard to deferred payment terms such as rent holidays that defer the commencement date of required payments or escalating rents. Additionally, incentives received are treated as a reduction of costs over the term of the agreement.

Asset Retirement Obligations

The Company's asset retirement obligations relate primarily to its office buildings, of which the majority are leased under long-term arrangements, and, in certain cases, are required to be returned to the landlords in their original condition.

A liability for an asset retirement obligation is recorded in the period in which it is incurred. When an asset retirement obligation liability is initially recorded, the Company capitalizes the cost by increasing the carrying amount of the related leasehold improvement. For each subsequent period, the liability is increased for accretion expense and the capitalized cost is depreciated over the shorter of the useful life of the leasehold improvement or the remaining lease term.

Asset retirement obligations are recorded as long-term liabilities as their expected settlement is beyond twelve months. The following table summarizes the activity of the asset retirement obligations (in thousands):

	Asset Retirement Obligations
Balance as of December 31, 2018	$184
Additions	77
Accretion expense	19
Asset retirement obligations as of December 31, 2019	280
Additions	—
Accretion expense	35
Asset retirement obligations as of December 31, 2020	$315

Value Added Tax

The Company's subsidiaries in the People's Republic of China ("PRC") are subject to value added tax ("VAT"). Entities that are VAT general taxpayers are permitted to offset qualified input VAT paid to suppliers against their output VAT upon receipt of appropriate supplier VAT invoices on an entity-by-entity basis. When the output VAT exceeds the input VAT, the difference is remitted to tax authorities, usually on a monthly basis; whereas when the input VAT exceeds the output VAT, the difference is treated as VAT recoverable which can be carried forward indefinitely to offset future net VAT payables. VAT related to purchases and sales which have not been settled at the balance sheet date is disclosed separately as an asset and liability, respectively, in the consolidated balance sheets.

Revenue Recognition

On January 1, 2019, the Company adopted Accounting Standards Update ("ASU") No. 2014-09, *Revenue from Contracts with Customers* ("Topic 606") as discussed further in Recently Adopted Accounting Pronouncements below. Topic 606 establishes a principle for recognizing revenue upon the transfer of promised goods or services to customers, in an amount that reflects the expected consideration received in exchange for those goods or services. Topic 606 also includes Subtopic 340-40, *Other Assets and Deferred Costs–Contracts with Customers*, which requires the deferral of incremental costs of obtaining a contract with a customer. The impact of adopting Topic 606 on the Company's revenue is not material to any of the periods presented.

The Company recognizes revenue primarily from providing freight capacity services. Revenue is recognized when the customer obtains control of promised services in an amount that reflects the consideration the Company expects to receive in exchange for those services. To date, the Company has not generated revenue from carrier-owned services.

Satisfaction of Performance Obligation A performance obligation is a promise in a contract to transfer a distinct good or service to the customer and is the basis of revenue recognition in accordance with GAAP. To determine the proper revenue recognition method for contracts, the Company evaluates whether two or more contracts should be combined and accounted for as one single contract and whether the combined or single contract should be accounted for as more than one performance. For most of the Company's contracts, the customer contracts with the Company to provide distinct services within a single contract, such as freight capacity services. The majority of the Company's contracts with customers for freight capacity services include only one performance obligation, the freight capacity services. However, if a contract is separated into more than one performance obligation, the Company allocates

the total transaction price to each performance obligation in an amount based on the estimated relative standalone selling prices of the promised goods or services underlying each performance obligation. The Company frequently sells standard freight capacity services with observable standalone sales prices. In these instances, the observable standalone sales are used to determine the standalone selling price.

For freight capacity services, revenue is recognized over time as the Company performs the services in the contract because of the continuous transfer of control to the customer. The Company's customers receive the benefit of the Company's services as the goods are transported from one location to another. If the Company were unable to complete delivery to the final location, another entity would not need to re-perform the freight capacity service already performed. As control transfers over time, revenue is recognized based on the extent of progress towards completion of the performance obligation. The selection of the method to measure progress towards completion requires judgment and is based on the nature of the products or services to be provided. Management estimates the progress based on mileage completed to total mileage to be transported. Revenues are recorded net of value-added taxes and surcharges.

Contract Modification Contracts may be modified to account for changes in the rates the Company charges its customers or to add additional distinct services. The Company considers contract modifications to exist when the modification either creates new enforceable rights and obligations or alters the existing arrangement. Contract modifications that add distinct goods or services are treated as separate performance obligations. Contract modifications that do not add distinct goods or services typically change the price of existing services. These contract modifications are accounted for prospectively as the remaining performance obligations are executed.

Contract Assets and Liabilities Contract assets include billed and unbilled amounts resulting from in-transit packages, as the Company has an unconditional right to payment only once all performance obligations have been completed (e.g., packages have been delivered). Contract assets are generally classified as current and the full balance is converted each quarter based on the short-term nature of the transactions. The Company's contract liabilities consist of advance payments and billings in excess of revenue. The full balance of contract liabilities is converted each quarter based on the short-term nature of the transactions.

The Company did not have any contract assets or contract liabilities as of December 31, 2019 or 2020, respectively.

Payment Terms

Under the typical payment terms of the Company's customer contracts, the customer pays at periodic intervals (i.e. every 14 days, 30 days etc.) for shipments included on invoices received. It is not customary business practice to extend payment terms past 90 days, and as such, the Company does not have a practice of including a significant financing component within its contracts with customers.

Contract Costs

Incremental costs of obtaining contracts are expensed as incurred if the amortization period of the assets is one year or less. These costs are included within cost of revenue in the consolidated statements of operations.

Disaggregation of Revenue and Remaining Performance Obligations The Company earns all of its revenue within the U.S. and there is no revenue related to any other geographies. Additionally, due to the short-term nature of the Company's contracts, there are no remaining unsatisfied performance obligations as of December 31, 2020.

`Cost of Revenue`

Cost of revenue consists primarily of fuel costs, insurance costs, depreciation of property and equipment, labor costs and other costs directly attributable to providing freight capacity services.

`Software Development Costs`

The Company evaluates capitalization of certain software development costs subsequent to the establishment of technological feasibility. Based on the Company's product development process and substantial development risks, technological feasibility is established for the Company's autonomous trucks when they have achieved full level four autonomy, as defined by the National Highway Traffic Safety Administration. Accordingly, the Company has charged all such costs to research and development expense in the period incurred.

`Research and Development`

Research and development costs consist primarily of personnel-related expenses associated with engineering personnel and consultants responsible for the design, development and testing of the Company's autonomous truck driving solutions, depreciation of equipment used in research and development and allocated overhead costs. Research and development costs are expensed as incurred.

`Sales and Marketing`

Sales and marketing costs consist primarily of personnel-related expenses associated with Company's sales and marketing activities, advertising expenses, sponsorship, public relationship, and other related marketing activities. Sales and marketing costs are expensed as incurred.

`General and Administrative`

General and administrative costs consist primarily of personnel-related expenses associated with the Company's management and administration activities, professional service fees and other general corporate expenses.

`Government Grants`

Government grants are recognized in the consolidated statements of operations when the grant has been received and all conditions attached to the grant are fulfilled, in-line with ASC 450.

Share-Based Compensation

The Company accounts for share-based compensation expense in accordance with the fair value recognition and measurement provisions of GAAP, which requires compensation cost for the grant-date fair value of share-based awards to be recognized over the requisite service period. The Company determines the fair value of share-based awards granted or modified on the grant date (or modification date, if applicable) at fair value, using appropriate valuation techniques.

Time-Based Service Awards For share-based awards with time-based vesting conditions only, generally being share options, the fair value of each share award granted is estimated using the Black-Scholes option-pricing model. The Black-Scholes option-pricing model requires the input of highly subjective assumptions, including the fair value of the underlying ordinary shares, the expected share price volatility over the term of the award, actual and projected employee share option exercise behaviors, the risk-free interest rate for the expected term of the award and expected dividends. Share-based compensation is recognized straight-line over the requisite service period, which is generally four years. The Company accounts for forfeitures as they occur instead of estimating the number of awards expected to be forfeited.

Performance-Based Awards The Company has granted RSUs, share value awards ("SVAs"), and share options that vest only upon the satisfaction of both time-based service and performance-based conditions. The time-based service condition for these awards generally is satisfied over three years. The performance-based conditions are satisfied upon the occurrence of a qualifying event, defined as the earlier of (i) the closing of certain specific liquidation or change in control transactions, or (ii) an IPO. The Company records share-based compensation expense for performance-based equity awards such as RSUs, SVAs, and share options on an accelerated attribution method over the requisite service period, which is generally three years, and only if performance-based conditions are considered probable to be satisfied. As of December 31, 2020, the Company had not recognized share-based compensation expense for awards with performance-based conditions which include a qualifying event because the qualifying event described above had not occurred and, therefore, cannot be considered probable. In the period in which the Company's qualifying event is probable, the Company will record a cumulative one-time share-based compensation expense determined using the grant-date fair values. Share-based compensation related to remaining time-based service after the qualifying event will be recorded over the remaining requisite service period.

For performance-based RSUs and SVAs, the Company determines the grant-date fair value as the fair value of the Company's ordinary shares on the grant date.

For performance-based share options, the Company determines the grant-date fair value utilizing the valuation model as described above for time-based awards.

Employee Benefits

Full time employees of the Company in the PRC participate in a government mandated defined contribution plan, pursuant to which certain pension benefits, medical care, employee housing funds and other welfare benefits are provided to the employees. Chinese labor regulations require that the PRC subsidiaries and VIEs of the Company make contributions to the government for these benefits based on certain percentages of the employees' salaries, up to a maximum amount specified by the local government. The Company has no legal obligation for the benefits beyond the contributions made. Contributions are expensed in the consolidated statements of operations when the related services are provided. Employee social benefits included as expenses in the consolidated statements of operations were $2.0 million, $2.7 million, and $1.9 million for the years ended December 31, 2018, 2019, and 2020, respectively.

Related Party Convertible Loan

As permitted under ASC 825, Financial Instruments ("ASC 825"), the Company has elected the fair value option to account for its related party convertible loan that was issued in June 2020. In accordance with ASC 825, the Company records the related party convertible loan at fair value with changes in fair value recorded in the consolidated statements of operations in other income (expense), net, with the exception of changes in fair value due to instrument-specific credit risk which are required to be recognized in accumulated other comprehensive loss, a component of shareholders' deficit. There were no changes in the fair value due to instrument-specific credit risk recorded due to the short-term nature of the loan. As a result of applying the fair value option, direct costs and fees related to the related party convertible loan were recognized in other income (expense), net as incurred and were not deferred. Refer to Note 7. Debt for further information.

Income Taxes

Current income taxes are provided for in accordance with the relevant statutory tax laws and regulations.

Income taxes are accounted for under the asset and liability method of accounting. Under this method, deferred tax assets and liabilities are determined based on the differences between the financial reporting and the tax bases assets and liabilities and are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse. A valuation allowance is provided when it is more likely than not that a deferred tax asset will not be fully realized. Due to our lack of earnings history, the net deferred tax assets have been fully offset by a valuation allowance.

The Company records liabilities related to uncertain tax positions when, despite the Company's belief that the Company's tax return positions are supportable, the Company believes that it is more likely than not that those positions may not be fully sustained upon review by tax authorities. Accrued interest and penalties related to unrecognized tax benefits are classified as income tax expense. The Company did not recognize a liability for uncertain tax positions as of December 31, 2019 and 2020 due to the availability of net operating loss and tax credit carryforwards.

Foreign Currency

The functional currency of the Company's foreign subsidiaries is the local currency or U.S. dollar depending on the nature of the subsidiaries' activities. Foreign currency transactions recognized in the consolidated statements of operations are converted to the functional currency by applying the exchange rate prevailing on the date of the transaction. Monetary assets and liabilities denominated in currencies other than the functional currency are remeasured

monthly using the month-end exchange rate. Gains and losses resulting from foreign currency transactions and the effects of remeasuring monetary assets and liabilities are recorded in other income in the consolidated statements of operations. Subsidiary assets and liabilities with non-U.S. dollar functional currencies are translated at the month-end rate, retained earnings and other equity items are translated at historical rates, and revenues and expenses are translated at average exchange rates during the year. Cumulative translation adjustments are recorded within accumulated other comprehensive loss, a separate component of shareholders' deficit.

Comprehensive Loss

Comprehensive loss consists of two components: net loss and other comprehensive loss. Other comprehensive loss refers to losses that are recorded as an element of shareholders' deficit and are excluded from net loss. The Company's other comprehensive loss is composed of foreign currency translation adjustments.

Net Loss Per Share Attributable to Ordinary Shareholders

The Company computes loss per share using the two-class method required for participating securities. The two-class method requires income available to ordinary shareholders for the period to be allocated between ordinary shares and participating securities based upon their respective rights to receive dividends as if all income for the period had been distributed.

The Company's redeemable convertible preferred shares are participating securities. The holders of the redeemable convertible preferred shares would be entitled to dividends in preference to common shareholders, at a rate no less than the rate at which dividends are paid to common shareholders, prior to any payment of dividends to common shareholders. These participating securities do not contractually require the holders of such shares to participate in the Company's losses. As such, net losses for the periods presented were not allocated to the redeemable convertible preferred shares.

The Company's basic net loss per share attributable to ordinary shareholders is calculated by dividing net loss attributable to ordinary shareholders by the weighted-average number of ordinary shares outstanding for the period, without consideration of potentially dilutive securities. The diluted net loss per share is calculated by giving effect to all potentially dilutive securities outstanding for the period using the treasury stock method or the if-converted method based on the nature of such securities. Diluted net loss per share is the same as basic net loss per share in periods when the effects of potentially dilutive ordinary shares are anti-dilutive.

Segment Information

The Company operates in one operating segment. Operating segments are defined as components of an enterprise about which separate financial information is evaluated regularly by the chief operating decision maker ("CODM"), which is the management committee of the board of directors, in deciding how to allocate resources and assessing performance. The CODM allocates resources and assess performance based upon consolidated financial information.

Commitments and Contingencies

In the normal course of business, the Company is subject to loss contingencies, such as legal proceedings arising out of its business, that cover a wide range of matters. An accrual for a loss contingency is recognized when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. If a potential material loss contingency is not probable but is reasonably possible, or is probable but cannot be estimated, then the nature of the contingent liability, together with an estimate of the range of possible loss if determinable and material, is disclosed.

Recently Adopted Accounting Pronouncements

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework–Changes to the Disclosure Requirements for Fair Value Measurement*, which modifies the disclosure requirements on fair value measurements in Topic 820, *Fair Value Measurement*., by removing, modifying, or adding certain disclosures. The standard eliminates such disclosures as the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy and valuation processes for Level 3 fair value measurements. The standard adds new disclosure requirements for Level 3 measurements. The Company adopted the guidance as of January 1, 2020. The adoption of the standard did not have a material impact on the disclosures within the Company's consolidated financial statements.

Recently Issued Accounting Pronouncements

As an emerging growth company ("EGC"), the Jumpstart Our Business Startups Act ("JOBS Act") allows the Company to delay adoption of new or revised accounting pronouncements applicable to public companies until such pronouncements are applicable to private companies. The Company has elected to use this extended transition period under the JOBS Act until such time the Company is no longer considered to be an EGC. The adoption dates discussed below reflect this election.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*, which supersedes the guidance in ASC Topic 840, *Leases*, and makes other conforming amendments to GAAP. ASU 2016-02 requires, among other changes to the lease accounting guidance, lessees to recognize most leases on-balance sheet via a right-of-use asset and lease liability, and additional qualitative and quantitative disclosures. In July 2018, ASU No. 2018-10, *Codification Improvements to Topic 842, Leases,* was issued to provide more detailed guidance and additional clarification for implementing ASU No. 2016-02. In July 2018, the FASB issued ASU No. 2018-11, *Leases (Topic 842): Targeted Improvements*, which provides an optional transition method in addition to the existing modified retrospective transition method by allowing a cumulative effect adjustment to the opening balance of retained earnings in the period of adoption. Furthermore, in June 2020, the FASB issued ASU No. 2020-05, *Revenue from Contracts with Customers (Topic 606) and Leases (Topic 842): Effective Dates for Certain Entities,* which defers the effective date of ASU No. 2016-02 for certain entities. For the Company, the new standard is effective for annual reporting periods beginning after December 15, 2021 and for interim periods within annual periods beginning after December 15, 2022. Early adoption is

permitted. Upon adoption of this standard, the Company expects to recognize, on a discounted basis, its minimum commitments under non-cancelable operating leases on the consolidated balance sheets resulting in the recording of right-of-use assets and lease obligations. The Company is currently evaluating the impact the adoption of this standard will have on its consolidated financial statements.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments-Credit Losses (Topic 326), Measurement of Credit Losses on Financial Instruments,* which requires an entity to utilize a new impairment model known as the current expected credit loss ("CECL") model to estimate its lifetime "expected credit loss" and record an allowance that, when deducted from the amortized cost basis of the financial asset, presents the net amount expected to be collected on the financial asset. The CECL model is expected to result in more timely recognition of credit losses. This guidance also requires new disclosures for financial assets measured at amortized cost, loans and available-for-sale debt securities. In November 2019, the FASB issued ASU No. 2019-10, *Financial Instruments–Credit Losses (Topic 326), Derivatives and Hedging (Topic 815), and Leases (Topic 842): Effective Dates,* which defers the effective date of ASU No. 2016-13 for certain entities. For the Company, the new standard is effective for annual reporting periods beginning after December 15, 2022, including interim periods within those annual periods. Early adoption is permitted. Entities will apply the standard's provisions as a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is adopted. The Company is currently evaluating the impact the adoption of this standard will have on its consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-15, *Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement that Is a Service Contract*, which aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). For the Company, the new standard is effective for annual reporting periods beginning after December 15, 2020 and for interim periods within annual periods beginning after December 15, 2021. Early adoption is permitted. Adoption of the standard is applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. The Company does not expect the adoption of this standard to have a material impact on its consolidated financial statements.

In December 2019, the FASB issued ASU No. 2019-12, *Simplifying the Accounting for Income Taxes*, as part of its initiative to reduce complexity in accounting standards. For the Company, the standard is effective for annual reporting periods beginning after December 15, 2021 and interim periods within annual periods beginning after December 15, 2022. Early adoption is permitted. The Company is currently evaluating the impact the adoption of this standard will have on its consolidated financial statements.

In August 2020, the FASB issued ASU No. 2020-06, *Debt – Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging Contracts – Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*, which amends the guidance on convertible instruments and the derivatives scope exception for contracts in an entity's own equity, and also improves and amends the related EPS guidance for both Subtopics. The amendments in the new standard are to address issues identified as a result of the complexity associated with applying GAAP for certain financial instruments with characteristics of liabilities and equity. For the Company, the new standard will be effective for annual reporting periods beginning after December 15, 2023, including interim periods within those fiscal years. Early adoption is permitted for annual reporting periods beginning after December 15, 2020. The Company does not expect the adoption of this standard to have a material impact on its consolidated financial statements.

In October 2020, the FASB issue ASU No. 2020-10, *Codification Improvements*, which updates various codification topics by clarifying or improving disclosure requirements to align with the SEC's regulations. For the Company, the new standard will be effective for annual reporting periods beginning after December 15, 2021 and interim periods within fiscal years beginning after December 15, 2022.

Note 3. Concentrations and Risks

Concentration of Credit Risk

The Company's cash and cash equivalents may consist of deposits held with banks, money market funds, certificates of deposit, or other highly liquid investments that may at times exceed federally insured limits. Cash equivalents are financial instruments that potentially subject the Company to concentrations of risk, to the extent of amounts recorded in the balance sheets. The Company performs evaluations of its cash and cash equivalents and the relative credit standing of these financial institutions and limits the amount of credit exposure with any one institution. Management believes that the Company is not exposed to significant credit risk due to the financial position of the depository institutions in which those deposits are held. The Company has not experienced any losses to date related to these concentrations.

Currency Convertibility Risk

The revenues and expenses of the Company's subsidiaries in the PRC are generally denominated in Renminbi ("RMB") and their assets and liabilities are primarily denominated in RMB, which is not freely convertible into foreign currencies. The Company's cash denominated in RMB that is subject to such government controls amounted to RMB17.2 million (equivalent to $2.5 million) and RMB 28.2 million (equivalent to $4.2 million) as of December 31, 2019 and 2020, respectively. The value of the RMB is subject to changes in the central government policies and international economic and political developments affecting the supply and demand of RMB in the PRC foreign exchange trading system market. In the PRC, certain foreign exchange transactions are required by law to be transacted only by authorized financial institutions at exchange rates set by the People's Bank of China (the "PBOC"). Remittances from China in currencies other than RMB by the Company must be processed through the PBOC or other China foreign exchange regulatory bodies which require certain supporting documentation in order to process the remittance.

Note 4. Fair Value Measurements

The following table presents the Company's assets and liabilities that are measured at fair value on a recurring basis and indicates the fair value hierarchy of the valuation (in thousands):

	As of December 31, 2019

	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Certificates of deposit	$57,416	$57,416	$—	$—
Total	$57,416	$57,416	$—	$—

	As of December 31, 2020			
	Total	**Level 1**	**Level 2**	**Level 3**
Assets:				
Cash equivalents:				
Certificates of deposit	$279,279	$279,279	$—	$—
Total	$279,279	$279,279	$—	$—
Liabilities:				
Warrants liability	$42,452	$—	$—	$42,452
Total	$42,452	$—	$—	$42,452

Warrants Liability

The fair value of the warrants liability was estimated at issuance using a Monte Carlo simulation model as the series of redeemable convertible preferred shares issued upon exercise is contingent upon the outcome of multiple discrete scenarios. The warrants were exercisable into shares of Series D-1 redeemable convertible preferred shares if exercised prior to a subsequent equity financing, or shares of a series of redeemable convertible preferred stock issued in our next equity financing. The fair value of the underlying redeemable convertible preferred shares used within the Monte Carlo simulation model was estimated using a hybrid between a probability-weighted expected return method ("PWERM") and option pricing model ("OPM"), estimating the probability-weighted value across multiple scenarios, while using an OPM to estimate the allocation of value within one or more of these scenarios. Discrete future outcomes considered under the PWERM include an IPO of the Company's ordinary shares, as well as continued operation as a private company. The significant unobservable inputs into the valuation model include the timing and probability of occurrence of these discrete future outcomes and a discount for the lack of marketability of the redeemable convertible preferred shares.

The Company used the following assumptions in the model:

	Years Ended December 31,	
	2019	**2020**
Discount for lack of marketability	—	12.00% - 30.00%
Fair value of underlying securities	—	$8.18 - $14.42
Expected volatility	—	67.20% - 73.30%
Dividend rate	—	—
Expected term (in years)	—	1.48 - 2.00
Risk-free interest rate	—	0.11% - 0.15%

As of December 31, 2020, the fair value of the warrants liability is estimated using the Black-Scholes option-pricing model as the variability surrounding which series of redeemable convertible preferred shares the warrants are exercisable into has been resolved due to the consummation of the Company's Series E redeemable convertible preferred share financing. The fair value of the underlying redeemable convertible preferred shares used within the Black-Scholes option-pricing model was estimated using a hybrid between a PWERM and OPM, estimating the probability-weighted value across multiple scenarios, while using an OPM to estimate the allocation of value within one or more of these scenarios. Discrete future outcomes considered under the PWERM include an IPO of the Company's ordinary shares, as well as continued operation as a private company. The significant unobservable inputs into the valuation model include the timing and probability of occurrence of these discrete future outcomes and a discount for the lack of marketability of the redeemable convertible preferred shares.

The Company used the following assumptions in the model:

	Years Ended December 31,	
	2019	**2020**
Discount for lack of marketability	—	9.00% - 30.00%
Fair value of underlying securities	—	$14.14
Expected volatility	—	53.90% - 76.90%
Dividend rate	—	—
Expected term (in years)	—	0.33 - 1.91
Risk-free interest rate	—	0.10% - 0.13%

The following table sets forth a summary of the changes in the estimated fair value of the Company's warrants liability (in thousands):

Balance as of December 31, 2019	$—
Issuance of warrants	44,268
Reclassification of warrants from equity to liability	394
Exercises during the period	(394)
Change in fair value of warrants	(1,816)
Balance as of December 31, 2020	$42,452

Related Party Convertible Loan

The fair value of the related party convertible loan is calculated as the sum of the value of the straight-debt cash flows and the value of the embedded conversion features. A Discounted Cash Flow model was used to estimate the value of the straight-debt cash flows, and a Monte-Carlo model was used to estimate the value of the embedded conversion features. The significant unobservable inputs into the valuation model include the timing and probability of certain discrete future outcomes which dictate the series of redeemable convertible preferred shares issued upon exercise.

The Company used the following assumptions in the valuation model:

	Years Ended December 31,	
	2019	2020
Probability of occurrence of IPO	—	15.00%
Expected volatility	—	85.60%
Risk-free interest rate	—	0.11%
Expected term (in years)	—	0.69
Fair value of underlying securities	—	$14.14

The following table sets forth a summary of the changes in the estimated fair value of the Company's related party convertible loan (in thousands):

Balance as of December 31, 2019	$—
Issuance of convertible loan	50,000
Change in fair value of related party convertible loan	5,556
Conversion to Series E-1 redeemable convertible preferred shares	(55,556)
Balance as of December 31, 2020	$—

Note 5. Property and Equipment, Net

Property and equipment as of December 31, 2019 and 2020 were as follows (in thousands):

	As of December 31,	
	2019	2020
Electronic equipment	$8,579	$11,429
Office and other equipment	2,515	6,152
Validation vehicles	12,088	12,775
Leasehold improvements	6,760	7,565
Property and equipment, gross	29,942	37,921
Accumulated depreciation and amortization	(7,659)	(15,805)
Property and equipment, net	$22,283	$22,116

Depreciation and amortization expense was $2.5 million, $5.6 million, and $7.7 million for the years ended December 31, 2018, 2019, and 2020, respectively.

As of December 31, 2019 and 2020, property and equipment financed under capital leases was $5.5 million and $4.5 million, net of accumulated amortization of $0.5 million and $1.5 million, respectively.

Note 6. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities as of December 31, 2019 and 2020 were as follows (in thousands):

	As of December 31,	
	2019	2020
Accrued payroll	$5,322	$11,941

Accrued professional fees	531	7,865
Accrued rental expenses	1,022	721
Other	2,319	2,434
Accrued expenses and other current liabilities	$9,194	$22,961

Note 7. Debt

Scania Loan

In April 2020, in connection with the Development Agreement entered into with Scania CV AB ("Scania"), an affiliate of Traton SE, the Company received a $5.0 million loan from Scania to cover the Company's costs related to the program. The loan does not accrue interest and is repayable upon the acquisition by Scania or a Scania Affiliate of shares or other financial instruments in the Company. In September 2020, Traton SE acquired 1,232,370 of the Company's Series D-1 redeemable convertible preferred shares and the loan was repaid in full in October 2020. Refer to Note 8 Commitments and Contingencies for further detail over the Development Agreement.

Payroll Protection Program ("PPP") Loan

In April 2020, the Company received loan proceeds in the amount of $4.1 million under the Small Business Administration Paycheck Protection Program established under Section 1102 of the Coronavirus Aid, Relief and Economic Security ("CARES") Act. The loan accrues interest at a rate of 1.0% per annum and originally matured in 24 months.

Under the requirements of the CARES Act, as amended by the PPP Flexibility Act, proceeds may only be used for the Company's eligible payroll costs, rent, mortgage interest, and utilities, in each case paid during the 24-week period following disbursement. The loan may be fully forgiven if (i) proceeds are used to pay eligible payroll costs, rent, mortgage interest, and utilities, and (ii) full-time employee headcount and salaries are either maintained during the 24-week period following disbursement or restored by December 31, 2020. If not so maintained or restored, any forgiveness of the loan would be reduced in accordance with the regulations that were issued by the SBA. All of the proceeds of the PPP Loan were used by the Company to pay eligible payroll costs and the Company maintained its headcount and otherwise complied with the terms of the PPP Loan.

In October 2020, the Company applied for forgiveness of the PPP Loan. The forgiveness application is subject to approval by the SBA and no assurance can be given that any portion of the PPP Loan will be forgiven. Based on communications from the SBA, if the Company is determined to be ineligible for forgiveness, the PPP Loan must be repaid immediately.

Related Party Convertible Loan

In June 2020, the Company entered into a convertible loan agreement with SUN Dream, Inc., a preferred shareholder in the Company, to issue convertible debt in the amount of $50.0 million ("Convertible Loan"). The Convertible Loan accrues interest at a rate of 10.0% per annum and matures in June 2021. On or before the maturity date, the Convertible Loan, at the option of SUN Dream, Inc., may be converted in whole or in part into the Company's shares issued in the next round of financing ("Next Financing") equal to the quotient of the outstanding principal amount of the Convertible Loan divided by a price per share equal to 90% of the applicable purchase price in such financing ("Discounted Conversion Price"); provided that the New Financing shall be consummated within six months following the issuance of the Convertible Loan and the Discounted Conversion Price is not lower than the original issue price of Series D-1 redeemable convertible preferred shares, which was $8.11 as of the date of these consolidated financial statements.

In December 2020, in connection with the Company's Series E financing, the Convertible Loan converted into 3,928,937 Series E-1 redeemable convertible preferred shares at a conversion price of $12.73.

Note 8. Commitments and Contingencies

Lease Commitments

The Company has entered into various noncancelable operating leases for its facilities with various expiry dates through 2033.

Future minimum lease payments for non-cancelable operating and capital leases as of December 31, 2020 are as follows (in thousands):

Year Ending December 31,	Capital Leases	Operating Leases
2021	$1,386	$5,187
2022	1,274	5,233
2023	999	5,365
2024	984	4,049
2025	1,817	2,695
Thereafter	—	19,793
Total minimum lease payments	$6,460	$42,322
Amount representing interest	(1,888)	
Present value of minimum lease payments	$4,572	

Rental expenses amounted to $2.3 million, $4.4 million, and $4.6 million for the years ended December 31, 2018, 2019, and 2020, respectively.

Joint Development Agreements

In April 2020, the Company entered into a Development Agreement with Scania, an affiliate of Traton SE, relating to a hub-to-hub pilot program using Scania vehicles and the Company's autonomous technology. Under the Development Agreement, each party will fund its own costs related to the program. There are no reimbursements paid between the parties and there are no spending floors included within the Development Agreement. Upon successful completion of the development activities, the parties intend to set up a long-term cooperation agreement covering development, maintenance, operation and sales of self-driving systems on a global scale. The terms and conditions of such arrangement will be negotiated by the parties and included in a separate Partnership Agreement.

In July 2020, the Company entered into a Joint Development Agreement ("JDA") with Navistar, Inc., under which the parties will work collaboratively to develop a purpose-built L4 autonomous semi-truck. Under the JDA, the parties grant each other rights to their background intellectual property to permit them to conduct research and development activities. Pursuant to the JDA, the Company agrees to reimburse Navistar up to $10.0 million for research and development expenses incurred. Payment of reimbursements is deferred to align with the achievement of certain milestones and reimbursements due are recorded within accrued expenses in the Company's consolidated balance sheets. All reimbursements are expected to be paid within 12 months of the Company incurring the obligation. Upon successful completion of the development activities under the JDA, the parties will enter into good faith negotiations for a production license agreement. Products developed will be jointly commercialized by the parties.

As of December 31, 2020, expenses incurred by Navistar for reimbursement under the JDA are immaterial.

Separation Agreements

The Company has entered into separation agreements with former employees under which the Company is required to pay additional compensation upon the occurrence of an IPO or Sale Event. No amounts have been recorded under such agreements as of December 31, 2019 and 2020, respectively, as occurrence of the contingent events was not considered probable. The estimated amounts payable upon occurrence of the contingent events were $2.9 million and $4.7 million as of December 31, 2019 and 2020, respectively.

Litigation and Legal Proceedings

The Company is not currently a party to any pending material litigation or other legal proceeding or claims.

Note 9. Redeemable Convertible Preferred Shares and Preferred Share Warrants, and Shareholders' Deficit

Series D-1 Financing

In December 2018, the Company sold 11,710,939 Series D-1 redeemable convertible preferred shares at a purchase price of $8.11 per share for aggregate gross proceeds of $95.0 million. Issuance costs incurred were not material.

During 2019, the Company sold 6,471,833 Series D-1 redeemable convertible preferred shares at a purchase price of $8.11 per share for aggregate gross proceeds of $52.5 million in cash. The Company incurred issuance costs of $0.2 million, which were recorded as a reduction in the carrying value of the Series D-1 redeemable convertible preferred shares. The Company elected to accrete the shares to redemption value immediately and $0.2 million of accretion was recorded within accumulated deficit within the consolidated statements of redeemable convertible preferred shares and shareholders' deficit. In connection with these financings, the Company issued warrants to purchase $2.5 million of Series D-1 redeemable convertible preferred shares at their original issue price, the fair value of which was not material. These warrants were equity-classified upon issuance as exercise was conditional upon future events that were solely within the Company's control. In November 2020, the contingent conditions were met and the warrants were reclassified as liabilities at their fair value of $0.4 million since exercise was no longer solely within the Company's control. The warrants were subsequently exercised and the Company issued 308,182 Series D-1 redeemable convertible preferred shares at $8.11 per share for aggregate proceeds of $2.5 million.

In July 2020, the Company entered into a Sale and Purchase Agreement ("July 2020 SPA") with Navistar, Inc., under which the Company issued 621,447 Series D-1 redeemable convertible preferred shares at $8.11 per share and a warrant to purchase shares issued in the Company's next equity financing or, if exercised prior to the Company's next equity financing, Series D-1 redeemable convertible preferred shares, for aggregate proceeds of $5.0 million. The purchase price of the shares under the warrant shall be the issuance price of shares issued in the Company's next equity financing or $8.11 if exercised prior to the Company's next equity financing. In December 2020, the Company consummated its Series E redeemable convertible preferred share financing and the warrant became exercisable for Series E redeemable convertible preferred shares at an exercise price equal to the Series E redeemable convertible preferred shares original issue price, which is $14.14. The number of shares available for purchase is equal to the product of 5.0% and the aggregate number of all issued and outstanding ordinary shares of the Company on a fully diluted and as converted basis at the time of exercise. The warrant expires upon the earlier of (i) December 31, 2021, (ii) the consummation of a firm-commitment underwritten public offering, or (iii) the consummation of a Liquidation Event. The warrant was recorded at fair value, which equaled $2.0 million, and was treated as a reduction of the proceeds allocated to the Series D-1 redeemable convertible preferred shares. The Company elected to accrete the shares to redemption value immediately and $2.0 million of accretion was recorded within additional paid-in capital within the consolidated statements of redeemable convertible preferred shares and shareholders' deficit. As of December 31, 2020, the outstanding warrant was exercisable into 9,386,938 Series E redeemable convertible preferred shares and the fair value of the underlying shares was $14.14.

In August 2020, the Company entered into a Sale and Purchase Agreement ("August 2020 SPA") with Traton SE, under which the Company agreed to issue 1,232,730 Series D-1 redeemable convertible preferred shares at $8.11 per share and a warrant to purchase shares issued in the Company's next equity financing or, if exercised prior to the Company's next equity financing, Series D-1 redeemable convertible preferred shares for aggregate proceeds of $10.0 million. The transaction closed in September 2020. The purchase price of the shares under the warrant shall be 80% of the issuance price of shares issued in the Company's next equity financing or $8.11 if exercised prior to the Company's next equity financing. In December 2020, the Company consummated its Series E redeemable convertible preferred share financing and the warrant became exercisable for Series E-2 redeemable convertible preferred shares at an exercise price of $11.31, which is equal to 80.0% of the Series E redeemable convertible preferred shares original issue price. The number of shares available

for purchase is 7,072,086, which is equal to $80.0 million divided by the exercise price. The warrant expires upon the earlier of (i) the second anniversary of the Series E redeemable convertible preferred shares financing, (ii) the first public filing of the registration statement in connection with a firm-commitment underwritten public offering, or (iii) the consummation of a Liquidation Event. The warrant was recorded at fair value, which equaled $42.3 million, and was treated as a reduction of the proceeds allocated to the Series E redeemable convertible preferred shares. The excess of $32.3 million in fair value allocated to the warrants over the cash proceeds received upon issuance was considered compensation paid to Traton SE and recorded as research and development expense within the consolidated statements of operations. As of December 31, 2020, the fair value of the shares underlying the warrant was $11.31.

Series A-2 Issuance

In April 2019, the Company exchanged 8,218,203 Series A-2 redeemable convertible preferred shares for 8,218,203 ordinary shares beneficially owned by Ren Zhenguo, a non-employee silent investor and one of the Company's co-founders. The newly issued Series A-2 redeemable convertible preferred shares were then sold for $60.0 million to an institutional investor. The Company did not receive any proceeds from this transaction. The ordinary shares exchanged in the transaction were retired. The transaction was accounted for as an exchange and the Series A-2 redeemable convertible preferred shares were recorded at a carrying value of $60.0 million. Issuance costs incurred were not material.

Series E Financing

In November 2020, the Company entered into a Sale and Purchase Agreement ("November 2020 SPA") with new and existing investors to issue Series E redeemable convertible preferred shares at $14.14 per share. As of December 31, 2020, the Company has issued 21,044,019 Series E redeemable convertible preferred shares for aggregate proceeds of $297.6 million. The Company incurred issuance costs of $9.0 million, which were recorded as a reduction in the carrying value of the Series E redeemable convertible preferred shares. The Company elected to accrete the shares to redemption value immediately and $9.0 million of accretion was recorded within accumulated deficit within the consolidated statements of redeemable convertible preferred shares and shareholders' deficit. The investment round remained open as of December 31, 2020. Refer to Note 15. Subsequent Events for further information.

Redeemable Convertible Preferred Shares

The company has authorized 138,102,770 redeemable convertible preferred shares, designated in series, with the rights and preferences of each designated series to be determined by the Board of Directors.

The following table is a summary of redeemable convertible preferred shares as of December 31, 2019 (in thousands, except share amounts and per share amounts):

Series	Shares Authorized	Shares Issued andOutstanding	Per Share LiquidationPreference	Aggregate LiquidationPreference	Per Share InitialConversionPrice	Net CarryingValue
A	20,000,000	20,000,000	$0.3925	$7,850	$0.3925	$7,850
A-2	8,218,203	8,218,203	—	—	7.3009	60,000
B-1	7,080,000	7,080,000	2.5000	17,700	2.5000	17,700
B-2	3,000,000	3,000,000	0.7667	2,300	0.7667	2,300
B-3	3,465,372	3,465,372	0.8657	3,000	0.8657	3,000
C	14,993,041	14,993,041	3.6941	55,386	3.6941	55,386
D-1	26,195,520	18,182,772	8.1121	147,500	8.1121	147,500
	82,952,136	74,939,388		$233,736		$293,736

The following table is a summary of redeemable convertible preferred shares as of December 31, 2020 (in thousands, except share amounts and per share amounts):

Series	Shares Authorized	Shares Issued andOutstanding	Per Share LiquidationPreference	Aggregate LiquidationPreference	Per Share InitialConversionPrice	Net CarryingValue
A	20,000,000	20,000,000	$0.3925	$7,850	$0.3925	$7,850
A-2	8,218,203	8,218,203	—	—	7.3009	60,000
B-1	7,080,000	7,080,000	2.5000	17,700	2.5000	17,700
B-2	3,000,000	3,000,000	0.7667	2,300	0.7667	2,300
B-3	3,465,372	3,465,372	0.8657	3,000	0.8657	3,000
C	14,993,041	14,993,041	3.6941	55,386	3.6941	55,386
D-1	20,345,131	20,345,131	8.1121	165,042	8.1121	165,435
E	50,000,000	21,044,019	14.1401	297,564	14.1401	297,564
E-1	3,928,937	3,928,937	12.7261	50,000	12.7261	55,556
E-2	7,072,086	—	11.3121	—	11.3121	—
	138,102,770	102,074,703		$598,842		$664,791

The rights, preferences and privileges of the redeemable convertible preferred shares are as follows:

Voting

Each holder of redeemable convertible preferred shares is entitled to the number of votes equal to the number of ordinary shares into which the shares held by such holder are convertible. The holders of redeemable convertible preferred shares are entitled to appoint a total of 4 out of 7 directors.

Dividends

The holders of redeemable convertible preferred shares, prior and in preference of the holders of ordinary shares, are entitled to receive dividends when and if declared by the Company's board of directors. Series E, E-1, and E-2 redeemable convertible preferred shares have preference over all other series of redeemable convertible preferred shares, followed by Series D-1, Series C, Series B-1, B-2 and B-3 (in-line with one another), and Series A-2 and A (in-line with one another). To date, no dividends have been declared.

Conversion

Each redeemable convertible preferred share is convertible, at the option of the holder, into the number of ordinary shares, which results from dividing the applicable original issue price per share for each series by the applicable conversion price per share for such series. The initial conversion price per share of all series of convertible preferred shares is equal to the original issue price of each series, and therefore, the conversion ratio is 1:1. Refer to Note 7. Debt for further information over the conversion price of Series E-1 redeemable convertible preferred shares.

Each redeemable convertible preferred share shall be automatically converted into ordinary shares at the then-applicable conversion price in the event of a firm commitment underwritten public offering and listing by the Company of its ordinary shares with aggregate proceeds of no less than $200.0 million (prior to deduction of underwriting discounts and registration expenses) with a public offering price per share not less than $16.97.

Redemption

Each redeemable convertible preferred share is redeemable at its original issue price, plus any accrued but unpaid dividends, at the option of the holder at any time (i) after December 4, 2025, (ii) upon any material breach or violation of, or inaccuracy or misrepresentation in, any representation or warranty contained within the transaction documents, or (iii) upon the written request of any holder of any other series of redeemable convertible preferred shares.

If the Company does not have sufficient funds legally available to redeem all shares to be redeemed at the redemption date, the maximum possible number of shares is redeemed ratably among the holders of such shares based upon their holdings of redeemable convertible preferred shares, and the remaining shares will be redeemed as soon as sufficient funds are legally available. Preference on redemption follows the same preferential order as preference on dividends.

These redemption features cause the redeemable convertible preferred shares to be classified as mezzanine equity rather than as a component of shareholders' deficit.

Liquidation

In the event of any liquidation, dissolution, or winding up of the Company, either voluntary or involuntary, including a merger, acquisition, or sale of assets where the shareholders of the Company immediately before such transaction own less than 50% of the voting power of the surviving entity, the holders of Series E, E-1, and E-2 (in-line with one another), Series D-1, Series C, Series B-1, B-2 and B-3 (in-line with one another), and Series A redeemable convertible preferred shares, listed in order of priority, will receive, prior and in preference to the holders of Series A-2 preferred shares and ordinary shares, an amount per share equal to the liquidation preference, plus any accrued but unpaid dividends. After payment of the liquidation preference to the preferred shareholders as stated above, the remaining assets of the Company are available for distribution to the holders of redeemable convertible preferred shares and ordinary shares ratably on an as-if-converted fully-diluted basis.

Ordinary Shares

As of December 31, 2020, the Company is authorized to issue 361,897,230 ordinary shares with a par value of $0.0001 per share, among which 60,543,337 were issued and outstanding.

Holders of ordinary shares are entitled to dividends when and if declared by the board of directors, subject to the rights of the holders of the Company's redeemable convertible preferred shares having priority rights to dividends. As of December 31, 2020, no dividends have been declared.

Note 10. Share-Based Compensation

Equity Incentive Plan

In April 2017, the Company adopted the 2017 Share Plan (the "2017 Plan") under which employees, directors, and consultants may be granted various forms of equity incentive compensation at the discretion of the board of directors, including share options, restricted shares, RSUs, and SVAs.

Share options granted under the 2017 Plan have a contractual term of ten years and have varying vesting terms, but generally vest over a requisite service period of four years. The exercise price of the share options granted may not be less than the par value of the shares. Certain share options contain a performance condition and are only exercisable subject to the grantee's continuous service and the completion of an IPO. Options which contain a performance condition and for which the service condition has been satisfied are forfeited should employment terminate before the Company's IPO.

As of December 31, 2019 and 2020, the Company's board of directors had authorized 10,000,000 and 21,967,964 ordinary shares to be reserved for grants of awards under the 2017 Plan.

Share Options

A summary of the share option activities is as follows (in thousands, except share amounts, per share amounts, and years):

	Options Outstanding	Weighted-AverageExercisePrice	Weighted-AverageRemainingLife(Years)	Aggregate IntrinsicValue
Outstanding at January 1, 2018	7,550,000	$0.0001	9.49	$2,144
Granted	618,441	0.0001		
Forfeited	(470,000)	0.0001		

Outstanding at December 31, 2018	7,698,441	$0.0001	8.60	$2,998
Forfeited	(127,410)	0.0001		
Outstanding at December 31, 2019	7,571,031	$0.0001	7.60	$3,747
Granted	8,051,972	2.26		
Exercised	(2,127,232)	0.46		
Forfeited	(200,274)	0.63		
Outstanding at December 31, 2020	13,295,497	$1.29	7.99	$97,986
Expected to vest at December 31, 2020	13,295,497	$1.29	7.99	$97,986
Vested and exercisable at December 31, 2020	325,353	$2.34	9.57	$2,030

The weighted-average grant-date fair value of share options granted during the years ended December 31, 2018 and 2020 was $0.37 and $3.61 per share, respectively. There were no share options granted during the year ended December 31, 2019. The aggregate intrinsic value of options exercised during the year ended December 31, 2020 was $3.7 million. There were no options exercised during the years ended December 31, 2018 or 2019, respectively.

As of December 31, 2020, there was $14.0 million of unrecognized share-based compensation expense related to unvested share options with time-based vesting conditions only, which is expected to be recognized over a weighted-average service period of 2.95 years.

As of December 31, 2020, no share-based compensation expense has been recognized for share options with a performance condition based on the occurrence of an IPO, as such event was not probable. The total unrecognized share-based compensation expense relating to these awards as of December 31, 2020 was $11.7 million. Of this amount, $5.0 million relates to awards for which the time-based vesting condition has been satisfied or partially satisfied on that date, calculated using the accelerated attribution method and the grant date fair value of the awards.

The estimated grant-date fair value of the Company's share-based option awards was calculated using the Black-Scholes option-pricing model, based on the following assumptions:

	Years Ended December 31,		
	2018	2019	2020
Risk-free interest rate	3.19%	—	0.14% - 0.44%
Expected dividend yield	—	—	—
Expected volatility	33.00%	—	51.00% – 60.00%
Expected term (in years)	10.0	—	2.21 – 6.06
Fair value of ordinary shares	$0.37	—	$1.52 – $8.24

These assumptions and estimates were determined as follows:

Fair Value of Ordinary Shares – The fair value of the ordinary shares underlying the options has historically been determined by the Company's board of directors given the absence of a public trading market, with input from management and valuation reports prepared by third-party valuation specialists. Share-based compensation for financial reporting purposes is measured based on updated estimates of fair value when appropriate, such as when additional relevant information related to the estimate becomes available in a valuation report issued as of a subsequent date.

Risk-Free Interest Rate – The risk-free interest rate for the expected term of the options was based on the U.S. Treasury yield curve in effect at the time of the grant.

Expected Term – The expected term of options represents the period of time that options are expected to be outstanding. The Company's historical share option exercise experience does not provide a reasonable basis upon which to estimate an expected term due to a lack of sufficient data. For options granted to-date, the expected term is estimated using the simplified method. The simplified method calculates the expected term as the average of the time-to-vesting and the contractual life of the options.

Expected Volatility – As the Company does not have a trading history for its ordinary shares, the expected volatility was estimated by taking the average historic price volatility for industry peers, consisting of several public companies in the Company's industry that are either similar in size, stage of life cycle, or financial leverage, over a period equivalent to the expected term of the awards.

Expected Dividend Yield – The Company has never declared or paid any cash dividends and does not presently plan to pay cash dividends in the foreseeable future. As a result, an expected dividend yield of zero percent was used.

Share-based Compensation Expense

Total share-based compensation expense was as follows (in thousands):

	Years Ended December 31,		
	2018	2019	2020
Sales and marketing	$—	$—	$2

Research and development	—	—	917
General and administrative	—	—	11,844
Total share-based compensation expense	$—	$—	$12,763

Share Option Modification

In March 2020, 2,125,000 share options granted to the CEO were early-exercised through the issuance of a partial-recourse promissory note in the amount of $1.0 million from the CEO to the Company. The transaction was accounted for as a substantive grant of options with share-based compensation expense recognized over the requisite service period of the awards. In December 2020, the Company forgave the partial-recourse promissory note, which was accounted for as a modification of the underlying options. The incremental fair value of the options was determined at the date of the modification and $1.1 million was immediately recognized as general and administrative expense within the consolidated statements of operations.

RSUs

The following table summarizes the activity related to RSUs for the year ended December 31, 2020. There was no activity related to RSUs in the years ended December 31, 2018 and 2019, respectively:

	RSUs Outstanding	Weighted-Average GrantDate Fair Valueper Share
Unvested and Outstanding at December 31, 2019	—	$—
Granted	1,111,704	8.18
Forfeited	(11,704)	2.41
Unvested and outstanding at December 31, 2020	1,100,000	$8.24

SVAs

The following table summarizes the activity related to SVAs for the year ended December 31, 2020. There was no activity related to SVAs in the years ended December 31, 2018 and 2019, respectively:

	SVAs Outstanding	Weighted-Average GrantDate Fair Valueper Share
Unvested and Outstanding at December 31, 2019	—	$—
Granted	3,793,345	3.20
Forfeited	(140,199)	2.97
Unvested and outstanding at December 31, 2020	3,653,146	$3.20

As of December 31, 2020, no share-based compensation expense has been recognized for RSUs and SVAs with a performance condition based on the occurrence of a qualifying event, as such qualifying event was not probable. The total unrecognized share-based compensation expense relating to these awards as of December 31, 2020 was $20.8 million. Of this amount, $12.0 million relates to awards for which the time-based vesting condition has been satisfied or partially satisfied on that date, calculated using the accelerated attribution method and the grant date fair value of the awards.

Restricted Share Awards

In August 2020, the Company issued 1,899,680 ordinary shares to two employees under a restricted share agreement at a grant date fair value of $3.62 per share, totaling $6.9 million. Compensation expense related to these awards was recorded as general and administrative expense within the consolidated statements of operations. All of the shares were vested as of December 31, 2020.

Note 11. Income Taxes

Loss before provision for income taxes consisted of the following (in thousands):

	Years Ended December 31,		
	2018	2019	2020
Cayman Islands	$(306)	$(1,144)	$(50,358)
Foreign	(44,728)	(83,739)	(127,512)
Loss before provision for income taxes	$(45,034)	$(84,883)	$(177,870)

Provision for income taxes consisted of the following (in thousands):

	Years Ended December 31,		
	2018	2019	2020
Current:			
Cayman Islands	$—	$—	$—
Foreign	—	—	—
Total current provision	—	—	—

Deferred:			
Cayman Islands	—	—	—
Foreign	—	—	—
Total deferred provision	—	—	—
Total provision for income taxes	$—	$—	$—

The Company is incorporated in the Cayman Islands and therefore is not subject to tax in that jurisdiction. In addition, the Company generated losses in other jurisdictions including the U.S. and the PRC, for which no tax benefits are recognized due to the Company's valuation allowance position.

The provision for income taxes differs from the amount computed by applying the Cayman Islands statutory tax rate as follows (in thousands):

	Years Ended December 31,		
	2018	2019	2020
Tax at Cayman Islands statutory rate	$—	$—	$—
Valuation allowances	13,791	26,011	38,984
Foreign tax rate differential	(12,070)	(20,883)	(30,633)
Research and development tax credits	(3,926)	(5,841)	(8,510)
Uncertain tax position reserves	2,090	724	—
Stock-based compensation	—	—	(354)
Other	115	(11)	513
Total	$—	$—	$—

The effective tax rate for 2018, 2019, and 2020 was 0% for all years and is primarily due to the valuation allowances recorded on US and other local jurisdiction activities that the Company concluded do not meet the more likely than not criteria for realization.

The Company recognizes the benefit of tax positions taken or expected to be taken in its tax returns in the consolidated financial statements when it is more likely than not the position will be sustained upon examination by authorities. Recognized tax positions are measured at the largest amount of benefit that is greater than 50% likely of being realized upon settlement.

A reconciliation of the beginning and ending balance to total unrecognized tax position is as follows (in thousands):

	Years Ended December 31,		
	2018	2019	2020
Unrecognized tax benefit, beginning of year	$—	$2,850	$4,029
Increases related to prior year tax positions	597	—	—
Increases related to current year tax positions	2,253	1,179	737
Unrecognized tax benefit, end of year	$2,850	$4,029	$4,766

The Company classifies interest expense and penalties related to the underpayment of income taxes in the consolidated financial statements as income tax expense. As of December 31, 2018, 2019, and 2020 the Company recorded no accrued interest or penalties related to unrecognized tax benefits.

The Company is subject to tax examination in U.S. federal and state and other local country jurisdictions for tax years 2016 to the present.

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

	Years Ended December 31,		
	2018	2019	2020
Deferred tax assets:			
Net operating loss carryforwards	$16,799	$39,489	$74,417
Tax credit carryforwards	1,901	4,879	9,833
Lease liability	—	1,320	1,116
Other	167	225	631
Stock-based compensation	—	—	264
Gross deferred tax assets	18,867	45,913	86,261
Valuation allowance	(18,162)	(43,985)	(84,852)
Net deferred tax assets	705	1,928	1,409

Deferred tax liabilities:			
Property, plant and equipment	675	438	352
Intangible assets	30	10	—
Capital lease assets	—	1,480	1,057
Net deferred tax liabilities	705	1,928	1,409
Net deferred tax asset/(liability)	$—	$—	$—

As of December 31, 2020, the Company had net operating loss ("NOL") carryforwards of $457.5 million, resulting in an NOL deferred tax asset of $74.4 million. Of these NOL carryforwards, $282.9 million expire at various times between 2022 and 2040 and $174.6 million does not expire. Additionally, as of December 31, 2020, $40.3 million of California state net operating losses are not more-likely-than-not to be sustained upon examination of the relevant taxing authority.

As of December 31, 2020, the Company had a U.S. federal and state research and development tax credit carryforward resulting in a deferred tax asset of $11.8 million, of which $7.4 million will expire between 2035 and 2040 and $4.4 million does not expire.

The Company's ability to utilize the net operating losses and tax credit carryforwards is subject to limitations in the event of an ownership change as defined in Section 382 of the Internal Revenue Code ("IRC") of 1986, as amended, and similar state law. In general, an ownership change occurs if the aggregate share ownership of certain shareholders increases by more than 50 percentage points over such shareholders' lowest percentage ownership during the testing period. As of December 31, 2020, the Company has not completed an IRC Section 382/383 analysis to determine whether it has had an ownership change. In the event that the Company has had a change in ownership, utilization of the net operating loss and tax credit carryforwards could be limited. Due to the existence of the valuation allowance, limitations created by future ownership changes, if any, related to the Company's operations in the United States will not impact the Company's effective tax rate.

The Company recorded a valuation allowance to reflect the estimated amount of certain U.S. federal and state and other local jurisdictions deferred tax assets that, more likely than not, will not be realized. In making such a determination, the Company evaluates a variety of factors including the Company's operating history, accumulated deficit, and the existence of taxable or deductible temporary differences and reversal periods. The net change in total valuation allowance for the years ended December 31, 2018, 2019, and 2020 was an increase of $14.1 million, an increase of $25.8 million, and an increase of $40.9 million, respectively. The valuation allowance increases were driven primarily by U.S. federal and state and other local jurisdictions NOL carryforwards that are not expected on a more likely than not basis to be realized. The net increases were credited to tax expense and other comprehensive income.

Under the current tax laws of the Cayman Islands, the Company is not subject to tax on income, corporation or capital gain, and no withholding tax is imposed upon the payment of dividends to shareholders. Accordingly, all income tax expense is for jurisdictions other than the Cayman Islands.

Under the Corporate Income Tax Law ("CIT Law") in the PRC, Foreign Investment Enterprises and domestic companies are subject to corporate income tax at a uniform rate of 25%. The Company also has subsidiaries that qualify for the High and New-Technology Enterprise program, which has a preferential CIT rate of 15%.

On March 27, 2020, the CARES Act was signed into law. The CARES Act, among other things, includes certain income tax provisions for individuals and corporations; however, these benefits do not impact the Company's current tax provision.

Note 12. Net Loss Per Share Attributable to Ordinary Shareholders

Basic net loss per share attributable to ordinary shareholders is computed by dividing the net loss attributable to ordinary shareholders by the weighted-average number of ordinary shares outstanding during the period. Diluted loss per share attributable to ordinary shareholders is the same as basic loss per share attributable to ordinary shareholders for all years presented because the effects of potentially dilutive items were antidilutive given the Company's net loss in each period presented.

The following table presents the calculation of basic and diluted net loss per share attributable to ordinary shareholders (in thousands, except share and per share amounts):

	Years Ended December 31,		
	2018	**2019**	**2020**
Numerator:			
Net loss	$(45,018)	$(84,840)	$(177,870)
Less: Accretion of redeemable convertible preferred shares	—	(201)	(20,959)
Less: Deemed dividend on exchange of Series A-2 redeemable convertible preferred shares for ordinary shares	—	(60,000)	—
Net loss attributable to ordinary shareholders, basic and diluted	$(45,018)	$(145,041)	$(198,829)
Denominator:			
Weighted-average shares used in computing net loss per share, basic and diluted	64,734,628	58,700,441	58,929,271
Net loss per share:			
Net loss per share attributable to ordinary shareholders, basic and diluted	$(0.70)	$(2.47)	$(3.37)

The following outstanding potentially dilutive ordinary share equivalents have been excluded from the computation of diluted net loss per share attributable to ordinary shareholders for the periods presented due to their antidilutive effect:

	Years Ended December 31,		
	2018	2019	2020
Redeemable convertible preferred shares	60,249,352	74,939,388	102,074,703
Options issued and outstanding	7,698,441	7,571,031	13,295,497
RSUs outstanding	—	—	1,100,000
SVAs outstanding	—	—	3,653,146
Redeemable convertible preferred share warrants	—	—	16,459,024
Total	67,947,793	82,510,419	136,582,370

Note 13. Variable Interest Entities

Prior to September 2020, the Company operated a portion of its business in the PRC through its VIEs. Operations at the VIEs included, but were not limited to, purchasing trucks, arranging for licenses and permits with local authorities, and maintaining cash balances that were subject to capital controls under the laws of the PRC. Considering the PRC's laws and regulations may prohibit or restrict foreign ownership of operation of the autonomous truck driving business in the future, a series of contractual agreements, including powers of attorney, exclusive call option agreements, exclusive service agreements, share pledge agreements and spousal consent letters (collectively, the "VIE Agreements"), were entered into among Beijing Tusen Zhitu Technology Co., Ltd. ("Tusen Zhitu" or "WFOE")), a PRC-registered entity wholly owned by the Company, VIEs and their PRC equity holders. The equity interests of these PRC domestic companies were held by PRC citizens or by PRC entities owned and/or controlled by PRC citizens. Specifically, these PRC domestic companies that were significant to the Company's business are Beijing Tusen Weilai Technology, Co., Ltd. ("Beijing Tusen Weilai) and Shanghai Tusen Weilai AI Technology Co., Ltd. ("Shanghai Tusen Weilai").

In September 2020, the Company obtained 100% of the equity ownership in Beijing Tusen Weilai and Shanghai Tusen Weilai for no consideration. As a result, the VIE structure surrounding these entities has been dissolved and they have been consolidated under the voting interest model.

Contractual Arrangements with Beijing Tusen Weilai Beijing Tusen Weilai was established on December 8, 2016. In March 2017, Tusen Zhitu, Beijing Tusen Weilai, and its shareholders entered into the VIE Agreements. These agreements provided the Company, as the only shareholder of Tusen Zhitu, with effective control over Beijing Tusen Weilai to direct the activities that most significantly impacted Beijing Tusen Weilai's economic performance and enabled the Company to obtain substantially all of the economic benefits arising from Beijing Tusen Weilai. Management concluded that Beijing Tusen Weilai was a variable interest entity and the Company was the ultimate primary beneficiary of Beijing Tusen Weilai. The Company consolidated the financial results of Beijing Tusen Weilai during the time it was considered a VIE.

- **Powers of Attorney.** Pursuant to the power of attorney, each shareholder of Beijing Tusen Weilai irrevocably authorized Tusen Zhitu to exercise the following rights relating to all equity interests held by such shareholders in Beijing Tusen Weilai during the term of the power of attorney; to act on behalf of such shareholder as its exclusive agent and attorney with respect to all matters concerning its shareholding in Beijing Tusen Weilai according to Beijing Tusen Weilai's articles of association, including without limitation to: (i) attending shareholders meetings, (ii) exercising voting rights and other shareholder's rights, and (iii) appointing legal representative, directors, a general manager and other senior management of Beijing Tusen Weilai.

- **Exclusive Call Option Agreements.** Pursuant to the exclusive call option agreement, Beijing Tusen Weilai and each of its shareholders irrevocably granted Tusen Zhitu an exclusive option to purchase, or designate one or more entities or persons to purchase, at its discretion, to the extent permitted under PRC law, all or part of the shareholders' equity interests in Beijing Tusen Weilai. The purchase price of the equity interests was equal the lowest price permitted by the applicable PRC law. The shareholders of Beijing Tusen Weilai agreed, without the prior written consent of Tusen Zhitu, not to transfer, pledge or create any encumbrance on any assets, equity interests or other beneficiary interest in the business or revenues of Beijing Tusen Weilai. The agreement remained in full force and effect indefinitely from the date of the agreement.

- **Exclusive Service Agreement.** Tusen Zhitu had in place an exclusive technology consulting and service, staff training, business consulting services and information service framework agreement with Tusen Weilai. Under the exclusive service agreement, Beijing Tusen Weilai appointed Tusen Zhitu as its exclusive services provider to provide Beijing Tusen Weilai with technology consulting and services during the term of the exclusive service agreement. In consideration of the services provided by Tusen Zhitu, Beijing Tusen Weilai paid Tusen Zhitu fees based on Beijing Tusen Weilai's profit after necessary cost, operating expenditure and relative tax, which was adjusted at Tusen Zhitu's discretion to the extent permitted by PRC law. Unless terminated in accordance with the provisions of the exclusive service agreement or terminated in writing by Tusen Zhitu, the exclusive service agreement remained effective for 10 years from the date of the agreement with automatic extensions unless Tusen Zhitu provided prior notice before expiry. Beijing Tusen Weilai had no right to terminate the agreement.

- **Equity Interest Pledge Agreements.** Pursuant to the equity interest pledge agreements, each shareholder of Beijing Tusen Weilai pledged all of such shareholder's equity interests in Beijing Tusen Weilai as a security interest, as applicable, to respectively guarantee Tusen Weilai and its shareholders' performance of their obligations under the relevant contractual arrangements, which included the exclusive call option agreement, exclusive service agreement and power of attorney. If Beijing Tusen Weilai or any of its shareholders breached their contractual obligations under these agreements, Tusen Zhitu, as pledgee, was entitled to dispose of the pledged shares in accordance with PRC laws. Each of the shareholders of Beijing Tusen Weilai agreed that, during the term of the equity interest pledge agreements, such shareholder would not dispose of the pledged equity interest, place or permit any encumbrance on the pledged equity interest, and agreed to take all necessary measures to prevent Tusen Zhitu's rights relating to the pledged equity interest from being prejudiced by the legal actions of the shareholders of Beijing Tusen Weilai. Tusen Zhitu had the right to receive all of the dividends and profits distributed on the pledged equity interests and remained effective until all obligations under the relevant contractual agreements had been fully performed.

- **Spousal Consent Letters.** Pursuant to the spousal consent letters, the spouses of each nominee equity holder in Beijing Tusen Weilai consented that the equity interests in Beijing Tusen Weilai held by and registered in the name of the respective nominee equity holders would be disposed of pursuant to the VIE Agreements. The spouses agreed not to assert any rights over the equity interests in Beijing Tusen Weilai held by their spouses, the nominee equity holders. In the event that the spouses obtained any equity interest in Beijing Tusen Weilai held by the nominee equity holders for any reason, they agreed to be bound by the VIE Agreements.

Contractual Agreements with Shanghai Tusen Weilai In April 2019, Tusen Zhitu, Shanghai Tusen Weilai, and its shareholders entered into a series of VIE agreements. The terms of the VIE agreements were identical with those entered into by and among Tusen Zhitu, Beijing Tusen Weilai, and the shareholders of Beijing Tusen Weilai in March 2017 (see above). These agreements provided the Company, as the only shareholder of Tusen Zhitu, with effective control over Shanghai Tusen Weilai to direct the activities that most significantly impacted Shanghai Tusen Weilai's economic performance and enabled the Company to obtain substantially all of the economic benefits arising from Shanghai Tusen Weilai. Management concluded that Shanghai Tusen Weilai was a variable interest entity and the Company was the ultimate primary beneficiary of Shanghai Tusen Weilai. The Company consolidated the financial results of Shanghai Tusen Weilai during the time it was considered a VIE.

The following financial information of the VIEs in the PRC was recorded in the accompanying consolidated balance sheet as of December 31, 2019 and in the accompanying consolidated statements of operations for the years ended December 31, 2018 and 2019, respectively (in thousands):

Current assets:	
Cash	$988
Accounts receivable, net	—
Prepaid expenses and other current assets	435
Amounts due from inter-company entities*	9
Total current assets	1,432
Property and equipment, net	2,955
Other non-current assets	1,267
Total assets	$5,654
Current liabilities:	
Accounts payable	9
Amounts due to inter-company entities*	512
Amounts due to related parties	7,148
Accrued expenses and other current liabilities	971
Total current liabilities	8,640
Amounts due to inter-company entities, noncurrent*	3,143
Other liabilities	68
Total liabilities	$11,851

* All inter-company balances have been eliminated upon consolidation.

	Years Ended December 31,	
	2018	2019
Net revenues**	$2,993	$1,450
Net income/(loss)	335	(3,965)
Net cash provided by operating activities	484	335
Net cash used in investing activities	(1,459)	(1,386)
Net cash provided by/(used in) financing activities	2,877	(146)

** Net revenue of $1,450 is service fees from Tusen Zhitu and has been eliminated upon consolidation.

Under the contractual arrangements with the VIEs, the Company has the power to direct activities of the VIEs and can have assets transferred out of the VIEs under its control. Therefore, the Company considers that there is no asset in any of the VIEs that can be used only to settle obligations of the VIEs. None of the assets of the VIEs have been pledged or collateralized. The creditors of the VIEs do not have recourse to the general credit of the Company for any liabilities of the VIEs.

Note 14. Related Party Transactions

The Company has short-term, unsecured, interest free loans outstanding due to its executive chairman and one of its directors, which are repayable on demand. During the years ended December 31, 2018 and 2019, the Company made repayments on these loans in the amount of $2.5 million and $0.1 million, respectively. The Company made no repayments on these loans during the year ended December 31, 2020. As of December 31, 2019 and 2020, amounts outstanding on these loans were $0.6 million and $0.6 million, respectively.

The Company has various loans outstanding with Jinzhuo Hengbang Technology (Beijing) Co., Ltd. ("Jinzhuo Hengbang"), an affiliated company of Sina Corporation, the ultimate parent company of one of the Company's preferred shareholders, with annual interest rates ranging from 0% to 10%. During the years ended December 31, 2018, 2019, and 2020, interest expense was $0.1 million, $0.3 million, and $0.3 million, respectively. During the year ended

December 31, 2020, the Company made repayments on these loans in the amount of $3.1 million As of December 31, 2019 and 2020, amounts outstanding on these loans were $6.6 million and $3.7 million, respectively.

In February 2018, the Company paid a guarantee deposit of $3.7 million to Sina Corporation in connection with the loans borrowed by the Company form Jinzhuo Hengbang, which remains outstanding as of December 31, 2019 and 2020.

In March 2020, the CEO of the Company issued a partial-recourse promissory note to the Company in exchange for the cashless early-exercise of share options. Refer to Note 10. Share-Based Compensation for further information.

In April 2020, the Company received a $5.0 million loan in connection with the Development Agreement with Scania, an affiliate of Traton SE, a preferred shareholder in the Company. The loan does not accrue interest and was repaid in October 2020. Refer to Note 7. Debt for further information.

In June 2020, the Company entered into a convertible loan agreement with SUN Dream, Inc., a preferred shareholder in the Company. Refer to Note 7. Debt for further information.

In July 2020, the Company entered into a Joint Development Agreement ("JDA") with Navistar, Inc., a preferred shareholder in the Company, under which the parties will work collaboratively to develop a level four autonomous truck. Refer to Note 8. Commitments and Contingencies for further information.

Note 15. Subsequent Events

Subsequent events have been evaluated through March 5, 2021, which is the date that these consolidated financial statements were available to be issued.

Series E Redeemable Convertible Preferred Shares Issuance

In January 2021, in connection with November 2020 SPA, the Company issued 4,650,999 Series E redeemable convertible preferred shares at $14.14 per share for aggregate proceeds of $61.6 million, net of issuance costs of $4.1 million.

Series E-2 Warrants Exercise

In February 2021, Traton SE exercised warrants to purchase 4,331,644 Series E-2 redeemable convertible preferred shares at an exercise price of $11.3121, resulting in proceeds of $49.0 million. The remaining warrants to purchase 2,740,442 Series E-2 redeemable convertible preferred shares expired as of the exercise date.

Domestication

In February 2021, the Company changed its jurisdiction of incorporation from the Cayman Islands to the State of Delaware. Tusimple (Cayman) Limited deregistered as a Cayman Islands exempted company and continued and domesticated as a corporation incorporated under the laws of the State of Delaware. This transaction is referred to as the "Domestication". In connection with the Domestication, Tusimple (Cayman) Limited changed its name to TuSimple Holdings Inc. The business, assets and liabilities of the Company and its subsidiaries on a consolidated basis, as well as its principal locations and fiscal year, were the same immediately after the Domestication as they were immediately prior to the Domestication. In addition, the directors and executive officers of the Company immediately after the Domestication were the same individuals who were directors and executive officers, respectively, of the Company immediately prior to the Domestication.

Note 16. Subsequent Events (unaudited)

Series E Warrants Exercise

In March 2021, Navistar, Inc. exercised warrants to purchase 9,477,073 Series E redeemable convertible preferred shares at an exercise price of $14.1401, resulting in proceeds of $134.0 million.

CEO Performance Awards

In March 2021, the Company granted 1,150,000 share option awards to the CEO with an exercise price of $14.1401 per share and quarterly vesting over a term of five years. Additionally, the Company granted 1,150,000 share option awards to the CEO with an exercise price of $14.1401 per share that vest upon the attainment of both operational milestones (performance conditions) and market conditions, assuming continued employment as the CEO through the vesting date. The options will vest upon certification by the Board of Directors that all the following milestones have been attained: (i) the average market capitalization of the Company during any consecutive 180-day period is no less than $25.0 billion, (ii) the average number of L4 autonomous semi-trucks operating on the Company's Autonomous Freight Network on behalf of the Company's customers in any 90-day period is no less than 1,500, and (iii) the Company's revenues from its Autonomous Freight Network for any 12-month period exceed $200.0 million.

tu simple A BETTER PATH FORWARD

Part Ii

Information Not Required in Prospectus

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth the various expenses expected to be incurred and payable by us in connection with the sale and distribution of our ordinary shares, other than underwriting discounts and commissions. All amounts are estimates except for the Securities and Exchange Commission ("SEC") registration fee, the Financial Industry Regulatory Authority ("FINRA") filing fee and the Nasdaq Global Select Market listing fee.

	Payable by us
SEC registration fee	$10,910
FINRA filing fee	15,500
Nasdaq Global Select Market listing fee	*
Blue sky fees and expenses	*
Accounting fees and expenses	*
Legal fees and expenses	*
Printing and engraving expenses	*
Registrar and transfer agent fees and expenses	*
Miscellaneous fees and expenses	*
Total	$*

* To be filed by amendment

Item 14. Indemnification of Directors and Officers.

Section 145 of the Delaware General Corporation Law authorizes a court to award, or a corporation's board of directors to grant, indemnity to directors and officers under certain circumstances and subject to certain limitations. The terms of Section 145 of the Delaware General Corporation Law are sufficiently broad to permit indemnification under certain circumstances for liabilities, including reimbursement of expenses incurred, arising under the Securities Act.

As permitted by Section 102 of the Delaware General Corporation Law, our amended and restated certificate of incorporation and amended and restated bylaws contain provisions relating to the limitation of liability and indemnification of directors and officers. The amended and restated certificate of incorporation provides that our directors will not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director, except for liability:

- for any breach of the director's duty of loyalty to us or our stockholders;
- for any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- under Section 174 of the Delaware General Corporation Law (unlawful payment of dividends or unlawful redemption of shares); or
- for any transaction from which the director derives any improper personal benefit.

Our amended and restated certificate of incorporation also provides that if Delaware law is amended after the approval by our stockholders of the certificate of incorporation to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of our directors will be eliminated or limited to the fullest extent permitted by Delaware law.

Our amended and restated bylaws provide that we will indemnify our directors and officers to the fullest extent permitted by Delaware law, as it now exists or may in the future be amended, against all expenses and liabilities reasonably incurred in connection with their service for or on our behalf. Our amended and restated bylaws provide that we shall advance the expenses incurred by a director or officer in advance of the final disposition of an action or proceeding, and permit us to secure insurance on behalf of any director, officer, employee, or other enterprise agent for any liability arising out of his or her action in that capacity, whether or not Delaware law would otherwise permit indemnification.

Under the form of indemnification agreement filed as Exhibit 10.1 to this registration statement, we will agree to indemnify our directors and executive officers against certain liabilities and expenses incurred by such persons in connection with claims made by reason of their being such a director or executive officer.

The form of underwriting agreement filed as Exhibit 1.1 to this registration statement will also provide for indemnification of us and our officers and directors for certain liabilities, including liabilities arising under the Securities Act, but only to the extent that such liabilities are caused by information relating to the underwriters furnished to us in writing expressly for use in the registration statement and certain other disclosure documents.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling us under the foregoing provisions, we have been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Item 15. Recent Sales of Unregistered Securities.

The following sets forth information regarding all unregistered securities sold from December 23, 2017 to March 22, 2021:

- We have granted options to purchase 11,336,381 ordinary shares to directors, officers, employees, and consultants under our 2017 Share Plan, with per share exercise prices ranging from $0.0001 to $14.1401. Since December 23, 2017, 2,187,848 ordinary shares have been issued upon the exercise of stock options pursuant to the 2017 Plan.

- We have awarded 3,793,345 share value awards to directors, officers, employees, and consultants under our 2017 Share Plan.
- We have awarded 1,172,064 restricted share units to directors, officers, employees, and consultants under our 2017 Share Plan.
- During December 2018 to November 2020, we sold an aggregate of 20,036,949 Series D-1 redeemable convertible preferred stock at a purchase price of $8.1120737 per share to accredited investors for an aggregate purchase price of $162.5 million.
- In March 2020, we issued 2,125,000 ordinary shares to an employee upon option exercise for an aggregate consideration of $1.0 million.
- On June 8, 2020, we entered into a convertible loan agreement with Sun Dream Inc, pursuant to which Sun Dream Inc provided us one 1-year convertible loan with an aggregate principal of $50 million. In December 2020, the convertible loan was converted into 3,928,937 Series E-1 redeemable convertible preferred stock at a conversion price of $12.72609 per share and the convertible loan agreement was terminated upon the conversion.
- In July 2020, we issued a warrant to Navistar, Inc., pursuant to which Navistar, Inc. has the right to purchase redeemable convertible preferred stock convertible into 5% of our issued and outstanding ordinary shares on a fully-diluted and as-converted basis at the time of exercise upon the satisfaction of certain conditions precedent as set forth in the warrant. In March 2021, Navistar, Inc. exercised its right to purchase 9,477,073 shares of Series E redeemable convertible preferred stock.
- In August 2020, we issued 1,899,680 restricted shares to certain employees under our 2017 Share Plan.
- In September 2020, we issued a warrant to Traton International S.A., pursuant to which Traton International S.A. has the right to purchase up to $80.0 million of our equity securities upon the satisfaction of certain conditions precedent as set forth in the warrant. In February 2021, Traton International S.A. exercised its right to purchase 4,331,644 shares of Series E-2 redeemable convertible preferred stock.
- In November 2020, we sold 308,182 Series D-1 redeemable convertible preferred stock at a purchase price of $8.1120737 per share to an accredited investor that exercised a warrant to purchase such shares for an aggregate purchase price of $2.5 million.
- In December 2020 and January 2021, we sold an aggregate of 25,695,018 Series E redeemable convertible preferred stock at a purchase price of $14.1401 per share to accredited investors for an aggregate purchase price of $363.3 million.

None of the foregoing transactions involved any underwriters, underwriting discounts or commissions, or any public offering. We believe that the offers, sales, and issuances of the above securities were exempt from registration under the Securities Act by virtue of Section 4(a)(2) of the Securities Act or Regulation D promulgated thereunder as transactions by an issuer not involving any public offering, or in reliance on Rule 701 promulgated under Section 3(b) of the Securities Act because the transactions were pursuant to compensatory benefit plans or 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 share certificates issued in these transactions. We believe that all recipients had adequate information about us or had adequate access, through their relationships with us, to information about us.

Item 16. **Exhibits and Financial Statement Schedules.**

- *Exhibits.* We have filed the exhibits listed on the accompanying Exhibit Index, which is incorporated herein by reference.
- *Financial Statement Schedules.* All financial statement schedules have been omitted because the information required to be presented in them is not applicable or is shown in the financial statements or related notes, which is incorporated herein by reference.

Item 17. **Undertakings.**

The undersigned registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreements certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers, and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer, or controlling person of the registrant in the successful defense of any action, suit, or proceeding) is asserted by such director, officer, or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b) (1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Exhibit Index

Exhibit No.	Description
1.1*	Form of Underwriting Agreement.
3.1	Certificate of Incorporation of Registrant, as amended and currently in effect.
3.2	Amended and Restated Certificate of Incorporation of Registrant, to be effective upon completion of this offering.
3.3	Bylaws of the Registrant, as amended and currently in effect.
3.4	Amended and Restated Bylaws, to be effective upon completion of this offering.
4.1	Seventh Amended and Restated Shareholders' Agreement, dated December 4, 2020, by and among the Registrant and the parties thereto.
5.1*	Opinion of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP.
10.1	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers.
10.2	English translation of loan agreement between Beijing Tusen Weilai Technology Co., Ltd. and Jinzhuo Hengbang Technology (Beijing) Co., Ltd. dated April 7, 2017.
10.3	English translation of loan transfer tripartite agreement by and among Beijing Tusen Hulian Technology Co., Ltd., Beijing Tusen Weilai Technology Co., Ltd. and Jinzhuo Hengbang Technology (Beijing) Co., Ltd. dated June 19, 2017.
10.4	English translation of security deposit contract by and among the Registrant, Beijing Tusen Weilai Technology Co., Ltd. and Jinzhuo Hengbang Technology (Beijing) Co., Ltd. dated December 22, 2017.
10.5	Form of Series D-1 Preferred Share Purchase Agreement by and among the Registrant and other parties thereto.
10.6	Securities Purchase Agreement by and among the Registrant, Navistar, Inc. and other parties thereto dated July 10, 2020.
10.7	Securities Purchase Agreement by and among the Registrant, Traton SE and other parties thereto dated August 6, 2020.
10.8	Series E Preferred Share Purchase Agreement by and among the Registrant and other parties thereto dated November 27, 2020.
10.9	Ordinary Share Purchase Agreement by and between the Registrant and Classic Elite Limited dated January 8, 2021.
10.10	Ordinary Share Purchase Agreement by and between the Registrant and Perry Creek Capital Partners LP dated January 22, 2021.
10.11	Ordinary Share Purchase Agreement by and between the Registrant and Perry Creek Capital Fund II LP dated January 22, 2021.
10.12	Series E-2 Preferred Stock Purchase Agreement by and among the Registrant, TRATON International S.A. and other parties thereto dated February 26, 2021.
10.13	2017 Share Plan and forms of agreements thereunder.
10.14	2021 Equity Incentive Plan and forms of agreements thereunder.
10.15	2021 Employee Stock Purchase Plan, to be in effect upon completion of this offering.

Exhibit No.	Description
10.16	Lease between LJ GATEWAY OFFICE LLC and the Registrant dated December 16, 2016, as amended.
10.17	Employment Agreement, dated as of March 22, 2021, by and between Mo Chen and the Registrant.
10.18	Employment Agreement, dated as of March 22, 2021, by and between Xiaodi Hou and the Registrant
10.19	Employment Agreement, dated as of March 22, 2021, by and between Cheng Lu and the Registrant.
10.20	Employment Agreement, dated as of March 22, 2021, by and between Patrick Dillon and the Registrant.
10.21	Employment Agreement, dated as of March 22, 2021, by and between James Mullen and the Registrant.
10.22	Severance and Change in Control Agreement, dated as of March 22, 2021, by and between Mo Chen and the Registrant.
10.23	Severance and Change in Control Agreement, dated as of March 22, 2021, by and between Xiaodi Hou and the Registrant
10.24	Severance and Change in Control Agreement, dated as of March 21, 2021, by and between Cheng Lu and the Registrant.
10.25	Severance and Change in Control Agreement, dated as of March 22, 2021, by and between Patrick Dillon and the Registrant.
10.26	Severance and Change in Control Agreement, dated as of March 21, 2021, by and between James Mullen and the Registrant.
10.27	Director Offer Letter, dated January 19, 2021, by and between Karen C. Francis and the Registrant.
10.28	Director Offer Letter, dated January 19, 2021, by and between Brad Buss and the Registrant.
21.1	List of Subsidiaries of Registrant.
23.1	Consent of KPMG LLP.
23.2*	Consent of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP (contained in Exhibit 5.1).
24.1	Power of Attorney (contained in the signature page to this registration statement).

* To be filed by amendment.

Signatures

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this registration statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Diego, State of California, on the 23rd day of March, 2021.

TUSIMPLE HOLDINGS INC.	
By:	/s/ Cheng Lu
	Name: Cheng Lu
	Title: *President and Chief Executive Officer*

Power of Attorney (contained in the signature page to this registration statement).

POWER OF ATTORNEY KNOW ALL PERSONS BY THESE PRESENTS that each person whose signature appears below constitutes and appoints Mo Chen and Cheng Lu and each of them, his or her true and lawful attorneys-in-fact and agents, each 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 any and all amendments, including post-effective amendments, to this registration statement, and any registration statement relating to the offering covered by this registration statement and filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that each of said attorneys-in-fact and agents 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 on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Mo Chen Mo Chen	Director, Co-Founder and Executive Chairman	March 23, 2021
/s/ Xiaodi Hou Xiaodi Hou	Director, Co-Founder and Chief Technology Officer	March 23, 2021
/s/ Cheng Lu Cheng Lu	Director, President and Chief Executive Officer	March 23, 2021
/s/ Patrick Dillon Patrick Dillon	Chief Financial Officer	March 23, 2021
/s/ Brad Buss Brad Buss	Director	March 23, 2021
/s/ Charles Chao Charles Chao	Director	March 23, 2021
/s/ Karen C. Francis Karen C. Francis	Director	March 23, 2021
/s/ Bonnie Yi Zhang Bonnie Yi Zhang	Director	March 23, 2021