

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2021

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 FOR THE TRANSITION PERIOD FROM TO

Commission File Number 001-39453

Markforged Holding Corporation

(Exact name of Registrant as specified in its Charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

**480 Pleasant Street
Watertown, MA**

(Address of principal executive offices)

98-1545859

(I.R.S. Employer
Identification No.)

02472

(Zip Code)

Registrant's telephone number, including area code: **(866) 496-1805**

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, par value \$0.0001 per share	MKFG	New York Stock Exchange
Redeemable Warrants, each whole warrant exercisable for one share of Common Stock, \$0.0001 par value	MKFG.WS	New York Stock Exchange

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

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES NO

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. YES NO

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

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

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

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

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

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

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). YES NO

Based on the closing price as reported on the New York Stock Exchange, the aggregate market value of the Registrant's Common Stock held by non-affiliates on June 30, 2021 (the last business day of the Registrant's most recently completed second fiscal quarter) was approximately \$214.8 million. Shares of Common Stock held by each executive officer and director and by each shareholder affiliated with a director or an executive officer have been excluded from this calculation because such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

The number of shares of Registrant's Common Stock outstanding as of March 30, 2022 was 187,102,821.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's proxy statement for the 2022 annual meeting of stockholders to be filed pursuant to Regulation 14A within 120 days after the registrant's fiscal year ended December 31, 2021, are incorporated by reference in Part III of this Form 10-K, except with respect to information specifically incorporated by reference in this Annual Report on Form 10-K, the proxy statement is not deemed to be filed as part of this Annual Report on Form 10-K.

Risk Factors Summary

The risk factors detailed in Item 1A entitled "Risk Factors" in this Annual Report on Form 10-K are the risks that we believe are material to our investors and a reader should carefully consider them. Those risks are not all of the risks we face and other factors not presently known to us or that we currently believe are immaterial may also affect our business if they occur. The following is a summary of the risk factors detailed in Item 1A:

- We have a history of net losses and may not be able to achieve profitability for any period in the future or sustain cash flow from operating activities. We have a relatively limited operating history and have experienced rapid growth, which makes evaluating our current business and future prospects difficult and may increase the risk of your investment. Our operating results may fluctuate significantly from period-to-period.
- The additive manufacturing industry in which we operate is characterized by rapid technological change, which requires us to continue to develop new products and innovations to meet constantly evolving customer demands and which could adversely affect market adoption of our products.
- A pandemic, epidemic, or outbreak of an infectious disease, such as the COVID-19 pandemic, may materially and adversely affect our business and our financial results and could cause a disruption to the development of our products. The COVID-19 pandemic has caused a material on-going disruption to our business beginning in the second quarter of 2020 and the COVID-19 related supply chain disruptions have continued to adversely impact our business throughout 2021.
- We face significant competition in our industry. If we are unable to create new products or meet the demands of our customers, our business could be materially adversely affected.
- We depend on our network of value-added resellers and our business could be materially adversely affected if they do not meet our expectations.
- We depend heavily on third-party suppliers. If they or their facilities become unavailable or inadequate, our business could be adversely affected. We may experience significant delays in the design, production and launch of our additive manufacturing solutions and enhancements to existing products, and we may be unable to successfully commercialize products on our planned timelines.
- We rely on a limited number of third-party logistics providers for distribution of our products, and their failure to effectively distribute our products, including because of delays and disruptions caused by current conditions in global shipping capacity would adversely affect our sales.
- If demand for our products does not grow as expected, or if market adoption of additive manufacturing does not continue to develop, or develops more slowly than expected, our revenues may stagnate or decline, and our business may be adversely affected.
- Defects in new products or in enhancements to our existing products that give rise to product returns or warranty or other claims could result in material expenses, diversion of management time and attention, and damage to our reputation.
- We may be unable to consistently manufacture our products to the necessary specifications or in quantities necessary to meet demand at an acceptable cost or at an acceptable performance level. As manufacturing becomes a larger part of our operations, we will become exposed to accompanying risks and liabilities. We depend on a limited number of third-party contract manufacturers for a substantial portion of our manufacturing needs and we depend on a number of suppliers for other parts and components; since the second half of 2021, we have increasingly experienced, and expect to continue to experience, price increases, supply shortages and delays and any such delay, disruption or quality control problems in their operations, including due to the COVID-19 pandemic, could cause harm to our operations, including loss of market share, reduced margins and damage to our brand.
- We have experienced, and expect to continue to experience, rapid growth and organizational change since our inception. If we fail to manage our growth effectively, we may be unable to execute our business plan, maintain high levels of service and customer satisfaction or attract new employees and customers.
- A real or perceived defect, security vulnerability, error or performance failure in our software or technical problems or disruptions caused by our third-party service providers could cause us to lose revenue, damage our reputation and expose us to liability.
- Our existing and planned global operations subject us to a variety of risks and uncertainties that could adversely affect our business and operating results. Our business is subject to risks associated with selling machines and other products in

non-United States locations. Global economic, political and social conditions and uncertainties in the market that we serve may adversely impact our business.

- A significant portion of our business depends on sales to the public sector, and our failure to receive and maintain government contracts or changes in the contracting or fiscal policies of the public sector could have a material adverse effect on our business.
- We are, and have been in the recent past, subject to business and intellectual property litigation. We could be subject to personal injury, property damage, product liability, warranty and other claims involving allegedly defective products that we supply. We could face liability if our additive manufacturing solutions are used by our customers to print dangerous objects.
- If we are unable to adequately protect our proprietary technology or obtain and maintain patent protection for our technology and products or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize technology and products similar or identical to ours, and our ability to successfully commercialize our technology and products may be impaired.
- We have identified material weaknesses in our internal control over financial reporting and may identify additional material weaknesses in the future or fail to maintain effective internal control over financial reporting, which may result in material misstatements of our consolidated financial statements or cause us to fail to meet our periodic reporting obligations.

EXPLANATORY NOTE

On July 14, 2021, we consummated the merger (the “Merger”) contemplated by the Agreement and Plan of Merger, dated as of February 23, 2021 (the “Merger Agreement”), by and among one, a Cayman Islands exempted company limited by shares (“one”), Caspian Merger Sub Inc., a Delaware corporation and a wholly owned subsidiary of one (“Merger Sub”), and MarkForged, Inc., a Delaware corporation (“Legacy Markforged”). As a result of the Merger, Legacy Markforged merged with and into Merger Sub with Legacy Markforged surviving as our wholly-owned subsidiary and, following one’s filing of a notice of deregistration and necessary accompanying documents with the Cayman Islands Registrar of Companies, and a certificate of incorporation and a certificate of corporate domestication with the Secretary of State of the State of Delaware, under which one was domesticated, one changed its name to “Markforged Holding Corporation.”

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains statements that are forward-looking and as such are not historical facts. This includes, without limitation, statements regarding the financial position, business strategy and the plans and objectives of management for our future operations. These statements constitute projections, forecasts and forward-looking statements, and are not guarantees of performance. Such statements can be identified by the fact that they do not relate strictly to historical or current facts. When used in this Annual Report on Form 10-K, words such as “anticipate”, “believe”, “continue”, “could”, “estimate”, “expect”, “intend”, “may”, “might”, “plan”, “possible”, “potential”, “predict”, “project”, “should”, “strive”, “would” and similar expressions may identify forward-looking statements, but the absence of these words does not mean that a statement is not forward-looking.

Forward-looking statements in this Annual Report on Form 10-K include, for example, statements about:

- the benefits of the Merger and our ability to realize such benefits;
- our financial performance;
- the effect of uncertainties related to the COVID-19 pandemic and global supply chain disruptions;
- the expected growth of the additive manufacturing industry;
- our anticipated growth and our ability to achieve and maintain profitability in the future;
- the impact of the regulatory environment and complexities with compliance related to such environment on us;
- our ability to respond to general economic, political and business conditions;
- our ability to access sources of capital, including debt financing and other sources of capital to finance operations and growth;

- the success of our marketing efforts and our ability to expand our customer base;
- our ability to develop and deliver new products, features and functionality that are competitive and meet market needs;
- our ability to maintain an effective system of internal controls over financial reporting;
- our ability to remediate our material weaknesses in our internal control of financial reporting;
- our ability to grow and manage growth profitably and retain key employees; and
- the outcome of legal or governmental proceedings that may be instituted against us.

These forward-looking statements are based on information available as of the date of this Annual Report on Form 10-K and current expectations, forecasts and assumptions, and involve a number of judgments, risks and uncertainties. Accordingly, forward-looking statements should not be relied upon as representing our views as of any subsequent date, and we do not undertake any obligation to update forward-looking statements to reflect events or circumstances after the date they were made, whether as a result of new information, future events or otherwise, except as may be required under applicable securities laws.

As a result of a number of known and unknown risks and uncertainties, our actual results or performance may be materially different from those expressed or implied by these forward-looking statements. You should not place undue reliance on these forward-looking statements.

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PART I

Item 1. Business.

Unless the context otherwise requires, all references in this section to the “company”, “we”, “us”, or “our” refer to the business of MarkForged, Inc. and its subsidiaries prior to the consummation of the Merger and to Markforged Holding Corporation and its subsidiaries after giving effect to the Merger.

Company Overview

Our platform, The Digital Forge, is an intuitive additive manufacturing platform powering engineers, designers and manufacturing professionals globally. The Digital Forge combines precise & reliable 3D printers and metal and composite proprietary materials with its cloud-based learning software offering to empower manufacturers to create more resilient and agile supply chains. Founded in 2013 by two MIT-educated engineers, Markforged is based in greater Boston, Massachusetts, where we have our own in-house manufacturing facility and where we design all of our industrial 3D printers, software and metal and composite proprietary materials.

Designed to scale into the future, our software-enabled platform delivers clear value today to thousands of customers (including both direct customers and customers of our value added resellers that have purchased one or more of our products) around the world. Our customers have printed millions of parts, meeting customer needs across the entire product development lifecycle, including prototyping, tooling, production and aftermarket spares and replacement parts as well as mid-volume and high-volume production parts. Blue chip customers in leading-edge industries such as aerospace, military and defense, industrial automation, space exploration, healthcare and automotive rely on our platform for mission-critical, end-use parts on-demand and at the point-of-need.

Our portfolio of rugged 3D printers include: (i) desktop printers that produce quality parts in settings where space is limited, (ii) industrial composite printers that provide powerful, predictable functionality through their software, sensors, materials and print modes and (iii) metal printers that can fabricate strong, complex metal parts in a variety of advanced metals. Across all our models, our powerful yet easy-to-use platform, and our industrial-grade materials, enable engineers to make functional parts for manufacturing environments and other demanding applications.

Our software platform was developed alongside our first printers and shipped as a fully integrated solution. As we have grown, we have continued to develop and scale our software, providing a single platform to interact with each of our hardware devices and driving consistent reliability for our customers. From simple file storage and versioning to accessible live telemetry, our products are designed to address the unseen minutiae that can inhibit manufacturers’ productivity. In a manufacturing ecosystem inundated with non-intuitive user experiences, the simplicity and power of our software drives adoption of our platform with higher customer satisfaction and retention rates.

Today, manufacturers face many limitations from idea generation to finished industrial goods. Part design is inherently limited by traditional subtractive manufacturing methods, such as Computer Numerically Controlled (“CNC”) machining. In addition, in many cases, the existing manufacturing workforce does not have the necessary skills to meet the demands of the next generation of manufacturing, which is embracing digital technologies.

We envision a different future where smart 3D printers distributed in networks that extend directly to the point-of-need can overcome these limitations. We are working to make this future a reality today. For example, a military customer stations Markforged printers in combat zones to create digital supply chains, producing parts in the field, on-demand. A state government customer recently sponsored a pandemic-readiness project that distributed 300 Markforged printers across the state to create a large emergency alert system for manufacturing physical parts on demand. As a further example, a global consumer products company has utilized Markforged printers in more than 30 factories to optimize assembly line production. As we continue to innovate with faster, larger and more precise machines capable of reliably printing more specific materials, we expect to see examples like these scale in both the value they deliver our customers and the impact of additive technology on the broader manufacturing industry.

In 2014, we first commercialized our patented Continuous Fiber Reinforcement (“CFR”), which is a process that uses continuous strands of composite fibers to make parts as strong as and capable of replacing aluminum. In 2018, we released the Metal X system, which is now capable of printing 17-4 PH Stainless Steel, Copper, H13 Tool Steel, Inconel 635, and A2 and D2 Tool Steel in a shop or office environment. These products connect to our secure cloud infrastructure and are controlled via web browser, providing a single, simple digital workflow for printing both carbon fiber and metal for organizations that scale from one user to thousands. We have the ability to leverage data from our existing global fleet of printers connected to cloud architecture to enhance our research and development capabilities for the future benefit of our customers. The data generated by our fleet of thousands of connected printers flows into Blacksmith, an AI-powered, closed-loop manufacturing solution, which is currently offered as a software subscription.

For the years 2012 to 2020, according to the Wohlers Report 2021, the additive manufacturing industry grew at a CAGR of 24%, from \$2 billion in 2012 to \$12 billion in 2020. The Wohlers Report 2021 projects that for the 10 year period of 2020 to 2030, the additive manufacturing industry will grow at a similar CAGR of 25%, reaching \$115 billion in 2030. As additive manufacturing technology adoption spreads across the \$13 trillion global manufacturing industry, we believe we are well-positioned to take advantage of these trends due to our industry-leading materials, broad portfolio of products, and a cloud architecture that continually learns and will improve our global fleet of industrial printers.

The Markforged team combines cutting-edge technical expertise with industry experience in commercializing new technologies. Shai Terem, our President and Chief Executive Officer, is a veteran of the digital printing technology industry previously serving as President of the Americas at Kornit, where he led an aggressive and successful restructuring of the region and, prior to that, as Americas VP of Finance & Operations for Stratasys, where he held several operational responsibilities within the company. Mark Schwartz, our Chief Financial Officer, has extensive experience as a public company Chief Financial Officer as well as leading capital market transactions and as part of management teams at high-growth hardware manufacturing and SaaS and AI companies.

Industry Background

Traditional Manufacturing Faces Many Limitations.

Engineers and product developers are constrained by the physical parameters of conventional manufacturing processes. These parameters define the design possibilities, adding cost and lead time to manufacturing programs and placing firm boundaries on the performance of parts and products. Additive manufacturing lifts many of these limitations, opening up new design capabilities that allow engineers to harness and sustain measurable advantages in durability, weight and customizability.

Traditional manufacturing faces significant limitations that impact profitability and market responsiveness. In mature economies, like the United States, manufacturers find it increasingly difficult to hire the skilled technicians required to operate the legacy equipment that powers a majority of manufacturing operations. According to a 2020 report from The Economist, the generation of specialized tool and die makers that are exiting the labor market and the emerging workforce that is replacing these individuals are trained on completely different educational foundations built on information technology and digital aptitude.

We believe this phenomenon will intensify the struggle to find skilled technicians for businesses that fail to adopt modern manufacturing technologies.

Traditional manufacturing equipment and labor conditions require complex networks of supply sources or “nodes”, connected to one or more manufacturing hubs. These manufacturing hubs rely on intricate chains of logistics and distribution to deliver their products to the market and into the hands of end customers. Each supply node, manufacturing site and logistics bridge represents a single point of failure that has the potential to compromise business continuity and customer relationships in the event of disruptions. For example, the COVID-19 pandemic caused plant shutdowns, shipping port closures, labor strikes and myriad unforeseen changes in operating conditions. Digital manufacturing decouples part production from these complex and vulnerable supply chains, empowering individual “makers” and large, global businesses alike to position fabrication capabilities as close to the point of need as possible.

This flexibility also allows modern manufacturers to adapt to changing demand signals with greater responsiveness. As an example, in the early months of the COVID-19 pandemic, the collective 3D printing community was able to quickly produce early batches of face shields and other personal protective equipment. In contrast, many traditional manufacturers struggled in the face of global supply chain disruptions and significant spikes in demand for key products.

According to a Forbes article published on October 18, 2019, approximately 20% of every dollar in manufacturing is wasted. Additionally, the complex web of logistics and transportation required to convert raw material into goods in end customers’ hands add many wasteful steps. These factors increase costs to manufacturing programs and incur substantial carbon footprints. As modern

businesses seek opportunities to reduce their ecological impacts, both due to proactive and conscientious attitudes as well as government regulations and emissions penalties, we believe that digital manufacturing solutions like The Digital Forge present a viable means of producing products more sustainably and at a lower cost.

Additive Manufacturing has the Potential to Overcome Many of these Limitations.

Additive manufacturing as a category has the potential to overcome many of the limitations of conventional manufacturing. The new design capabilities provide significant possibilities for superior products that drive higher performance and more closely match customer preferences. The simple, empowering interfaces used to operate our printers are more applicable to an emerging workforce that consists of digital natives trained in IT educational foundations. With additive manufacturing technology, manufacturers may now combat supply chain constraints, allowing them to respond more quickly to sharp changes in demand signals. Machines the size of microwave ovens that require no skilled labor can now help manufacturers circumvent expensive and time-consuming supply chains by printing parts when and where they are needed.

Most 3D Printing Solutions Today are Focused on Design and Prototyping Applications.

Despite the apparent benefits of additive manufacturing relative to conventional manufacturing, it has taken the industry nearly four decades to arrive at a solution that is widely adopted for applications beyond one-offs and prototypes. Part of the reason for such slow adoption is that before Markforged, there were only two limited categories of 3D printers available. On one end of the cost spectrum, there were relatively inexpensive machines that printed in brittle plastic, only suitable for concept models or mock-ups. On the other end of the cost spectrum, there were complicated, potentially hazardous systems that cost in excess of \$1 million to implement and required highly skilled technicians to operate. Additionally, both categories were engineered as point solutions for a single factory, making distributed digital manufacturing across a network of printers cumbersome or infeasible. For these reasons, neither of these choices was appropriate for the manufacturing floor or distributed manufacturing at scale.

Markforged is Delivering the Promise of Additive Manufacturing Today.

We invented The Digital Forge, a platform designed to overcome both the constraints of conventional manufacturing as well as the limitations of legacy 3D printing solutions. Manufacturers can produce parts that are functionally applicable for the most demanding engineering applications on affordable machines roughly the size of a microwave or conventional oven. The parts printed on The Digital Forge are based in continuous carbon fiber, a high-strength material that empowers engineers to use the parts for applications that were previously reserved for metal parts. Moreover, the software that powers The Digital Forge was designed to be cloud-first. In contrast to legacy additive solutions, Markforged's printers can be accessed and controlled from anywhere in the world and entire libraries of part inventory can be digitized and printed only when needed. This smart, simple, empowering and robust platform is designed to give engineers, designers and manufacturing professionals the power to solve their manufacturing problems today and build anything they imagine.

Our Growth Strategy

Our future growth is driven by five key strategies:

- Continue to Fuel Integrated Platform with Software Solutions.*** Our integrated platform is designed to scale in both capability and size over time. As we invest additional resources into the feature set of our platform, we expect to be able to solve more customer problems and applications. As we solve more problems, customers will print more parts. As we print more parts, more data will be generated, making our premium software solutions, including Blacksmith and enterprise-grade fleet management, smarter. As our premium software solutions get smarter, we will be able to print better, more accurate parts. As we print better parts, more customers will adopt our premium software solutions, which will continue to drive this growth and improvement cycle more rapidly.
- Expand Customer Use Cases and Applications.*** As we develop printers that are faster, larger and more precise, and add new industrial materials to our capabilities, we continually expand the possible use cases for our customers. We regularly release new printers, software functionality and materials that customers may apply to a variety of new problems and use cases.
- Drive Deeper, More Efficient Go-To-Market Coverage.*** As we grow our global distribution footprint and drive optimizations in our go-to-market model, we will grow our sales. For example, in the last year, we formed partnerships with global distributors, such as DesignPoint, Hawk Ridge Systems, LLC, GovSmart, Inc., MLC CAD Systems, LLC, Mark3D UK Limited, Würth Additive Group, Phillips Corporation and others, providing the opportunity to scale and access to hundreds of thousands of potential manufacturing customers across the world.

•**Expand Position as a Trusted Brand.** Due to the innovative technology that we have invented, which is addressing significant global problems in manufacturing, we have the opportunity to invest resources to build a meaningful industrial technology brand. As our brand grows, we expect to generate more organic interest in our products, lowering our cost-to-acquire customers, which will facilitate our growth and improvement cycle and help expand our business.

•**Target Strategic M&A Opportunities.** We expect to grow inorganically by acquiring companies with technologies and people to complement our platform and team.

Our Competitive Strengths

•**Markforged delivers accessible, industrial-strength parts.** We offer a range of proprietary composite and metal materials that address numerous industrial applications. We invented and patented the CFR composite additive manufacturing process. The capabilities that CFR enables are unmatched by our competitors, and a significant portion of our customers use our CFR materials today to replace traditionally manufactured steel and aluminum parts. In addition, we have designed and optimized the Metal X printer, a loose powder-free metal device that can be purchased for approximately \$100,000. Conventional metal 3D printing solutions have MSRPs starting at \$250,000 and those that exceed \$1,000,000. The lower acquisition cost for the Metal X broadens the potential market for these machines and presents a more compelling path to value.

•**Markforged offers customers a clear and tangible ROI.** We provide simple, cost-effective and reliable solutions to manufacture mission critical parts. With The Digital Forge platform, our customers can realize significant cost and time savings, relative to conventional manufacturing, which in turn drives purchases of incremental printers and further development of new applications. For example, one global consumer products customer that purchased its first printer in 2019 realized 45 times cost savings on a key application tool for its automated assembly line. Since the initial purchase, that customer has purchased more than 30 printers primarily focused on this application.

•**Markforged's integrated, modern software platform drives faster innovation.** We built our entire platform on cloud-based architecture, bringing benefits traditionally confined to Software as a Service ("SaaS") space to hardware. This architecture connects us to our customer's printers in the field, creating a fleet of connected printers generating data to power our AI-learning algorithms that in turn guides the future development of our 3D printers with each part printed.

•**Visionary and experienced management team. Our leadership team is passionate about the future of manufacturing. Shai Terem, our President and Chief Executive Officer, has extensive operational experience in additive manufacturing and digital printing. Our Chief Financial Officer, Mark Schwartz, has spent much of his career delivering complex contract manufacturing services to hardware OEMs. Our SVP of Sales, Ken Clayton, has spent his career partnering with hardware resellers to provide CAD solutions.** This team is surrounded by an executive leadership team with decades of industry and category expertise. Our engineering and product leadership hails from a variety of leading hardware, materials and software companies, while our go-to-market leadership combines extensive channel selling and manufacturing industry expertise with invaluable perspectives from category leaders outside of 3D printing.

The Digital Forge

The Digital Forge is the intuitive additive manufacturing platform for modern manufacturers, bringing the power and speed of agile software development to industrial manufacturing. Composed of hardware, software and materials working as a unified platform, it is purpose-built to integrate into our customers' existing manufacturing ecosystems and eliminate the barriers between design and functional parts. The Digital Forge adopters can achieve immediate benefits through savings of time and money on end-use parts. Through increased adoption, the platform can drive competitive advantages by making our customers' entire operations more efficient and responsive.

3D Printers

We offer a rugged line of 3D printers all designed around one goal - putting functional parts in our customers' hands. Our machines combine high build quality, intuitive user experience and broad platform connectivity. Featuring unibody aluminum frames and precision mechanical components, our printers produce reliable, repeatable results.

We offer three principal categories of 3D printers and systems:

- Desktop:** Our Desktop 3D Printers are precision-built professional machines designed to reliably print quality parts. These printers deliver precise results with a smaller form factor, making them ideal when space is at a premium.
- Industrial:** Our Industrial 3D Printers provide best-in-class predictability and functionality through sensors, software, materials and print modes.
- Metal:** Our Metal 3D Printers fabricate complex metal parts in a variety of advanced metals.

In November 2021, we debuted the FX20™ industrial 3D printer which is capable of printing high-temperature thermoplastics reinforced with continuous carbon fiber. This is the largest and most precise machine we have produced to date.

We also offer the Onyx Pro, Onyx One, Mark Two desktop composite printers, the X3, X5, X7 industrial composite printers, a ruggedized X7 Field Edition composite printer, and the Wash-1, Sinter-1, and Sinter-2 which are components of the Metal X system.

Materials

We offer the only industrial 3D printing family for fabricating Composite, Continuous Fiber and Metal parts on the same platform. All the materials available for printing on The Digital Forge are safe and easy to handle and offer a high degree of flexibility for part design and manufacturing. Our 3D printers are simple to use and do not require intensive buildouts or trained technicians. We currently offer the following materials:

- Composite: Onyx™, Onyx FR, Onyx FR-A, Onyx ESD, ULTEM™ 9085 Filament, Nylon, and Precise PLA.
- Continuous Fiber: Carbon Fiber, Carbon Fiber FR, Carbon Fiber FR-A, Aramid Fiber (Kevlar®), HSHT Fiberglass, and Fiberglass.
- Metal: 17-4 PH Stainless Steel, Copper, Inconel 625, H13 Tool Steel, and A2 and D2 Tool Steel.

Our customers can print the right material for the right applications. If a customer requires strength and low weight, composites can replace metal parts and accelerate production times. If customers need something to withstand high temperatures and provide wear resistance, metals can be utilized. In addition, customers can combine parts made of different materials for even higher-performing parts using the CFR process.

CFR augments traditional Fused Filament Fabrication (“FFF”) technology, enabling our printers to reinforce FFF parts with continuous fibers. A CFR-capable machine uses two extrusion systems for two unique materials: one for conventional FFF polymer filament, and a second for long strand continuous fibers. Continuous fibers are laid down in-layer, replacing FFF infill. As a result, a CFR-capable printer can print both traditional FFF-only parts or CFR parts (FFF parts reinforced with continuous fibers).

CFR represents a step-change improvement in part performance for only an incremental increase in effort. CFR parts are significantly stronger (up to 25 times stronger than ABS plastics) and can replace machined aluminum parts. The process is inherently flexible: simple enough for anyone to use and powerful enough to enable deep customization of part mechanical properties. This means that an engineer can reinforce a part with continuous fibers with two clicks of a button and customize reinforcement on a layer-by-layer basis on the same platform. With five available fibers and multiple reinforcement techniques that can be granularly configured, parts can be highly customized for applications. We believe the capabilities that CFR enables are unmatched by current alternatives.

Software

Our software pairs advanced 3D printing software with the first connected additive manufacturing platform. Our software is an integrated platform designed to help customers get from design to part quickly. It empowers users to take control of their manufacturing workflow in three ways:

- Advanced part slicing and printing.** Our software is an integrated, connected platform designed to take customers from CAD to functional part quickly. The browser-based workflow is secure, fast and intuitive. Users can design parts for printing with a single click, or drill deeply into part settings to specially optimize part properties. Our software fully integrates with all of Markforged’s 3D printers, enabling customers to create builds, print parts, and monitor prints in a seamless workflow.

•**Integrated cloud part repository.** A secure part library enables customers to dynamically manage engineering projects of any size. Our software’s part files are securely stored and can be versioned, edited and printed anywhere. Easy-to-use filters and folders enable customers to quickly store and find the parts they need when they need it.

•**Real time enterprise-grade fleet management accessible through premium software subscriptions.** Our premium software subscription provides a single place to manage our customers’ printer fleets in real time, whether in one spot or worldwide. Users can benefit from automatic updates while getting analytics, usage data and live telemetry. Our premium software updates automatically, unlocking new features and continuously improving printer performance. Support is fully integrated into the software experience and is directly accessible from both part and printer pages.

Customers

We have thousands of customers (including both direct customers and customers of our value added resellers that have purchased one or more of our products) around the world, and have printed millions of parts, meeting customer needs across the entire product development lifecycle, including prototyping, tooling, production and aftermarket spare and replacement parts. Our customers range from small and medium-sized organizations to Fortune 100 companies in leading edge industries such as aerospace, military and defense, industrial automation, space exploration, healthcare and automotive who utilize our platform for mission critical end-use parts on-demand and at the point-of-need.

Our customer base is diverse and broad, with no customer, or customers known to us to be under common control, comprising more than 10% of our business.

Research and Development

Investment in research and development is at the core of our business strategy. Our research and development team is responsible for designing, developing and enhancing our products, as well as performing product testing and quality assurance activities. Members of our research and development team specialize in mechanical engineering, electrical engineering, material science, product realization and software engineering.

Research and development expense totaled \$32.2 million and \$17.2 million in the years ended December 31, 2021 and 2020, respectively. We expect our research and development expense to increase significantly for the foreseeable future as we enhance existing products, develop new products for current markets and introduce new products in new markets.

The majority of our research and development operations are conducted in our facility in Watertown, Massachusetts.

Sales and Marketing

We primarily sell our products and services through a global channel of third-party value-added reseller partners (“VARs”). We have approximately 100 VARs spanning the globe with over a thousand full-time employees who market, sell and support our platform. Our VAR channel allows us to have global scale, engage deeply with our customers and provide significant operating leverage to our business. We have and will continue to optimize our VAR network focused on global manufacturing. This includes VARs such as DesignPoint, Hawk Ridge Systems, LLC, GovSmart, Inc. MLC CAD Systems, LLC, Mark3D UK Limited, and others, that distribute mission-critical end-use parts and functional parts for the manufacturing floor to hundreds of thousands of end customers worldwide.

Our global marketing team drives new customer acquisition, retention and expansion of existing customers and the demonstration and capabilities set of our products.

Manufacturing and Suppliers

Our goal is to create an excellent customer experience by shipping quality products on time and providing meaningful support after delivery, all while working safely. We work toward this goal by being selective with our resources, dedicating our focus to areas where we see a strategic advantage, and working with high quality outsourced partners to manage the rest. Our printer manufacturing operations include both our internal manufacturing facility in Billerica, Massachusetts as well as third-party contract manufacturers who source materials, manufacture components and assemble products in accordance with our specifications and quality standards. We currently source and manufacture our consumable materials, which provides flexibility, increased responsiveness and a distinct competitive advantage.

Our Competition

The industry in which we operate is fragmented and competitive. We compete for customers with a wide variety of conventional and additive manufacturing solution providers. We believe that the market is in its early phases of adoption of additive manufacturing technology, and that the potential for growth will be significant as our target customers seek more flexible, customized, software-enabled manufacturing processes.

We believe we compare favorably to other industry participants on the basis of the following competitive factors applicable to our products:

- cloud-based, AI-learning software platform;
- proprietary CFR process;
- highly accessible metal printing;
- robust intellectual property;
- proven customer adoption in mission critical applications;
- ease of deployment, implementation and use;
- platform scalability; and
- security and reliability.

Human Capital

We consider our employees to be critical to our success. As of December 31, 2021, we had 374 full-time employees based primarily in the greater Boston, Massachusetts area. A majority of our employees are engaged in engineering, operations and related functions. To date, we have not experienced any work stoppages and consider our relationship with our employees to be in good standing. None of our employees are subject to a collective bargaining agreement or represented by a labor union.

Our success depends upon our ability to attract and retain highly qualified employees. We are committed to creating and maintaining an inclusive culture which values equality, opportunity and respect. We expect all of our employees to observe the highest levels of business ethics, integrity, mutual respect, tolerance and inclusivity. Our employee handbook and Code of Conduct and Ethics set forth policies reflecting these values and also provide direction for registering complaints in the event of any violation of our policies. An “open door” policy is maintained at all levels of the organization and any form of retaliation against an employee is strictly prohibited.

The success of our business is fundamentally connected to the physical and mental well-being of our people. Accordingly, we are committed to the health, safety and wellness of our employees and contractors. We provide our employees with a wide range of benefits, including benefits directed to their health, safety and long-term financial security. In response to the COVID-19 pandemic, we have implemented significant changes that we determined were in the best interest of our employees, as well as the communities in which we operate, and which comply with government regulations. This includes allowing our employees to work remotely as appropriate, while implementing significant safety measures designed to protect the health of all those working in and entering our facilities.

Intellectual Property

Our ability to drive innovation in the additive manufacturing market depends in part upon our ability to protect our core technology and intellectual property. We attempt to protect our intellectual property rights, both in the United States and abroad, through a combination of patent, trademark, copyright and trade secret laws, as well as through contractual provisions and restrictions on access to our proprietary technology which includes nondisclosure and invention assignment agreements with our consultants and employees and through non-disclosure agreements with our vendors and business partners. We further control the use of our proprietary technology and intellectual property through provisions in both general and product-specific terms of use. Unpatented research, development, know-how and engineering skills make an important contribution to our business, but we pursue patent protection when we believe it is possible and consistent with our overall strategy for safeguarding intellectual property.

As of December 31, 2021, we own 50 issued United States patents, 36 issued foreign patents and have 109 pending or allowed patent applications. Our patents and patent applications are directed to, among other things, additive manufacturing and related technologies.

We have 2 issued United States trademarks and 20 issued foreign trademarks, including “Markforged” in the European Union, Australia, Canada, China, Israel, Japan, and the Republic of Korea. We have no pending United States trademark applications and 3 pending foreign applications.

Government Regulations

We are subject to various laws, regulations and permitting requirements of federal, state and local authorities, including related to environmental, health and safety; anti-corruption and export controls. We believe that we are in material compliance with all such laws, regulations and permitting requirements.

Environmental Matters

We are subject to domestic and foreign environmental laws and regulations governing our operations, including, but not limited to, emissions into the air and water and the use, handling, disposal and remediation of hazardous substances. A certain risk of environmental liability is inherent in our production activities. These laws and regulations govern, among other things, the generation, use, storage, registration, handling and disposal of chemicals and waste materials, the presence of specified substances in electrical products, the emission and discharge of hazardous materials into the ground, air or water, the cleanup of contaminated sites, including any contamination that results from spills due to our failure to properly dispose of chemicals and other waste materials and the health and safety of our employees. We are required to obtain environmental permits from governmental authorities for certain operations.

The export of our products internationally from our production facilities subjects us to environmental laws and regulations concerning the import and export of chemicals and hazardous substances such as the United States Toxic Substances Control Act (“TSCA”) and the Registration, Evaluation, Authorization and Restriction of Chemical Substances (“REACH”). These laws and regulations require the evaluation and registration of some chemicals that we ship along with, or that form a part of, our systems and other products.

Export and Trade Matters

We are subject to anti-corruption laws and regulations imposed by governments around the world with jurisdiction over our operations, including the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act 2010, as well as the laws of the countries where we do business. We are also subject to various trade restrictions, including trade and economic sanctions and export controls, imposed by governments around the world with jurisdiction over our operations. For example, in accordance with trade sanctions administered by the Office of Foreign Assets Control and the U.S. Department of Commerce, we are prohibited from engaging in transactions involving certain persons and certain designated countries or territories. In addition, our products are subject to export regulations that can involve significant compliance time and may add additional overhead cost to our products. In recent years, the United States government has a renewed focus on export matters related to additive manufacturing. Some of our products are already more tightly controlled for export, and other of our products may in the future become more tightly controlled for export. For example, the Export Control Reform Act of 2018 and regulatory guidance thereunder have imposed additional controls and may result in the imposition of further additional controls, on the export of certain “emerging and foundational technologies.” Our current and future products may be subject to these heightened regulations, which could increase our compliance costs.

Corporate Information

Prior to July 14, 2021, we were a blank check company known as one incorporated in the Cayman Islands on June 24, 2020 as a Cayman Islands exempted company for the purpose of effecting a merger, share exchange, asset acquisition, share purchase, reorganization or similar business combination with one or more businesses. Legacy Markforged was formed as a Delaware corporation in 2013.

On July 14, 2021, we completed the Merger. In connection with the completion of the Merger, one was renamed Markforged Holding Corporation. Our website address is www.markforged.com. Our website and the information contained on, or that can be accessed through, the website will not be deemed to be incorporated by reference in, and are not considered part of, this Annual Report on Form 10-K.

We are an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012. We will remain an emerging growth company until the earlier of: (i) the last day of the fiscal year (a) following the fifth anniversary of the completion of the IPO, (b) in which we have total annual gross revenue of at least \$1.07 billion, or (c) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds \$700.0 million as of the prior June 30th, and (ii) the date on which we have issued more than \$1.0 billion in non-convertible debt during the prior three-year period.

Available Information

Our website address is www.markforged.com. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, including exhibits, proxy and information statements and amendments to those reports filed or furnished pursuant to Sections 13(a), 14, and 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, are available through the “Investor Relations” portion of our website free of charge as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Information on our website is not part of this Annual Report on Form 10-K or any of our other securities filings unless specifically incorporated herein by reference. In addition, our filings with the SEC may be accessed through the SEC’s Interactive Data Electronic Applications system at www.sec.gov. All statements made in any of our securities filings, including all forward-looking statements or information, are made as of the date of the document in which the statement is included, and we do not assume or undertake any obligation to update any of those statements or documents unless we are required to do so by law.

Our code of conduct, corporate governance guidelines and the charters of our Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee are available through the “Investor Relations” portion of our website.

Item 1A. Risk Factors.

Risk Factors

A description of the risks and uncertainties associated with our business and industry is set forth below. You should carefully consider the risks and uncertainties described below, together with all of the other information in this Annual Report on Form 10-K, including our consolidated financial statements and notes thereto and the "Management's discussion and analysis of financial condition and results of operations" section of this Annual Report on Form 10-K before deciding whether to purchase shares of our common stock. If any of the following risks are realized, our business, financial condition, operating results and prospects could be materially and adversely affected. In that event, the price of our common stock could decline, perhaps significantly. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operation.

Risks Related to Our Business and Industry

Risks Related to Our Operating History

We have a history of net losses and may not be able to achieve profitability for any period in the future or sustain cash flow from operating activities.

We had a history of losses since inception in 2013 until 2021 and funded our cash flow deficits primarily through the issuance of capital stock. As of December 31, 2021, we had an accumulated deficit of \$75.7 million, including current year net profit of \$3.9 million. We expect to continue to incur operating losses and negative cash flow as we continue to invest significantly in research and development efforts, sales and marketing and other aspects of our business.

We cannot make any assurances that these investments will result in increased revenue or growth in our business. Additionally, as a public company, we expect our legal, accounting and other expenses to be substantially higher than the expenses we incurred as a private company. Furthermore, we may encounter unforeseen issues that require us to incur additional costs. Any such increased expenditures make it harder for us to achieve and maintain future profitability. Revenue growth and growth in our customer base may not be sustainable, and we may not achieve sufficient revenue to achieve or maintain profitability. While we have a revenue history, we expect to bring new additive manufacturing products to market that we anticipate will generate a substantial portion of our future revenue, and it is difficult for us to predict our future operating results. We may incur significant losses in the future for a number of reasons, including due to the other risks described in this Annual Report on Form 10-K, and we may encounter unforeseen expenses, difficulties, complications and delays and other unknown events. As a result, our losses may exceed forecasts, we may incur significant losses for the foreseeable future, and we may not achieve profitability when expected, or at all, and even if we do, we may not be able to maintain or increase profitability. Accordingly, if we are not able to achieve or maintain profitability and we incur significant losses in the future, the market price of our common stock may decline, and you could lose part or all of your investment.

We have a relatively limited operating history and have experienced rapid growth, which makes evaluating our current business and future prospects difficult and may increase the risk of your investment.

Our ability to forecast our future operating results is subject to a number of uncertainties, including our ability to plan for and model future growth. We have encountered, and will continue to encounter, risks and uncertainties frequently experienced by growing companies in rapidly evolving industries, as we continue to grow our business. If our assumptions regarding these uncertainties, which we use to plan our business, are incorrect or change in reaction to changes in our markets, or if we do not address these risks successfully, our operating and financial results could differ materially from our expectations, our business could suffer and the trading price of our stock may decline. We intend to derive a substantial portion of our revenues from sales of new and existing hardware products, which sales are non-recurring and subject to significant risk and fluctuation.

It is difficult to predict our future revenues and appropriately budget for our expenses, and we have limited insight into trends that may emerge and affect our business. If actual results differ from our estimates or we adjust our estimates in future periods, our operating results and financial position could be materially affected.

Our operating results may fluctuate significantly from period-to-period and may fall below expectations in any particular period, which could adversely affect the market price of our common stock.

Our quarterly and annual results of operations may fluctuate significantly from period-to-period. Accordingly, the results of any one quarter or year should not be relied upon as an indication of future performance. If our revenue or operating results fall below the expectations of investors or any securities analysts that follow our company in any period, the price of our common stock would likely

decline. Each of the risks described in this section, as well as other factors, may affect our operating results. For example, factors that may cause our operating results to fluctuate include:

- the degree of market acceptance of our products;
- our ability to compete with competitors and new entrants into our markets;
- changes in our pricing policies or those of our competitors, including our response to price competition;
- the effectiveness of our securing new orders and fulfilling existing orders;
- the impact of the COVID-19 pandemic on our customers, suppliers, manufacturers and operations;
- the mix of products that we sell during any period;
- the timing of our sales and deliveries of our products to customers;
- changes in the amount that we spend to develop and manufacture new products or technologies;
- timing of expenditures to develop and bring to market new or enhanced products and the generation of revenue from those products;
- changes in the amounts that we and our VARs spend to promote our products;
- changes in the cost of satisfying our warranty obligations and servicing our products, including with respect to our obligations related to our “success plan” offerings;
- litigation-related expenses and/or liabilities;
- unforeseen liabilities or difficulties in integrating our acquisitions or newly acquired businesses;
- disruptions to our internal and third-party manufacturing facilities and processes;
- disruptions to our information technology systems or our third-party contract manufacturers;
- disruptions to our global supply and distribution chains;
- the geographic distribution of our sales;
- general economic and industry conditions that affect customer demand; and
- changes in accounting rules and tax laws.

In addition, sales of our products are subject to the adoption and capital expenditure cycles of our customers' sales cycle, and seasonality among our customers may cause our revenues and operating results to fluctuate from period to period. Accordingly, we typically experience increased sales during the fourth quarter and, to a lesser extent, the third quarter of our fiscal year relative to the first and second quarters. Additionally, for our more complex solutions, which may require additional facilities investment and installation support, potential customers may spend a substantial amount of time performing internal assessments prior to making a purchase decision. This may cause us to devote significant effort in advance of a potential sale without any guarantee of receiving any related revenues. As a result, revenues and operating results for future periods are difficult to predict with any significant degree of certainty, which could lead to adverse effects on our inventory levels and overall financial condition. Accordingly, you should not rely on quarter-over-quarter and year-over-year comparisons of our results as an indicator of our future performance.

The global COVID-19 pandemic has significantly affected our business and operations.

The COVID-19 pandemic and efforts to control its spread have significantly curtailed the movement of people, goods and services worldwide. In light of the uncertain situation relating to the spread of COVID-19 and new variants of the virus, we have taken precautionary measures intended to minimize the risk of the virus to our employees, our customers and the communities in which we operate. These measures include temporarily closing our offices to visitors and limiting the number of employees in our offices to those that are deemed essential for manufacturing and research purposes, as well as virtualizing, postponing or canceling customer, employee and industry events.

The COVID-19 pandemic has also created many negative headwinds that present risks to our business and results of operations. For example, it has generally disrupted the operations of our customers and prospective customers, and may continue to disrupt their operations, including as a result of travel restrictions and/or business shutdowns, uncertainty in the financial markets or other harm to their business and financial results. These disruptions have caused reduced capital expenditures by our existing customers and potential new customers, which negatively impacted our sales, especially during the period between March 2020 and May 2020 in

which we experienced a decrease in sales compared to the relevant period in 2019. This reduction was particularly prevalent among customers that are large companies purchasing our more expensive products that require greater on-site installation support. Further, in April 2020, we conducted a reduction in force as a result of reduced demand for our products and uncertainty about future revenues. Because the future effects of the COVID-19 pandemic are unpredictable, the impact could be more prolonged and significant in the future. These disruptions could result in further reductions to capital expenditure budgets, delayed purchasing decisions, longer sales cycles, extended payment terms or missed payments, and postponed or canceled projects, any of which would negatively impact our business and operating results, including sales and cash flows. We cannot predict the long-term impact that the COVID-19 pandemic may have on our business and cannot guarantee that it will not be materially negative. Although vaccines have become available to the public and states, including Massachusetts where our headquarters is located, have begun to ease certain restrictions, we continue to monitor the situation and may adjust our current policies as more information and public health guidance become available, the ongoing effects of the COVID-19 pandemic and/or the precautionary measures that we have adopted may create operational and other challenges, any of which could harm our business and results of operations.

On September 9, 2021, President Biden directed the Department of Labor's Occupational Safety and Health Administration ("OSHA") to issue an Emergency Temporary Standard ("ETS") requiring that all employers with at least 100 employees ensure that their employees are fully vaccinated for COVID-19 or obtain a negative COVID-19 test at least once a week. However, OSHA withdrew the ETS on January 26, 2022 as an enforceable emergency temporary standard following the Supreme Court's granting of a stay of its enforcement. OSHA explicitly did not withdraw the ETS as a proposed rule, such that it is possible that a permanent rule regarding COVID-19 vaccination and testing requirements will ultimately be issued by OSHA following a formal rulemaking process. President Biden also issued an Executive Order requiring certain COVID-19 precautions for government contractors and their subcontractors, including mandatory employee vaccination (subject to medical and religious exemptions). These requirements for federal contractors have been the subject of multiple lawsuits and enforcement has been enjoined nationwide, with appeals from those decisions pending in multiple federal appellate courts. It is not currently possible to predict the impact on the Company of a permanent OSHA rule, or the requirements for government contractors and their subcontractors, to the extent that such OSHA rule and requirements for federal contractors are ultimately implemented and enforced. Further, state and local governments in the United States and in international jurisdictions where we operate may implement vaccine mandates and it is not clear if such mandates will go into effect, or stay in effect; whether any will apply to all employees or only to employees who work in the office; and how compliance will be documented. Should such mandates apply to us, we may be required to implement a requirement that all of our employees get vaccinated, subject to limited exceptions. Any requirement to mandate COVID-19 vaccination of our workforce or require our unvaccinated employees to be tested weekly could result in employee attrition and difficulty securing future labor needs. In addition, any requirement to impose obligations on our suppliers under the Executive Order covering government contractors and their subcontractors could impact the price and availability of our supply of raw materials and our results of operations and financial condition could be adversely affected.

In addition, many of our suppliers are experiencing operational challenges as a result of COVID-19, which has affected our supply chain and could have an adverse effect on our ability to provide products to our customers. Our suppliers may have to temporarily close a facility for disinfecting after employees tested positive for COVID-19, face staffing shortages from employees who are sick or apprehensive about coming to work or be overwhelmed by unexpected demand. Because of measures we took to increase inventory, the difficulties experienced by our suppliers have had minimal impact on our ability to ship products to our customers; however, these measures had a negative impact on short-term profitability and if the COVID-19 pandemic continues, it may negatively affect our inventory and delay delivery to our customers, which in turn will adversely affect our revenue and results of operations. If our suppliers are unable to deliver the materials we require on a timely basis, we cannot guarantee that we will be able to locate alternative sources of supply for our products on acceptable terms, or at all. If we are unable to adequately purchase appropriate amounts of inventory, our business and results of operations may be materially and adversely affected.

Additionally, the COVID-19 pandemic has impacted, and may continue to impact, our headquarters, which is our primary corporate office, sales and marketing center and has also impacted our in-house manufacturing location, including through the effects of facility closures, reductions in operating hours and other social distancing efforts. For example, if even a small number of our employees who work in clusters relating to critical functions such as manufacturing, procurement, supply chain, and research and development, test positive for COVID-19, the entire business function could be temporarily shut down to ensure the safety of our employees and the effectiveness of business would be severely impacted. Additionally, while Massachusetts and other states have begun to ease restrictions on in-person operations, we cannot predict whether these conditions and concerns will continue or whether we will experience more significant or frequent disruptions in the future, including the complete closure of one or more of our facilities. It is possible that widespread remote work arrangements may have a negative impact on our operations, the execution of our business plans, the productivity and availability of key personnel and other employees necessary to conduct our business, and on third party service providers who perform critical services for us, or otherwise cause operational failures due to changes in our normal business practices necessitated by the outbreak and related governmental actions. If a natural disaster, power outage, connectivity issue or other event occurred that impacted our employees' ability to work remotely, it may be difficult or, in certain cases, impossible, for us to continue our business for a substantial period of time. The increase in remote working may also result in

increased consumer privacy, data security and fraud risks, and our understanding of applicable legal and regulatory requirements, as well as the latest guidance from regulatory authorities in connection with the COVID-19 pandemic, may be subject to legal or regulatory challenge, particularly as regulatory guidance evolves in response to future developments.

More generally, the COVID-19 pandemic has had, and is expected to continue to have, an adverse effect on economies and financial markets globally, leading to a continued economic downturn, which is expected to decrease technology spending generally and could adversely affect demand for our platforms and services. It is not possible at this time to estimate the full impact that COVID-19 will have on our business, as the impact will depend on future developments, which are highly uncertain and cannot be predicted.

To the extent the COVID-19 pandemic adversely affects our business, financial condition and results of operations, it may also have the effect of heightening many of the other risks described in this “Risk Factors” section, including but not limited to, those related to our ability to increase sales to existing and new customers, increases to costs and potential delays from reliance on global suppliers and distribution networks, continue to perform on existing contracts, develop and deploy new technologies, and expand our marketing capabilities and sales organization.

Risks Related to the Additive Manufacturing Industry

The additive manufacturing industry in which we operate is characterized by rapid technological change, requiring continual innovation and development of new products and innovations to meet constantly evolving customer demands.

Our revenues are derived from the sale of 3D printers and related materials and services. The additive manufacturing market is subject to rapid innovation and technological change and our customers’ needs are rapidly evolving. While we intend to invest substantial resources to remain on the forefront of technological development, continuing advances in additive manufacturing technology, changes in customer requirements and preferences and the emergence of new standards, regulations and certifications could adversely affect adoption of our products. Our ability to compete in the additive manufacturing market depends, in large part, on our success in developing and introducing new 3D printers and technology, in improving our existing products and technology and qualifying new materials which our systems can support. We believe that we must continuously enhance and expand the functionality and features of our products and technologies in order to remain competitive. However, we may not be able to:

- predict future customer demand;
- develop cost effective new products and technologies that address the increasingly complex needs of prospective customers;
- enhance our existing products and technologies;
- respond to technological advances and emerging industry standards and certifications on a cost-effective and timely basis;
- adequately protect our intellectual property as we develop new products and technologies;
- identify the appropriate technology or product to which to devote our resources; or
- ensure the availability of cash resources to fund research and development.

Even if we successfully introduce new additive manufacturing products and technologies and enhance our existing products and technologies, it is possible that these will eventually supplant our existing products or that our competitors will develop new products and technologies that will replace our own. As a result, any of our products may be rendered obsolete or uneconomical by our or our competitors’ technological advances, leading to a loss in market share, decline in revenue and adverse effects to our business and prospects.

We face intense and growing competition in the additive manufacturing industry. Our inability to compete effectively with our competitors could affect our ability to achieve our anticipated market penetration and achieve or sustain profitability.

The additive manufacturing industry in which we operate is highly competitive. We compete for customers with a wide variety of producers of additive manufacturing equipment that creates 3D objects and end-use parts, as well as with providers of materials and services for this equipment. Some of our existing and potential competitors are researching, designing, developing and marketing other types of products and services that may render our existing or future products obsolete, uneconomical or less competitive. Existing and potential competitors may also have substantially greater financial, technical, marketing and sales, manufacturing, distribution and other resources than us, including name recognition, as well as experience and expertise in intellectual property rights and operating within certain international markets or industry verticals, any of which may enable them to compete effectively against us. Moreover, many of our competitors have more extensive customer and partner relationships than we do, and may therefore be in a

better position to identify and respond to market developments or changes in customer demands, including successfully developing technologies that outperform our technologies. Potential customers may also prefer to purchase from their existing suppliers rather than a new supplier regardless of product performance or features. For example, a number of companies that have substantial resources have announced that they are beginning production of 3D printers, which will further enhance the competition we face.

In addition, independent suppliers offer non-original supplies (including imitation, refill and remanufactured alternatives), which are often available for lower prices but which can also offer lower print quality and reliability compared to our supplies. If our customers utilize these non-original supplies with our printers, it could adversely impact our operating results and may have a negative impact on our brand.

Future competition may arise from the development of allied or related techniques for equipment, materials, software and services that are not encompassed by our patents, from the issuance of patents to other companies that may inhibit our ability to develop certain products and from improvements to existing technologies.

We intend to continue to follow a strategy of continuing product development, VAR and distribution network expansion to enhance our competitive position to the extent practicable. But we cannot assure you that we will be able to maintain our current position or continue to compete successfully against current and future sources of competition. If we do not keep pace with technological change and introduce new products and technologies, demand for our products may decline, and our operating results may suffer.

Declines in the prices of our products and services, or in our volume of sales, together with our relatively inflexible cost structure, may adversely affect our financial results.

Our business is subject to price competition. Such price competition may adversely affect our results of operation, especially during periods of decreased demand. Decreased demand also adversely impacts the volume of our sales. If our business is not able to offset price reductions resulting from these pressures, or decreased volume of sales due to contractions in the market, by improved operating efficiencies and reduced expenditures, then our operating results will be adversely affected.

Although we generally do not have long-term supply agreements, certain of our operating costs are fixed and cannot readily be reduced, which has an impact on our operating results. To the extent the demand for our products slows, or the additive manufacturing market contracts, we may be faced with excess manufacturing capacity and related costs that cannot readily be reduced, which will adversely impact our financial condition and results of operations. Conversely, because we generally do not have long-term supply agreements, we are subject to the risk of significant cost increases and parts shortages by our suppliers, or decisions by our suppliers to cease selling certain parts and materials to us.

Increased consolidation among our customers, suppliers and competitors in the additive manufacturing industry may have an adverse effect on our business and results of operations.

Increased consolidation in the additive manufacturing industry among our customers, suppliers and competitors may adversely affect our business and results of operations. Customer consolidation could lead to changes in buying patterns, slowdowns in spending, and impact our distribution channels. Moreover, the significant purchasing power of these large companies can increase pricing and competitive pressures for us, including the potential for decreases in our average selling prices. If one of our customers is acquired by another company that does not rely on us to provide it with products or relies on another provider of similar products, we may lose that customer's business. Any of the foregoing results will adversely affect our business, financial condition and results of operations.

In addition, supplier consolidation may lead to increased prices of materials for our products, deployment delays and/or a disruption in output. In addition, such consolidation may exacerbate the risks relating to our dependence on a small number of suppliers for certain materials that are required to manufacture our products.

We may experience significant delays in the design, production and launch of our additive manufacturing solutions and enhancements to existing products, and we may be unable to successfully commercialize products on our planned timelines.

We have several additive manufacturing solutions and enhancements to existing products that are still under development. There are often delays in the design, testing, manufacture and commercial release of new products, and any delay in the launch of our products could materially damage our brand, business, growth prospects, financial condition and operating results. Even if we

successfully complete the design, testing and manufacture for one or all of our products or enhancements under development, we may fail to develop a commercially successful product on the timeline we expect for a number of reasons, including:

- misalignment between the products and customer needs;
- length of sales cycles;
- insufficient product innovation;
- product quality and performance issues;
- insufficient resources or qualified personnel to develop the product;
- failure of the product to perform in accordance with the customer's expectations and industry standards;
- inability to procure parts of adequate quality needed to build the product on commercially acceptable terms, or at all;
- insufficient labor or process stability to build the product to required specifications;
- ineffective distribution, sales and marketing;
- delay in obtaining any required regulatory approvals;
- the impact of the COVID-19 pandemic on production, distribution and demand for our products;
- unexpected production costs and delays; or
- release of competitive products.

Our success in the market for the new products we develop will depend in part on our ability to prove our new products' capabilities in a timely manner. Until demonstration, our customers may not believe that our products and/or technology have the capabilities they were designed to have or that we believe they have. Furthermore, even if we do successfully demonstrate our products' capabilities, potential customers may be more comfortable doing business with a competitor, including another larger and more established company, may take longer than expected to make the decision to order our products, or may not have the budget or decision-making authority to purchase the product. Significant revenue from new product investments may not be achieved for a number of years, if at all. If the timing of our launch of new products and/or of our customers' acceptance of such products is different than our assumptions, our revenue and results of operations may be adversely affected.

Changes in our product mix may impact our gross margins and financial performance.

Our financial performance may be affected by the mix of products and services we sell during a given period. We expect to continue to offer products at a variety of price points. Sales of certain of our products have, or are expected to have, higher gross margin contributions than others. If our product mix shifts too far into lower gross margin products, or we are unable to maintain or increase gross margins, and we are not able to sufficiently reduce the engineering, production and other costs associated with those products or substantially increase the sales of our higher gross margin products, our profitability could be reduced. Additionally, the introduction of new products or services may further heighten quarterly fluctuations in gross profit and gross profit margins due to manufacturing ramp-up and start-up costs. Relatedly, if our product mix shifts such that our production rates decrease, our product costs and margins may be negatively impacted. We may experience significant quarterly fluctuations in gross profit margins or operating income or loss due to the impact of the mix of products, channels or geographic areas in which we sell our products from period to period.

Risks Related to Our Business Operations

Our failure to meet our customers' price expectations would adversely affect our business and results of operations.

Demand for our product lines is sensitive to price. We believe our competitive pricing has been an important factor in our results to date. Therefore, changes in our pricing strategies can have a significant impact on our business and ability to generate revenue. Many factors, including our production and personnel costs, our competitors' pricing and marketing strategies, our customers' budgets, the value our products bring to our customers and our desire to hit revenue goals can significantly impact our pricing strategies. If we fail to meet our customers' price expectations in any given period, demand for our products and product lines could be negatively impacted and our business, results of operations and brand could suffer.

Our revenue model is evolving and we may introduce new revenue models or avenues that may not be accepted by our customers and as such will not materialize.

We depend on our network of VARs and other distribution partners and if we fail to maintain successful relationships, or if they fail to perform, our ability to market, sell and distribute our products will be limited, and our business, financial position and results of operations will be harmed.

We rely heavily on our global network of VARs and other distribution partners to sell our products and to provide installation and support services to customers in their respective geographic regions. These VARs and other distribution partners may not be as effective in selling our products or installing and supporting our customers as we expect. Moreover, a VAR or other distribution partner may misrepresent the capabilities of our products without our knowledge either intentionally or unintentionally due to the inherent complexity of our products. Further, our VARs and other distribution partners can terminate their contracts with us at any time, and if our contracts with a significant number of VARs and other distribution partners, or with the most effective VARs and other distribution partners, were to terminate or if they would otherwise fail or refuse to sell certain of our products, we may not be able to find replacements that are as qualified or as successful in a timely manner, if at all.

Recruiting and retaining qualified VARs and other distribution partners and training them in our technologies requires significant time and resources. These VARs and other distribution partners may also market, sell and support other technologies in unrelated markets and may devote more resources to the marketing, sales and support of such products.

In addition, if our VARs and other distribution partners do not perform as anticipated, or if we are unable to secure qualified and successful VARs and other distribution partners, our sales will suffer, which would have an adverse effect on our revenues and operating results. Because we also depend upon our VARs and other distribution partners to provide installation and support services for products, if our VAR or distribution partner relationships were terminated or limited to certain products, we may face disruption in providing support for our customers, which would adversely affect our brand, reputation and our results of operations. Any failure to offer high-quality technical support services may adversely affect our relationships with our customers and adversely affect our financial results and brand.

Further, we require that our VARs and other distribution partners adhere to all local laws and regulations, but it is possible that a VAR or other distribution partner could violate such laws or regulations, which could adversely impact our business, reputation and financial results and brand. Our indirect sales and distribution model could subject us to lawsuits, potential liability and brand and reputational harm if, for example, any of our VARs and other distribution partners misrepresent the functionality of our products or services to customers or violate laws or our corporate policies.

Additionally, a default by one or more VARs or other distribution partners with whom we have a significant receivables balance could have an adverse financial impact on our financial results. As of December 31, 2021, one VAR had a 10% trade receivables balance. There were not any VARs that made up 10% or more of revenue for the year ended December 31, 2021. In the event that this VAR or any of our large customers do not continue to purchase our products or purchase fewer of our products, our business, results of operations and financial condition could be adversely affected. We have reviewed our policies that govern credit and collections and will continue to monitor them in light of current payment status and economic conditions. In addition, we try to reduce the credit exposures of our accounts receivable by instituting credit limits and additional checks. However, there can be no assurance that our efforts to identify potential credit risks will be successful. Our inability to timely identify VARs and other distribution partners that are credit risks could result in defaults at a time when such VARs and other distribution partners have high accounts receivable balances with us. Any such default would result in a significant charge against our earnings and adversely affect our results of operations and financial condition. Furthermore, accounts receivable payment periods were approximately 87 days for the year ended December 31, 2021. During that time, the VAR or distribution partner may default on its obligations or we may otherwise be unable to collect the payments due to us, which could adversely affect our results of operations and financial condition.

If our suppliers become unavailable or inadequate, our customer relationships, results of operations and financial condition may be adversely affected.

As a result of supply chain disruptions and the rise of inflation, we have experienced increasing costs and supply shortages that intensified during the second half of 2021, and which are continuing into 2022. We acquire certain of our materials, which are critical to the ongoing operation and future growth of our business, from several third parties. Generally, our third-party contract manufacturers contract directly with component suppliers with our guidance. We rely on our contract manufacturers to manage their supply chains. If one of our contract manufacturers has supply chain disruptions, or our relationship with our contract manufacturer terminates, we could experience delays. We also source some materials directly from suppliers. While most manufacturing equipment and materials for our products are available from multiple suppliers, certain of those items are only available from limited sources. Should any of these suppliers become unavailable or inadequate, or impose terms unacceptable to us, such as increased pricing terms, we could be required to spend a significant amount of time and expense to develop alternate sources of supply, and we may not be successful in doing so on terms acceptable to us, or at all. As a result, the loss of a limited source supplier could adversely affect our brand and relationship with our customers as well as our results of operations and financial condition.

In the case of certain materials, we have specified a certain grade of a product to be used in our manufacturing process. While there are several potential suppliers of most of these component materials that we use, we currently choose to use only one or a limited number of suppliers for several of these components and materials. For those materials, we could be impacted by any changes our suppliers make to such materials, which could include specification changes, lead time or cancellation of the material. If there is not an alternate product available, replacement thereof would require significant engineering and manufacturing efforts by us to qualify a replacement. Additionally, if a supplier of such materials decided to terminate their relationship with us, we may face delays in our production as we seek out a replacement supplier. Our reliance on a single or limited number of vendors involves a number of risks, including:

- potential shortages of some key components;
- product performance shortfalls, if traceable to particular product components, since the supplier of the faulty component cannot readily be replaced;
- discontinuation of a product or certain materials on which we rely;
- potential insolvency of these vendors; and
- reduced control over delivery schedules, manufacturing capabilities, quality and costs.

In addition, we evaluate new suppliers pursuant to our internal procedures. This process involves evaluations of varying durations, which may cause production delays if we were required to qualify a new supplier unexpectedly. We generally assemble our systems and parts based on our internal forecasts and the availability of raw materials, assemblies, components and finished goods that are supplied to us by third parties, which are subject to various lead times. If certain suppliers were to decide to discontinue production of an assembly, component or raw material that we use, the unanticipated change in the availability of supplies, or unanticipated supply limitations, could cause delays in, or loss of, sales, increased production or related costs and consequently reduced margins, and damage to our reputation. If we were unable to find a suitable supplier for a particular component, material or compound, we could be required to modify our existing products or the end-parts that we offer to accommodate substitute components, material or compounds. While we monitor risk internally related to our sourcing (particularly concerning raw materials), there is no guarantee that will sufficiently protect us if we suddenly lose access to supplies unexpectedly.

Any shortage of a particular component, material or compound could materially and adversely affect our ability to manufacture our products and could lead to increased costs to acquire such resources which could adversely affect our business and financial condition. We have in the past experienced and may in the future experience materials shortages and price fluctuations of certain key components, materials and compounds, and the predictability of the availability and pricing of these components, materials and compounds may be limited. Shortages of components, materials or compounds or pricing fluctuations could be material in the future. In the event of a components, materials or compounds shortage, supply interruption or material pricing change from suppliers of these components, materials or compounds, 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, materials or compounds may be time-consuming, difficult, and costly and we may not be able to source these components, materials or compounds on terms that are acceptable to us, or at all, which may undermine our ability to meet our requirements or to fill customer orders in a timely manner. Any interruption or delay in the supply of any of these components, materials or compounds, or the inability to obtain these components, materials or compounds from alternate sources at acceptable prices and within a reasonable amount of time, would adversely affect our ability to meet our scheduled product deliveries to our customers. This could adversely affect our relationships with our customers and VARs and could cause delays in shipment of our products and adversely affect our operating results. In addition, increased component, material or compound costs could result in lower gross margins. Even where we are able to pass increased costs along to our customers, there may be a lapse of time before we are able to do so such that we must absorb the increased cost. If we are unable to buy these components, materials or compounds in quantities sufficient to meet our requirements on a timely basis, we will not be able to deliver products to our customers, which may result in such customers using competitive products instead of ours.

The recent events precipitated by the COVID-19 pandemic have created minor delays on the inbound supply chain at our partners and our own facilities. Additional delays on both inbound and outbound logistics have also created challenges. We have been able to identify alternative solutions such that none of the issues has had a material impact on our ability to fulfill demand. If disruptions to global businesses from the pandemic continue or worsen, our business could face greater supply chain delays and difficulty shipping or receiving products and materials, which could have a material adverse effect on our financial condition and results of operations.

While we believe that, if necessary, we can obtain all the components necessary for our spare parts and materials from other manufacturers, we will need to guide any new manufacturers through evaluation processes of varying durations. Our spare parts and raw materials used in our materials production are subject to various lead times. Any unanticipated change in the sources of our supplies, or unanticipated supply limitations, could increase production or related costs and consequently reduce margins.

If our forecasts exceed actual orders, we may hold inventories of slow-moving or unusable parts, which could have an adverse effect on our cash flow, profitability, and results of operations. Inversely, we may lose orders if our forecast is low and we are unable to meet demand. There is considerable uncertainty on the business impact from current measures and potential future measures to contain the spread of the COVID-19 pandemic on our vendors, suppliers, and partners, especially if such measures are in effect for an extended period of time.

Our business model is predicated, in part, on developing or expanding recurring revenues through the sale of our hardware, consumables, and services. If that recurring stream of revenues does not develop as expected, or if our business model changes as the industry evolves, our operating results may be adversely affected.

Our business model is dependent, in part, on our ability to develop, maintain and increase sales of our hardware, consumables, and services as they generate recurring revenues. Existing and future customers of our systems may not purchase our consumables and services at the same rate at which customers currently purchase those offerings. If our current and future customers purchase a lower volume of our consumables and services, resulting overall in lower purchases of consumables and services on average than with our current installed customer base, our recurring revenue stream relative to our total revenues would be reduced and our operating results would be adversely affected.

We rely on a limited number of third-party logistics providers for distribution of our products, and their failure to distribute our products effectively would adversely affect our sales.

We rely on a limited number of third-party logistics providers for shipping our products. Each third-party logistics provider stores our products in a limited number of warehouses where they prepare and ship our products based on digital instructions. The use of a limited number of third-party logistics providers increases the risk that a fire or damage from another type of disaster at any of the warehouses may result in a disruption of our commercialization efforts. Additionally, because we use a limited number of third-party logistics providers, if there is a disruption in the distribution channels of such third-party logistics providers, including but not limited to any disruption caused by global shipping capacity, labor shortages and the ongoing COVID-19 pandemic, our business and financial condition could be adversely impacted.

If our third-party logistics providers do not fulfill their contractual obligations to us, or refuse or fail to adequately distribute our products, such as by shipping our products to the incorrect recipient, or the agreements are terminated without adequate notice, shipments of our products, and associated revenues, would be adversely affected. In addition, we expect that it may take a significant amount of time if we were required to change our third-party logistics providers and would require significant efforts to provide the systems support required for a new provider to effectively support our operations.

If demand for our products does not grow as expected, or if market adoption of additive manufacturing does not continue to develop, or develops more slowly than expected, our revenues may stagnate or decline, and our business may be adversely affected.

We believe that the industrial manufacturing market, which today is dominated by conventional manufacturing processes that do not involve additive manufacturing technology, is undergoing a shift towards additive manufacturing. We may not be able to develop effective strategies to raise awareness among potential customers of the benefits of additive manufacturing technologies or our products may not address the specific needs or provide the level of functionality required by potential customers to encourage the continuation of this shift towards additive manufacturing. We must anticipate, sometimes several years in advance, the direction that the additive market is taking. We may not correctly anticipate the direction, which may lead us to invest in the wrong products, which may adversely affect our results of operation and financial condition. If additive manufacturing technology does not continue to gain broader market acceptance as an alternative to conventional manufacturing processes, or if the marketplace adopts additive manufacturing technologies that differ from our technologies, we may not be able to increase or sustain the level of sales of our products, and our operating results would be adversely affected as a result.

Defects in new products or in enhancements to our existing products that give rise to product returns or warranty or other claims could result in material expenses, diversion of management time and attention and damage to our reputation.

Our additive manufacturing solutions are complex and may contain undetected defects or errors when first introduced or as enhancements are released that, despite testing, are not discovered until after a machine has been used. We may not know which products are affected by defects. These defects could be systemic and could affect all of the products we shipped prior to discovery thereof. It may not be economically feasible to identify, replace or repair all affected products. In the event that the defect is severe enough or impacts customer safety, a product recall may be required. This could result in delayed market acceptance of those products or claims from VARs, customers or others, which may result in litigation, increased customer warranty, support and repair or replacement costs, damage to our reputation and business, or significant costs and diversion of support, management and engineering personnel to correct the defect or error. We may from time to time become subject to warranty or product liability claims related to

product quality issues that may require us to take remedial action and could, regardless of merit, lead us to incur significant expenses, result in diversion of management time and attention, damage to our business and reputation and brand, and cause us to fail to retain existing customers or fail to attract new customers.

We attempt to include provisions in our agreements with customers that are designed to manage our exposure to potential liability for damages arising from defects or errors in our products. However, it is possible that these provisions may not be effective as a result of unfavorable judicial decisions or laws enacted in the future.

We may be unable to consistently manufacture our products to the necessary specifications or in quantities necessary to meet demand at an acceptable cost or at an acceptable performance level.

Our products are integrated solutions with many different components that work together. As such, a quality defect in a single component can compromise the performance of the entire solution. As we continue to grow and introduce new products, and as our products incorporate increasingly sophisticated technology, such as our FX20 system, which is the largest and most complex printer we have ever developed, it will be increasingly difficult to ensure our products are produced in the necessary quantities without sacrificing quality. There is no assurance that we or our third-party manufacturers and any component suppliers will be able to continue to manufacture our products so that they consistently achieve the product specifications and quality that our customers expect. Relatedly, certain of our components are sourced by a single supplier and, if the supply becomes disrupted as a result of insufficient quality, service delays or any other factor, our manufacturing efforts may be adversely affected. Any future design issues, unforeseen manufacturing problems, such as contamination of our or such third-party facilities, equipment malfunctions, aging components, component obsolescence, business continuity issues, quality issues with components and materials sourced from third party suppliers, or failures to strictly follow procedures or meet specifications, may have a material adverse effect on our brand, business, financial condition and operating results. Furthermore, we or our third-party manufacturers may not be able to increase manufacturing to meet anticipated demand or may experience downtime.

In order to meet our customers' needs, we attempt to forecast demand for our products and components used for the manufacture of our products. If we fail to accurately forecast this demand, we could incur additional costs or experience manufacturing delays and may experience lost sales or significant inventory carrying costs.

The risk of manufacturing defects or quality control issues is generally higher for new products, whether produced by us or a third-party manufacturer, products that are transitioned from one manufacturer to another, particularly if manufacturing is transitioned or initiated with a manufacturer we have not worked with in the past, and products that are transferred from one manufacturing facility to another. We cannot assure investors that we and our third-party manufacturers will be able to launch new products on time, transition manufacturing of existing products to new manufacturers, transition our manufacturing capabilities to a new location or transition manufacturing of any additional materials in-house without manufacturing defects. An inability to manufacture products and components that consistently meet specifications, in necessary quantities and at commercially acceptable costs will have a negative impact and may have a material adverse effect on our brand, business, financial condition and results of operations.

Our commercial contracts generally contain product warranties and limitations on liability and we carry liability insurance in amounts that we believe are adequate for our risk exposure and commensurate with industry norms. However, commercial terms and our insurance coverage may not be adequate or available to protect our company in all circumstances, and we might not be able to maintain adequate insurance coverage for our business in the future at an acceptable cost. Any liability claim against us that is not covered by adequate insurance could adversely affect our consolidated results of operations and financial condition. Finally, any liability claim against us may cause harm to our brand, reputation and adversely impact our business.

We are dependent on the continued services and performance of our senior management and other key employees, as well as on our ability to successfully hire, train, manage and retain qualified personnel.

Our future performance depends on the continued services and contributions of our executive team and other key employees to execute on our business plan and to identify and pursue new opportunities and product innovations. Such persons may resign at any time and the loss of their services could delay or prevent the successful implementation of our strategy, commercialization of new applications for our systems or other products, or could otherwise adversely affect our ability to manage our company effectively and carry out our business plan. There is no assurance that if any senior executive or other key employee leaves in the future, we will be able to rapidly replace him or her and transition smoothly towards his or her successor, without any adverse impact on our operations.

Our ability to successfully pursue our growth strategy will also depend on our ability to attract, motivate and retain existing and new personnel. We experience intense competition for qualified senior management and other key personnel (including scientific, technical, manufacturing, engineering, financial and sales personnel) in the additive manufacturing industry, especially in the greater Boston area. In addition, we have experienced increased competition and shortages for skilled labor, particularly for the key roles

noted above. Our personnel are generally employed on an at-will basis, which means that they could terminate their employment with us at any time. There can be no assurance that we will be able to retain our current key personnel or attract new persons to join our organization in the future. Some of our competitors for these employees have greater resources and more experience, making it difficult for us to compete successfully for key personnel. These pressures could result in increased costs in order to provide competitive compensation packages to attract and retain key personnel. Moreover, new employees may not be as productive as we expect since we may face challenges in adequately integrating them into our workforce and culture. If we cannot attract and retain sufficiently qualified technical employees for our research product development activities, as well as experienced sales and marketing personnel, we may be unable to develop and commercialize new products and enhancements to existing products.

As manufacturing becomes a larger part of our operations, we will become exposed to accompanying risks and liabilities.

In-house and outsourced manufacturing has been and continues to be a significant part of our business. As a result, we expect to continue to be subject to various risks associated with the manufacturing and supply of products, including the following:

- If we fail to supply products in accordance with contractual terms, including terms related to time of delivery and performance specifications, we may be required to repair or replace defective products and may become liable for direct, special, consequential and other damages, even if manufacturing or delivery was outsourced;
- Raw materials used in the manufacturing process, labor and other key inputs may become scarce, obsolete and expensive, causing our costs to exceed cost projections and associated revenues;
- Manufacturing processes typically involve large machinery, fuels and chemicals, any or all of which may lead to accidents involving bodily harm, destruction of facilities and environmental contamination and associated liabilities;
- As our manufacturing operations expand, we expect that a significant portion of our manufacturing will be done in regions outside the United States, either by third-party contractors or in a plant owned by the Company. Any manufacturing done in such locations presents risks associated with quality control, currency exchange rates, foreign laws and customs, timing and loss risks associated with international transportation and potential adverse changes in the political, legal and social environment in the host country;
- We have made, and may be required to make, representations as to our right to supply and/or license intellectual property and to our compliance with laws. Such representations are usually supported by indemnification provisions requiring us to defend our customers and otherwise make them whole if we license or supply products that infringe on third-party technologies or violate government regulations;
- As our manufacturing operations scale, so will our dependence on skilled labor at both in-house and third-party manufacturing facilities. If we are unable to obtain and maintain skilled labor resources, we may be unable to meet customer production demands; and
- With scaling production volume, demand for our products may make up a significant percentage of global volume in select categories or commodities. Such commodities could be subject to large pricing swings due to the global political, legal and social environment and could cause our costs to exceed productions and associated revenues.

Any failure to adequately manage risks associated with the manufacture and supply of materials and products could adversely affect profits from that segment of our business and/or lead to significant liabilities, which would harm our brand, business, operations and financial condition.

Under applicable employment laws, we may not be able to enforce covenants not to compete and therefore may be unable to prevent our competitors from benefiting from the expertise of some of our former employees.

We generally enter into non-competition agreements with our employees. These agreements prohibit our employees from competing directly with us or working for our competitors or clients for a limited period after they cease working for us. We may be unable to enforce these agreements under the laws of the jurisdictions in which our employees work and it may be difficult for us to restrict our competitors from benefiting from the expertise that our former employees or consultants developed while working for us. For example, in Massachusetts, where most of our employees are based, applicable law imposes a number of requirements to enter into a valid non-competition agreement, and in California non-competition agreements with employees are generally unenforceable after termination of employment.

We expect to continue to experience rapid growth and organizational change. If we fail to manage our growth effectively, we may be unable to execute our business plan, maintain high levels of service and customer satisfaction or attract new employees and customers.

We expect to continue to experience growth in our number of customers, sales, revenues and headcount. We expect to continue to make significant investments in our business, including investments in our infrastructure, software, technology, personnel headcount, facilities, marketing and sales efforts. If our business does not generate the level of revenue required to support our investment, our net sales and profitability will be adversely affected.

To manage growth in our operations and personnel, we will need to continue to scale and improve our operational, financial, and management controls, and our reporting systems and procedures, which will require significant capital expenditures, increasing our cost of operations and the reallocation of valuable management resources. As we scale, it may become more difficult and will require additional capital expenditures to maintain and increase the productivity of our employees, expand production, to address the needs of our actual and prospective customers, to further develop and enhance our products, and remain competitive against our competitors' products. These enhancements and improvements will require significant capital expenditures, investments in additional headcount and other operating expenditures and allocation of valuable management and employee resources. Our future financial performance and our ability to execute on our business plan will depend, in part, on our ability to effectively manage any future growth and expansion. There are no guarantees we will be able to do so in an efficient or timely manner, or at all.

As we acquire and invest in companies or technologies, we may not realize expected business, technological or financial benefits and the acquisitions or investments could prove difficult to integrate, disrupt our business, dilute stockholder value and adversely affect our business, results of operations, and financial condition.

As part of our business strategy, we may evaluate and make investments in, or acquisitions of, complementary companies, products, software and technologies, to further grow and augment our business and product offerings. The success of any attempts to grow our business through acquisitions to complement our business depends in part on the availability of, our ability to identify, and our ability to engage and pursue suitable acquisition candidates. We may not be able to find suitable acquisition candidates, and we may not be able to complete acquisitions on favorable terms, if at all.

If we do complete future acquisitions, we cannot assure you that they will ultimately strengthen our competitive position or that they will be viewed positively by customers, financial markets or investors. Furthermore, future acquisitions could pose numerous additional risks to our operations, including:

- diversion of management's attention from existing operations;
- unanticipated costs or liabilities associated with the acquisition, including risks associated with acquired intellectual property and/or technologies;
- incurrence of acquisition-related costs, which would be recognized as a current period expense;
- difficulties in, and the cost of, integrating personnel and cultures, operations, technologies, products and services which may lead to failure to achieve the expected benefits on a timely basis or at all;
- challenges in achieving strategic objectives, cost savings and other anticipated benefits;
- inability to maintain relationships with key customers, suppliers, vendors and other third parties on which the purchased business relies;
- the difficulty of incorporating acquired technology and rights into our products and product portfolio and of maintaining quality and security standards consistent with our brand;
- ineffective controls, procedures and policies inherited from the acquired company or during the transition and integration;
- inability to generate sufficient revenue to offset acquisition and/or investment costs;
- negative impact to our results of operations because of the depreciation of amounts related to acquired intangible assets, fixed assets, and deferred compensation;
- requirements to record certain acquisition-related costs and other items as current period expenses, which would have the effect of reducing our reported earnings in the period in which an acquisition is consummated;
- the loss of acquired unearned revenue and unbilled unearned revenue;
- recording goodwill or other long-lived asset impairment charges (if any) in the periods in which they occur, which could result in a significant charge to our earnings in any such period;

- use of substantial portions of our available cash, issuance of dilutive equity or the incurrence of debt to consummate the acquisition;
- potential write-offs of acquired assets or investments, and potential financial and credit risks associated with acquired customers;
- tax effects and costs of any such acquisitions, including the related integration into our tax structure and assessment of the impact on the realizability of our future tax assets or liabilities;
- the potential entry into new markets in which we have little or no experience or where competitors may have stronger market positions; and
- currency and regulatory risks associated with conducting operations in foreign countries.

Each of the above challenges are exacerbated by the COVID-19 pandemic, which complicates our ability to complete and integrate any future acquisition into our business and could adversely affect the acquired business in unexpected ways.

We may require additional capital to support business growth, and this capital might not be available on acceptable terms, if at all.

We intend to continue to make investments to support our business growth and may require additional funds to respond to business challenges and opportunities, including the need to develop new features or enhance our products, improve our operating infrastructure or acquire complementary businesses and technologies. Accordingly, we may need to engage in equity or debt financings to secure additional funds if our existing sources of cash and any funds generated from operations do not provide us with sufficient capital. If we raise additional funds through future issuances of equity or convertible debt securities, our existing stockholders could suffer significant dilution, and any new equity securities we issue could have rights, preferences and privileges superior to those of holders of our common stock. Any debt financing that we may secure in the future could involve restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and to pursue business opportunities, including potential acquisitions. We may not be able to obtain additional financing on terms favorable to us, if at all. If we are unable to obtain adequate financing or financing on terms satisfactory to us when we require it, our ability to continue to support our business growth and to respond to business challenges and opportunities could be significantly impaired, and our business may be adversely affected.

Risks Related to Third Parties

A real or perceived defect, security vulnerability, error or performance failure in our software or technical problems or disruptions caused by our third-party service providers could cause us to lose revenue, damage our reputation and expose us to liability.

Our hardware products rely upon our complementary software products which are inherently complex and, despite extensive testing and quality control, have in the past and may in the future contain defects or errors, especially when first introduced, or otherwise not perform as contemplated. As the use of our products, including products that were recently acquired or developed, expands to more sensitive, secure or mission critical uses by our customers, we may be subject to increased scrutiny, potential reputational risk or potential liability should our software fail to perform as contemplated in such deployments. We have in the past and may in the future need to issue corrective releases of our software to fix these defects, errors or performance failures and we may encounter technical problems when we attempt to perform routine maintenance or enhance our software, internal applications, and systems, which could require us to allocate significant research and development and customer support resources to address these problems and divert the focus of our management and research and development teams. In addition, our platform may be negatively impacted by technical issues experienced by our third-party service providers.

Our business, brands, reputation and ability to attract and retain customers depend upon the satisfactory performance, reliability and availability of our software products, which in turn, with respect to our planned software as a service (“SaaS”) offerings depend upon the availability of the internet and our third-party service providers. For example, for our SaaS offerings we outsource our cloud infrastructure to Amazon Web Services (“AWS”), our hosting provider, which hosts our software products. Our hosting provider runs its own platforms upon which our products depend, and we are, therefore, vulnerable to service interruptions at the hosting provider level. We do not control the operation of any of AWS’ data center hosting facilities, and they may be subject to damage or interruption from earthquakes, floods, fires, power loss, telecommunications failures, terrorist attacks and similar events. They may also be subject to interruptions due to system failures, computer viruses, software errors or subject to breaches of computer hardware and software security, break-ins, sabotage, intentional acts of vandalism and similar misconduct. And while we rely on service level agreements with our hosting provider, if they do not properly maintain their infrastructure or if they incur unplanned outages, our customers may experience performance issues or unexpected interruptions and we may not meet our service level agreement terms with our customers. We have experienced, and expect that in the future we may experience interruptions, delays and outages in service and

availability from time to time due to a variety of factors, including infrastructure changes, human or software errors, website hosting disruptions and capacity constraints.

Any inefficiencies, security vulnerabilities, errors, defects, technical problems or performance failures with our software, internal applications and systems could reduce the quality of our products or interfere with our customers' (and their users') use of our products, which could negatively impact our brand and reputation, reduce demand, lead to a loss of customers or revenue, adversely affect our results of operations and financial condition, increase our costs to resolve such issues and subject us to financial penalties and liabilities under our service level agreements. Any limitation of liability provisions that may be contained in our customer agreements may not be effective as a result of existing or future applicable law or unfavorable judicial decisions. The sale and support of our products entail the risk of liability claims, which could be substantial in light of the use of our products in enterprise-wide environments. In addition, our insurance against this liability may not be adequate to cover a potential claim.

We depend on a limited number of third-party contract manufacturers for a substantial portion of all of our manufacturing needs and any delay, disruption or quality control problems in their operations, including due to the COVID-19 pandemic, could cause harm to our operations, including loss of market share and damage to our brand.

We depend on third-party contract manufacturers for the production of our 3D printers and on third-party suppliers for the components and raw materials used in our products. While there are several potential manufacturers for most of these products, all of our products are manufactured, assembled, tested and generally packaged by a limited number of third-party manufacturers and several single source providers of certain supplies. In most cases, we rely on these manufacturers to procure components and, in some cases, subcontract engineering work. Our reliance on a limited number of contract manufacturers involves a number of risks, including:

- unexpected increases in manufacturing and repair costs;
- inability to control the quality and reliability of products;
- inability to control delivery schedules;
- potential liability for expenses incurred by third-party contract manufacturers in reliance on our forecasts that later prove to be inaccurate;
- potential lack of adequate capacity to manufacture all or a part of the products we require;
- potential labor unrest affecting the ability of the third-party manufacturers to produce our products; and
- unexpected component or process obsolescence making key components unavailable.

If any of our third-party contract manufacturers experience a delay, disruption or quality control problems in their operations, including due to the COVID-19 pandemic and global supply chain disruptions, or if a primary third-party contract manufacturer does not renew its agreement with us, our operations could be significantly disrupted and our product shipments could be delayed. Qualifying a new manufacturer and commencing volume production is expensive and time consuming. Ensuring that a contract manufacturer is qualified to manufacture our products to our standards is time consuming. In addition, there is no assurance that a contract manufacturer can scale its production of our products at the volumes and in the quality that we require. If a contract manufacturer is unable to do these things, we may have to move production for the products to a new or existing third-party manufacturer, which would take significant effort and our brand, business, results of operations and financial condition could be materially adversely affected. Finally, if a contract manufacturer producing a highly specified product changes its materials or is unable to meet our production demands, it could lead to specification changes, increased lead time or cancellation of the product.

As we contemplate moving manufacturing into different jurisdictions, we may be subject to additional significant challenges in ensuring that quality, processes, and costs, among other issues, are consistent with our expectations.

In addition, because we use a limited number of third-party contract manufacturers, increases in the prices charged may have an adverse effect on our results of operations, as we may be unable to find a contract manufacturer who can supply us at a lower price. As a result, the loss of a limited source supplier could adversely affect our relationships with our customers and our results of operations and financial condition.

All of our products must satisfy safety and regulatory standards and some of our products must also receive government certifications. We rely on third-party providers to conduct the tests that support our applications for most regulatory approvals for our products. As part of the certification process, our third-party contract manufacturers are subject to audit and must receive approvals from third parties providing such certifications. Failure to meet these certifications by our third-party contract manufacturers could adversely impact our business. Moreover, if our third-party contract manufacturers fail to timely and accurately conduct the tests

supporting our applications for regulatory approvals, we may be unable to obtain the necessary domestic or foreign regulatory approvals or certifications to sell our products in certain jurisdictions. As a result, we would be unable to sell our products and our sales and profitability could be reduced, our relationships with our sales channel could be harmed and our reputation and brand would suffer.

Our manufacturing facility and those of our third-party contract manufacturers and suppliers, as well as our customers' facilities and our third-party logistics providers, are vulnerable to disruption due to natural or other disasters, strikes and other events beyond our control.

A major earthquake, fire, tsunami, hurricane, cyclone or other disaster, such as a major flood, seasonal storms, nuclear event or terrorist attack affecting our facilities or the areas in which they are located, or affecting those of our customers or third-party manufacturers, suppliers or fulfillment centers, could significantly disrupt our or their operations and delay or prevent product shipment or installation during the time required to repair, rebuild or replace our or their damaged manufacturing facilities. These delays could be lengthy and costly. If any of our facilities, or those of our third-party contract manufacturers, suppliers, third-party logistics providers or customers are negatively impacted by such a disaster, production, shipment and installation of our additive manufacturing machines could be delayed, which can impact the period in which we recognize the revenue related to that additive manufacturing machine sale. Additionally, customers may delay purchases of our products until operations return to normal. Even if we are able to respond quickly to a disaster, the continued effects of the disaster could create uncertainty in our business operations. In addition, concerns about terrorism, the effects of a terrorist attack, political turmoil, labor strikes, war or the outbreak of epidemic or pandemic diseases (including the outbreak of the coronavirus disease COVID-19) could have a negative effect on our operations and sales.

Risks Related to International Operations

Our existing and planned global operations subject us to a variety of risks and uncertainties that could adversely affect our business and operating results. Our business is subject to risks associated with selling machines and other products in non-United States locations.

Our products and services are distributed across the world, and we derive a substantial percentage of our sales from these international markets. Accordingly, we face significant operational risks from doing business internationally.

Our operating results may be affected by volatility in currency exchange rates and our ability to effectively manage our currency transaction risks. Although we currently invoice customers in United States dollars, increases in the value of the dollar relative to foreign currencies may make our products less attractive to foreign customers. We may also incur currency transaction risks if we were to enter into either a purchase or a sale transaction using a different currency from the currency in which we report revenues. In such cases we may suffer an exchange loss because we do not currently engage in currency swaps or other currency hedging strategies to address this risk. As we realize our strategy to expand internationally, our exposure to currency risks may increase. Given the volatility of exchange rates, we can give no assurance that we will be able to effectively manage our currency transaction risks or that any volatility in currency exchange rates will not have an adverse effect on our results of operations.

The shipments of our products to foreign customers and/or end-users may be subject to tariffs and other restrictions imposed by the destination countries. As we procure equipment and materials from foreign suppliers, we may be required to pay import duties and comply with regulations imposed by the U.S. Customs and Border Protection. Both the U.S. and foreign tariff rates and import restrictions may change from time to time, which could adversely impact our global operations, for example, by decreasing the price competitiveness of our products in foreign markets and/or by increasing our manufacturing costs.

Other risks and uncertainties we face from our global operations include:

- difficulties in staffing and managing foreign operations;
- limited protection for the enforcement of contract and intellectual property rights in certain countries where we may sell our products or work with suppliers or other third parties;
- potentially longer sales and payment cycles and potentially greater difficulties in collecting accounts receivable;
- costs and difficulties of customizing products for foreign countries;
- challenges in providing solutions across a significant distance, in different languages and among different cultures;
- laws and business practices favoring local competition;

- being subject to a wide variety of complex foreign laws, treaties and regulations and adjusting to any unexpected changes in such laws, treaties and regulations, including local labor laws;
- strict laws and regulations governing privacy and data security, including the European Union’s General Data Protection Regulation;
- uncertainty and resultant political, financial and market instability arising from the United Kingdom’s exit from the European Union;
- compliance with U.S. laws affecting activities of U.S. companies abroad, including the U.S. Foreign Corrupt Practices Act;
- tariffs, trade barriers and other regulatory or contractual limitations on our ability to sell or develop our products in certain foreign markets;
- operating in countries with a higher incidence of corruption and fraudulent business practices;
- changes in regulatory requirements, including export controls, tariffs and embargoes, other trade restrictions, competition, corporate practices and data privacy concerns;
- failure by our VARs or other distribution partners to comply with local laws or regulations, export controls, tariffs and embargoes or other trade restrictions;
- potential adverse tax consequences arising from global operations;
- seasonal reductions in business activity in certain parts of the world, particularly during the summer months in Europe and at year end globally;
- rapid changes in government, economic and political policies and conditions; and
- political or civil unrest or instability, acts of war, terrorism or epidemics and other similar outbreaks or events.

In addition, additive manufacturing has been identified by the U.S. government as an emerging technology and is currently being further evaluated for national security impacts. We expect additional regulatory changes to be implemented that will result in increased and/or new export controls related to additive manufacturing technologies, components and related materials and software. These changes, if implemented, may result in our being required to obtain additional approvals and/or licenses to sell 3D printers in the global market.

Our failure to effectively manage the risks and uncertainties associated with our global operations could limit the future growth of our business and adversely affect our business and operating results.

Global economic, political and social conditions and uncertainties in the markets that we serve may adversely impact our business.

Our performance depends on the financial health and strength of our customers, which in turn is dependent on the economic conditions of the markets in which we and our customers operate. Declines in the global economy, difficulties in the financial services sector and credit markets, continuing geopolitical uncertainties and other macroeconomic factors all affect the spending behavior of potential customers. Economic uncertainty in Europe, the United States, India, Japan, China and other countries may cause customers and potential customers to further delay or reduce technology purchases.

We also face risks from financial difficulties or other uncertainties experienced by our suppliers, distributors or other third parties on which we rely. If third parties are unable to supply us with required materials or components or otherwise assist us in operating our business, our business could be harmed.

Other changes in U.S. social, political, regulatory and economic conditions or in laws and policies governing foreign trade, manufacturing, development and investment could also adversely affect our business. In particular, on June 23, 2016, the U.K. held a referendum in which a majority of the eligible members of the electorate voted to leave the EU, commonly referred to as Brexit. Pursuant to Article 50 of the Treaty on EU, the U.K. ceased being a member state of the EU on January 31, 2020. The implementation period began February 1, 2020 and continued until December 31, 2020, during which the U.K. continued to follow all of the EU’s rules, and the U.K.’s trading relationship remained the same. The U.K. and the EU have signed an EU-UK Trade and Cooperation Agreement, or TCA, which became provisionally applicable on January 1, 2021 and then formally entered into force on May 1, 2021 after being ratified by both the U.K. and the EU. This agreement provides details on how some aspects of the U.K. and EU’s relationship will operate going forwards however there are still many uncertainties and how the TCA will take effect in practice is still largely unknown. Additionally, there is a risk that other countries may decide to leave the European Union. This uncertainty

surrounding this transition not only potentially affects our business in the United Kingdom and the European Union, but also may have an effect on global economic conditions and the stability of global financial markets, which in turn could have a material adverse effect on our business, financial condition and results of operations. In extreme cases, we could experience interruptions in production due to the processing of customs formalities or reduced customer spending in the wake of weaker economic performance. If global economic conditions remain volatile for a prolonged period or if European economies experience further disruptions, our results of operations could be adversely affected. In addition, the armed conflicts involving Russia and Ukraine may have direct and indirect effects on global economic conditions and the stability of global financial markets, which could also have a material adverse effect on our business, financial condition and results of operations.

The effects of regulations relating to conflict minerals may adversely affect our business.

On August 22, 2012, under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, the SEC adopted requirements for companies that use certain minerals and metals, known as conflict minerals, in their products, whether or not these products are manufactured by third parties. These requirements require companies to research, disclose and report whether or not such minerals originate from the Democratic Republic of Congo and adjoining countries. The implementation of these requirements could adversely affect the sourcing, availability and pricing of such minerals if they are found to be used in the manufacture of our products, including our 3D printers or materials. In addition, we expect to continue to incur additional costs to comply with the disclosure requirements, including costs related to determining the source of any of the relevant minerals and metals used in our products. Since our supply chain is complex, we may not be able to sufficiently verify the origins for these minerals and metals used in our products through the due diligence procedures that we implement, which may harm our reputation. In such event, we may also face difficulties in satisfying customers who require that all of the components of our products are certified as conflict mineral free.

Risks Related to Sales of Products to U.S. and Foreign Governments

A significant portion of our business depends on sales to the public sector, and our failure to receive and maintain government contracts or changes in the contracting or fiscal policies of the public sector could have a material adverse effect on our business.

We derive a significant portion of our revenue from contracts that we have, either directly or through distribution partners and VARs, with federal, state, local and foreign governments and government agencies, and we believe that the success and growth of our business will continue to depend on our successful procurement of government contracts. For example, we have historically derived, and expect to continue to derive, a significant portion of our revenue from sales to agencies of the U.S. federal government and governments of other nations, either directly by us or through other distribution partners. Sales to such governments and their agencies are subject to a number of challenges and risks. The procurement process for governments and their agencies is highly competitive, time-consuming, and may, in certain circumstances, be subject to political influence. We incur significant up-front time and expense, which subjects us to additional compliance risks and costs, without any assurance that we (or a third-party distributor or reseller) will win a contract.

Accordingly, our business, financial condition, results of operations, and prospects may be adversely affected by certain events or activities, including, but not limited to:

- changes in fiscal or contracting policies or decrease in available government funding;
- changes in government programs or applicable requirements;
- changes in the political environment, including before or after a change to the leadership within the government administration, and any resulting uncertainty or changes in policy or priorities and resultant funding;
- appeals, disputes or litigation relating to government procurement, including but not limited to bid protests by unsuccessful bidders on potential or actual awards of contracts to us or our partners by the government;
- the adoption of new laws or regulations or changes to existing laws or regulations;
- budgetary constraints, including automatic reductions as a result of “sequestration” or similar measures and constraints imposed by lapses in appropriations for the federal government or certain of its departments and agencies;
- influence by, or competition from, third parties with respect to pending, new or existing contracts with government customers;

- potential delays or changes in the government appropriations or procurement processes, including as a result of events such as war, incidents of terrorism, natural disasters, and public health concerns or epidemics, such as the COVID-19 pandemic; and
- increased or unexpected costs or unanticipated delays caused by other factors outside of our control, such as performance failures of our partners and subcontractors.

Any such event or activity, among others, could cause governments and governmental agencies to delay or refrain from purchasing our products and services in the future, reduce the size or payment amounts of purchases from existing or new government customers, or otherwise have an adverse effect on our business, results of operations, financial condition and prospects.

Government programs are limited by budgetary constraints and political considerations and are subject to uncertain future funding levels that could result in the termination of programs.

Government agency and department purchases are often strategic in nature and large in size. Therefore, reductions in funding levels that impact our customers could negatively affect the size of our customers' orders or lead to cancellation of orders. Government contracts are often subject to more extensive scrutiny and publicity than commercial contracts. The number and terms of new government contracts signed can be affected significantly by political and economic factors, such as pending elections and revisions to government tax policies. Negative publicity related to our government contracts, regardless of its accuracy, may damage our business by affecting our ability to compete for new contracts. A decline in security-related government spending for any reason, or a shift away from programs that we address, could hurt our sales, put pressure on our prices and reduce our revenue and margins. Relatedly, the use of our products by militaries or other government agencies or departments in a way that is perceived negatively by the public could adversely affect our business and reputation.

A multi-year U.S. government program may be implemented through the award of many different individual contracts, grants, cooperative agreements and subcontracts or other subawards. For U.S. government programs, program funding is subject to congressional appropriations. Congress generally appropriates funds on a fiscal year basis even though a program may continue for several years. Government programs are often only partially funded initially, and additional funds are committed only as Congress makes further appropriations. The termination of a program or failure to commit funds to a program would result in a loss of anticipated future revenue attributable to that program, which could materially harm our business.

We are subject to audits by the U.S. government which could adversely affect our business.

U.S. government agencies routinely audit and investigate government contractors to monitor performance, cost allocations, cost accounting and compliance with applicable laws, regulations and standards. Since some of our contracts provide for cost reimbursement, the U.S. government has the right to audit our costs even after job completion and after we have billed and recognized the corresponding revenue. The U.S. government also may review the adequacy of, and a contractor's compliance with, its internal control systems and policies, including the contractor's purchasing, property, estimating, compensation and management information systems. Any costs found to be improperly allowed or improperly allocated to a specific contract will not be reimbursed, and any such costs that have already been reimbursed must be refunded, which would affect associated revenue that had already been recognized. While we intend to implement uniform procurement and compliance programs for all of our business, we may be subject to more risks from these audits until we are able to implement such a program effectively.

Responding to governmental audits, inquiries or investigations may involve significant expense and divert the attention of our management. If a government review or investigation uncovers improper or illegal activities, we may be subject to civil and criminal penalties and administrative sanctions, including termination of contracts, forfeiture of profits, suspension of payments, damages, fines and suspension or debarment from doing business with U.S. government agencies. In addition, our reputation could be seriously harmed by allegations of impropriety, even if unfounded. Our internal controls may not prevent or detect all improper or illegal activities.

Our business is subject to laws and regulations that are more restrictive because we are a contractor and subcontractor to the U.S. government.

As a contractor and subcontractor to the U.S. government, we are subject to various laws and regulations that are more restrictive than those applicable to non-government contractors, including the Federal Acquisition Regulations and its supplements, which comprehensively regulate the formation, administration and performance of U.S. government contracts, and the Truth in

Negotiations Act and various other laws, which require certain certifications and disclosures. These laws and regulations, among other things:

- require that we obtain and maintain material governmental authorizations and approvals to conduct our business as it is currently conducted;
- require certification and disclosure of cost and pricing data in connection with certain contract negotiations;
- impose rules that define allowable and unallowable costs and otherwise govern our right to reimbursement under certain cost-based U.S. government contracts;
- restrict the use and dissemination of information classified for national security purposes and the export of certain products and technical data; and
- impose requirements relating to ethics and business practices, which carry penalties for noncompliance ranging from monetary fines and damages to loss of the ability to do business with the U.S. government as a prime contractor or subcontractor.

In addition, we may be subject to industrial security regulations of the U.S. Department of Defense and other federal agencies that are designed to safeguard against unauthorized access by foreigners and others to classified and other sensitive U.S. government information. If we were to come under foreign ownership, control or influence, our U.S. government customers could terminate, or decide not to renew, our contracts, or we may be subjected to burdensome industrial security compliance measures. Such a situation could impair our ability to obtain new contracts and subcontracts. The government may also change its procurement practices or adopt new contracting rules and regulations that could be costly to satisfy or that could impair our ability to obtain new contracts.

Our contracts and those of our VARs with governments may impose requirements that may be unfavorable to us and that may have a material adverse effect on our growth prospects and operating results.

Most of our sales to government entities have been made indirectly through our VARs and other distribution partners. In some cases, we have entered contracts directly with government customers. There are inherent risks in contracting with governments and their agencies. Government customers can typically terminate, reduce orders under or otherwise modify any of its contracts with us or our VARs for its convenience (*i.e.*, without cause) whether or not we have failed to perform under the terms of the applicable contract. In such case, the government would not be required to pay our VARs or us for the lost profits for the unperformed work. A termination arising out of our VARs or our default could expose our VARs or us to liability and harm our VARs or our ability to compete for future contracts and orders. In addition to unfavorable termination provisions, our VARs or our U.S. government contracts and related regulations contain provisions that allow the U.S. government to unilaterally suspend our VARs or us from receiving new contracts pending resolution of alleged violations of procurement laws or regulations, reduce the value of existing contracts, issue modifications to a contract and potentially restrict exports of our products, services and associated materials.

Our VARs or our contracts with government agencies may subject our VARs or us to other risks and give the government additional rights and remedies not typically found in commercial contracts, including rights that allow the government to, for example:

- obtain detailed cost or pricing information;
- receive “most favored customer” pricing;
- require us to prioritize orders from our government customers above our other customers’ existing orders, which we may fail to do and, even if we do prioritize such orders, may impact our relationships with our other customers;
- perform routine audits;
- impose equal employment and hiring standards;
- require products to be manufactured in specified countries;
- restrict non-U.S. ownership or investment in our company; and/or
- pursue administrative, civil or criminal remedies for contractual violations.

These rights and remedies have the potential to limit our VARs or our sales to, and increase our VARs or our costs of, doing business with both government and commercial customers, which could materially adversely affect our growth prospects and operating results.

Additionally, we sometimes rely on our VARs and other distribution partners to satisfy certain regulatory obligations that we would otherwise have to satisfy if we sold directly to the government entities, and our VARs and other distribution partners may be unable or unwilling to satisfy these obligations in the future. In the event of such termination or change, it may be difficult for us to arrange for another VAR or other distribution partner to sell our solutions to these government entities in a timely manner, and we could lose sales opportunities during the transition.

Risks Related to Litigation and Liability

We are, and have been in the recent past, subject to business and intellectual property litigation.

We have been in the recent past involved in litigation, and we could be involved in additional litigation in the future. In March 2018, Desktop Metal, Inc. (“Desktop Metal”), a direct competitor in the additive manufacturing industry, brought a claim in Massachusetts federal court against us regarding patent infringement and trade secret misappropriation. We counterclaimed for trade secret misappropriation, breach of fiduciary duty, and other matters. A jury trial was held in July 2018 on Desktop Metal’s claims for patent infringement. We prevailed against Desktop Metal’s claims of patent infringement via a jury verdict that found no infringement of the asserted patents. A second jury trial began in September 2018 primarily in connection with our counterclaims, and the parties entered into a confidential settlement agreement (the “Settlement Agreement”) covering the disputes between them in October 2018. In October 2019, we submitted an Arbitration Demand with JAMS against Desktop Metal alleging breach of the parties’ Settlement Agreement pursuant to the non-disparagement obligations therein, as well as a violation of M.G.L. c. 93A. Desktop Metal counterclaimed against us for breach of the parties’ Settlement Agreement pursuant to the confidentiality provision therein. The matter proceeded in confidential arbitration and a hearing was held in December 2020. The Arbitration decision was issued on February 26, 2021, and the Arbitrator ruled that neither we nor Desktop Metal were liable pursuant to their respective claims, and that neither party therefore owed any damages to the other.

In July 2021, Continuous Composites Inc. (“Continuous Composites”), a company based out of Idaho, brought a claim in the United States District Court for the District of Delaware against us regarding patent infringement. We intend to mount a vigorous defense against Continuous Composites in court. However, we can provide no assurance as to the outcome of any such disputes, and any such actions may result in judgments against us for significant damages. Resolution of any such matters can be prolonged and costly, and the ultimate results or judgments are uncertain due to the inherent uncertainty in litigation and other proceedings.

In addition, the additive manufacturing industry has been, and may continue to be, litigious, particularly with respect to intellectual property claims. Moreover, our potential liabilities are subject to change over time due to new developments, changes in settlement strategy or the impact of evidentiary requirements. Regardless of the outcome, litigation has resulted in the past, and may result in the future, in significant legal expenses and require significant attention and resources of management. As a result, any present or future litigation that may be brought against us by any third party could result in reputational harm, losses, damages, and expenses that may have a significant adverse effect on our financial condition.

We could be subject to personal injury, property damage, product liability, warranty and other claims involving allegedly defective products that we supply.

The products we supply are sometimes used in potentially hazardous or critical applications, such as the assembled parts of an aircraft, medical device or automobile. The sale of our products and the provision of related services in general, and to customers in the foregoing industries in particular, exposes us to possible claims for property damage and personal injury or death, which may result from the use of these end-use parts.

While we have not experienced any such claims to date, actual or claimed defects in the products we supply could result in our being named as a defendant in lawsuits asserting potentially large claims. We may be potentially liable, in significant amounts, and face significant harm to our reputation if an aircraft, medical or automotive part, component or accessory or any other aviation, medical or automotive product that we have sold, produced or repaired fails due to our fault, in whole or in part, or if an aircraft or automobile for which we have provided services or in which their parts are installed crashes, and the cause can be linked to those parts or cannot be determined. A similar risk arises in connection with sales of our products to customers in the aerospace industry to the extent that the parts produced by those products do not function properly and are responsible for damages. Our commercial contracts generally contain product warranties and limitations on liability and we carry liability insurance in amounts that we believe are adequate for our risk exposure and commensurate with industry norms. While we intend to monitor our insurance coverage as our business continues to grow, claims may arise in the future, and that insurance coverage may not be adequate or available to protect our consolidated company in all circumstances. Additionally, we might not be able to maintain adequate insurance coverage for our business in the future at an acceptable cost. Any liability claim against us that is not covered by adequate insurance could adversely affect our consolidated results of operations and financial condition. Finally, any liability claim against us may cause harm to our brand, reputation and adversely impact our business.

We could face liability if our additive manufacturing solutions are used by our customers to print dangerous objects.

Customers may use our 3D printers to print parts that could be used in a harmful way or could otherwise be dangerous. For example, there have been news reports that additive manufacturing machines were used to print guns or other weapons. We have little, if any, control over what objects our customers print using our products, and it may be difficult, if not impossible, for us to monitor and prevent customers from printing weapons with our products. Additionally, individuals or entities unaffiliated with us could disseminate plans or digital files that could be used with our products to produce parts and items that could be deemed illegal or harmful. While we have never printed weapons on any printers in our offices, there can be no assurance that we will not be held liable if someone were injured or killed by a weapon printed by a customer using one of our products. Additionally, association of such an incident with our products may cause harm to our brand reputation and adversely impact our business.

Third parties may produce or sell counterfeit or imitation versions of our materials.

Third parties may sell counterfeit or imitation versions of our materials that are inferior or pose safety risks. If consumers confuse these counterfeit products or materials for our products or materials or have a bad experience with the counterfeit products or materials, they might refrain from purchasing our products or materials in the future, which could harm our reputation and sales. Further, if third parties develop materials that compete favorably on price, and/or meet or exceed the quality and performance of our own materials, we may lose recurring revenue from lost sales of our materials. If we do not maintain favorable perceptions of our products and materials, and if we are unable to compete successfully with third party manufacturers of materials, our brand, business, financial condition, results of operations and cash flows could be adversely impacted.

Failure of our global operations to comply with anti-corruption laws and various trade restrictions, such as sanctions and export controls, could have an adverse effect on our business.

We operate in a number of countries throughout the world, including countries known to have a reputation for corruption. Doing business on a global basis requires us to comply with anti-corruption laws and regulations imposed by governments around the world with jurisdiction over our operations, including the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act 2010, as well as the laws of the countries where we do business.

We are also subject to various trade restrictions, including trade and economic sanctions and export controls, imposed by governments around the world with jurisdiction over our operations. For example, in accordance with trade sanctions administered by the Office of Foreign Assets Control and the U.S. Department of Commerce, we are prohibited from engaging in transactions involving certain persons and certain designated countries or territories, including Cuba, Iran, Syria, North Korea and the Crimea Region of Ukraine. In light of the conflicts between Russia and Ukraine, we may also be prohibited from engaging in transactions involving persons and entities located or headquartered in the so-called Donetsk and Luhansk People's Republics (DNR and LNR). In addition, our products are subject to export regulations that can involve significant compliance time and may add additional overhead cost to our products. In recent years the United States government has a renewed focus on export matters. For example, the Export Control Reform Act of 2018 and regulatory guidance thereunder have imposed additional controls, and may result in the imposition of further additional controls, on the export of certain "emerging and foundational technologies." Our current and future products may be subject to these heightened regulations, which could increase our compliance costs. For instance, recent amendments to the U.S. Export Administration Regulations ("EAR") increased restrictions on exports to certain "military end-users" and for "military end-uses" by certain persons in Burma, Cambodia, China, Iraq, Russia, or Venezuela, which requires us to perform due diligence on customers and end-users in those countries for potential military connections.

We also need to monitor the changes in export-related laws and regulations, such as International Traffic in Arms Regulations ("ITAR"), and their applicability to our products and services. If our products or services become subject to the ITAR, we may be required to obtain licenses, clearances, or authorizations from various regulatory entities. If we are not allowed to export our products or services, or if the clearance process is burdensome, our ability to generate revenue would be adversely affected and our operating costs could increase.

In addition, international sales of certain of our products may be subject to local laws and regulations in foreign jurisdictions which we may not be familiar with. We may not be allowed to ship our products to certain countries without meeting their local laws and regulations. The failure to comply with any of these laws or regulations could adversely affect our ability to conduct our business and generate revenues.

We are committed to doing business in accordance with applicable anti-corruption laws and regulations and with applicable trade restrictions. We are subject, however, to the risk that our affiliated entities or our and our affiliates' respective officers, directors, employees and agents (including distributors and VARs of our products) may take action determined to be in violation of such laws and regulations. Any violation by us or by any of these persons could result in substantial fines, sanctions, civil and/or criminal

penalties, or curtailment of operations in certain jurisdictions, and might adversely affect our operating results. In addition, actual or alleged violations could damage our reputation and ability to do business.

Although we take precautions to prevent violations of applicable anti-corruption laws and regulations and applicable trade restrictions, we may have exported products in the past in apparent violation of the EAR. If we are found to be in violation of U.S. export control laws, it could result in substantial fines and penalties for us and for the individuals working for us. We may also be adversely affected through other penalties, reputational harm, loss of access to certain markets or otherwise.

We are subject to environmental, health and safety laws and regulations related to our operations and the use of our 3D printers and materials, which could subject us to compliance costs and/or potential liability.

We are subject to domestic and foreign environmental, health and safety laws and regulations governing our operations. A certain risk of environmental liability is inherent in our production activities. These laws and regulations govern, among other things, the generation, use, storage, registration, handling, transport and disposal of chemicals and waste materials, the presence of specified substances in electrical products; the emission and discharge of hazardous materials into the ground, air or water; the investigation and cleanup of contaminated sites, including any contamination that results from spills due to our failure to properly dispose of chemicals and other waste materials and the health and safety of our employees. As such, our operations, including our production activities, carry an inherent risk of environmental, health and safety liabilities. Under these laws and regulations, we could be subject to liability for improper disposal of chemicals and waste materials, including those resulting from the use of our systems and accompanying materials by end-users. Accidents or other incidents that occur at our facilities or involve our personnel or operations could result in claims for damages against us. In the event we are found to be financially responsible, as a result of environmental or other laws or by court order, for environmental damages alleged to have been caused by us or occurring on our premises, we could be required to pay substantial monetary damages or undertake expensive remedial obligations. If our operations fail to comply with such laws or regulations, we may be subject to fines and other civil, administrative or criminal sanctions, including the revocation of permits and licenses necessary to continue our business activities, or may be required to make significant expenditures to achieve compliance. In addition, we may be required to pay damages or civil judgments in respect of third-party claims, including those relating to personal injury (including exposure to hazardous substances that we generate, use, store, handle, transport, manufacture or dispose of), property damage or contribution claims. Some environmental laws allow for strict, joint and several liabilities for remediation costs, regardless of fault. We may be identified as a potentially responsible party under such laws. The amount of any costs, including fines or damages payments that we might incur under such circumstances could substantially exceed any insurance we have to cover such losses. Any of these events, alone or in combination, could have a material adverse effect on our business, financial condition and results of operations and could adversely affect our reputation.

We may be subject to environmental laws and regulations concerning the import and export of chemicals and hazardous substances including, without limitation, TSCA and REACH. These laws and regulations require the testing and registration of some chemicals that we ship along with, or that form a part of, our systems and other products. If we fail to comply with these or similar laws and regulations, we may be required to make significant expenditures to reformulate the chemicals that we use in our products and materials or incur costs to register such chemicals to gain and/or regain compliance. Additionally, we could be subject to significant fines or other civil and criminal penalties should we not achieve such compliance.

The cost of complying with current and future environmental, health and safety laws applicable to our operations, or the liabilities arising from releases of, or exposure to, hazardous substances, may result in future expenditures. Any of these developments, alone or in combination, could have an adverse effect on our business, financial condition and results of operations.

Aspects of our business are subject to laws and regulations governing privacy and data security. Changes in laws, regulations, and public perception concerning data protection and privacy, or changes in the interpretation or patterns of enforcement of existing laws and regulations, could impair our efforts to maintain and expand our customer base or the ability of our customers to use our services. Breaches of laws and regulations concerning data protection and privacy could expose us to significant fines and other penalties.

We hold personal information about a variety of individuals, such as our employees, prospects, and our customers. Processing of personal information is increasingly subject to legislation and regulation in numerous jurisdictions around the world.

For example, relevant applicable laws and regulations governing the collection, use, disclosure or other processing of personal information include, in the United States, rules and regulations promulgated under the authority of the Federal Trade Commission, the California Consumer Privacy Act of 2018 (the “CCPA”) and state breach notification laws. In particular, the CCPA, among other things, requires covered ‘Businesses’ to provide new disclosures to California consumers and afford such consumers new rights with respect to their personal information. The CCPA provides for civil penalties for violations, as well as a private right of action for

certain data breaches that result in the loss of personal information. This private right of action may increase the likelihood of, and risks associated with, data breach litigation.

In 2020, California passed the California Privacy Rights Act (“CPRA”). Among other changes to the CCPA, the CPRA expands consumer rights, introduces data minimization and retention requirements, and creates the first dedicated privacy regulator in the United States. The CPRA will take effect in 2023, when comprehensive privacy laws recently passed in Virginia and Colorado will also take effect.

In addition to these laws, new privacy and data security laws have been proposed in more than half of the states in the U.S. and in the U.S. Congress, reflecting a trend toward more stringent privacy legislation in the U.S., which trend may accelerate. These laws have prompted a number of proposals for new federal and state-level privacy legislation. Such proposed legislation, if enacted, may add additional complexity, variation in requirements, restrictions and potential legal risk, require additional investment of resources in compliance programs, impact strategies and the availability of previously useful data and could result in increased compliance costs and/or changes in business practices and policies.

Moreover, we maintain offices in the European Union (“EU”), specifically, Ireland, and we have customers located in various countries throughout the EU and the United Kingdom (“UK”). Accordingly, we are subject to the General Data Protection Regulation (EU) 2016/679 (the “GDPR”), and related member state implementing legislation, and to the UK’s Data Protection Act 2018 as well as the UK General Data Protection Regulation (collectively, “European Data Protection Law”). European Data Protection Law places obligations on controllers and processors of personal data, while establishing rights for individuals with respect to their personal data. European Data Protection Law is also explicitly extraterritorial in its application, and could affect our business activities in jurisdictions outside the EU and the UK. Additionally, European Data Protection Law imposes strict rules on the transfer of personal data outside of the EU to countries that do not ensure an adequate level of protection, like the United States. These transfers are prohibited unless an appropriate safeguard specified by the GDPR is implemented, such as the Standard Contractual Clauses (SCCs) or binding corporate rules. The Court of Justice of the European Union (the “CJEU”) recently deemed that these transfers need to be analyzed on a case-by-case basis to ensure EU standards of data protection are met in the jurisdiction where the data importer is based. European regulators have issued recent guidance that imposes significant new diligence requirements on transferring data outside the EU. On June 4, 2021, the EC issued new forms of standard contractual clauses for data transfers from controllers or processors in the EU/EEA (or otherwise subject to the GDPR) to controllers or processors established outside the EU/EEA (and not subject to the GDPR). The new standard contractual clauses replace the standard contractual clauses that were adopted previously under the EU Data Protection Directive. The UK is not subject to the EC’s new standard contractual clauses but has published a draft version of a UK-specific transfer mechanism, which, once finalized, will enable transfers from the UK. We will be required to implement these new safeguards when conducting restricted data transfers under the EU and UK GDPR and doing so will require significant effort and cost. Complying with EU and UK cross-border data rules is and will continue to be expensive and time consuming and may ultimately prevent us from transferring personal data outside the EU and/or UK, which would cause significant business disruption. The GDPR imposes sanctions for violations up to the greater of €20 million (up to £17.5 million for violations of the UK GDPR) and 4% of worldwide gross annual revenue, enables individuals to claim damages for violations and introduces the right for non-profit organizations to bring claims on behalf of data subjects.

The regulatory framework governing the collection, processing, storage, use and sharing of personal information is rapidly evolving and is likely to continue to be subject to uncertainty and varying interpretations. It is possible that these laws may be interpreted and applied in a manner that is inconsistent with our existing data management practices or the features of our services and platform capabilities. We cannot yet fully determine the impact these or future laws, rules, regulations and industry standards may have on our business or operations. Additionally, our customers may be subject to differing privacy laws, rules and legislation, which may mean that they require us to be bound by varying contractual requirements applicable to certain other jurisdictions. Adherence to such contractual requirements may impact our collection, use, processing, storage, sharing and disclosure of personal information and may mean we become bound by, or voluntarily comply with, self-regulatory or other industry standards relating to these matters that may further change as laws, rules and regulations evolve. We have incurred, and may continue to incur, significant expenses to comply with evolving mandatory privacy and security standards and protocols imposed by law, regulation, industry standards, shifting merchant and customer expectations, or contractual obligations, and we may not be able to respond quickly or effectively to regulatory, legislative and other developments. These changes may in turn impair our ability to offer our existing or planned features, products and services and/or increase our cost of doing business.

We publicly post documentation regarding our privacy practices. Although we endeavor to comply with our published policies and documentation, we may at times fail to do so or be alleged to have failed to do so. Any failure or perceived failure by us to comply with our privacy policies or any applicable privacy, security or data protection, information security or consumer-protection related laws, regulations, orders or industry standards could expose us to costly litigation, significant awards, fines or judgments, civil and/or criminal penalties or negative publicity, and could materially and adversely affect our business, financial condition and results of operations. The publication of our privacy policy and other documentation that provide promises and assurances about privacy and

security can subject us to potential state and federal action if they are found to be deceptive, unfair, or misrepresentative of our actual practices, which could, individually or in the aggregate, materially and adversely affect our business, financial condition and results of operations.

We rely on our software and information technology systems to manage numerous aspects of our business and a disruption of these systems could adversely affect our business.

We rely on our information technology systems to manage numerous aspects of our business, including to efficiently purchase products from our suppliers, provide procurement and logistic services, ship products to our customers, receive orders from our customers, manage our accounting and financial functions, including our internal controls, and maintain our research and development data. Our information technology systems are an essential component of our business and any disruption could significantly limit our ability to manage and operate our business efficiently. A failure of our information technology systems to perform properly could disrupt our supply chain, product development and customer experience, which may lead to increased overhead costs and decreased sales and have an adverse effect on our reputation and our financial condition. In particular, our integrated software platform is an essential system that virtually all of our customers depend on for their design needs. If our integrated software platform were to fail, we could face adverse consequences to our results of operations, financial condition and business reputation. In addition, during the COVID-19 pandemic, a substantial portion of our employees are conducting work remotely, making us more dependent on potentially vulnerable communications systems and making us more vulnerable to cyberattacks.

Although we take steps and incur significant costs to secure our information technology systems, including our computer systems, intranet and internet sites, email and other telecommunications and data networks, our security measures may not be effective and our systems may be vulnerable to damage or interruption. Disruption to our information technology systems could result from power outages, computer and telecommunications failures, computer viruses, cyber-attack or other security breaches, catastrophic events such as fires, floods, earthquakes, tornadoes, hurricanes, acts of war, terrorism and usage errors by our employees.

Our reputation and financial condition could be adversely affected if, as a result of a significant cyber-event or otherwise:

- our operations are disrupted or shut down;
- our confidential, proprietary information is stolen or disclosed;
- we incur costs or are required to pay fines in connection with stolen customer, employee or other confidential information; or
- we must dedicate significant resources to system repairs or increase cyber security protection.

In addition, any unauthorized access, disclosure or other loss or unauthorized use of information or data could result in legal claims or proceedings, regulatory investigations or actions, and other types of liability under laws that protect the privacy and security of personal information, including federal, state and foreign data protection and privacy regulations, violations of which could result in significant penalties and fines. In addition, although we seek to detect and investigate all data security incidents, security breaches and other incidents of unauthorized access to our information technology systems and data can be difficult to detect and any delay in identifying such breaches or incidents may lead to increased harm and legal exposure.

The cost of investigating, mitigating and responding to potential data security breaches and complying with applicable breach notification obligations to individuals, regulators, partners and others can be significant. Our insurance policies may not be adequate to compensate us for the potential costs and other losses arising from such disruptions, failures or security breaches. In addition, such insurance may not be available to us in the future on economically reasonable terms, or at all. Further, defending a suit, regardless of its merit, could be costly, divert management attention and harm our reputation.

If our computer systems are damaged or cease to function properly, or, if we do not replace or upgrade certain systems, we may incur substantial costs to repair or replace them and may experience an interruption of our normal business activities or loss of critical data. Any such disruption could adversely affect our reputation and financial condition.

We also rely on information technology systems maintained by third parties, including third-party cloud computing services and the computer systems of our suppliers for both our internal operations and our customer-facing infrastructure related to our additive manufacturing solutions. These systems are also vulnerable to the types of interruption and damage described above but we have less ability to take measures to protect against such disruptions or to resolve them if they were to occur. Information technology problems faced by third parties on which we rely could adversely impact our business and financial condition as well as negatively impact our brand reputation.

Any unauthorized control or manipulation of our products' systems could result in loss of confidence in us and our products and harm our business.

Our products contain complex information technology systems. For example, our additive manufacturing machines are designed with built-in data connectivity to accept and install periodic remote updates from us to monitor, improve and update their functionality. We have designed, implemented and tested security measures intended to prevent unauthorized access to our information technology networks, our products and their systems. However, hackers may attempt to gain unauthorized access to modify, alter and use such networks, products and systems to gain control of, or to change, our products' functionality, user interface and performance characteristics, or to gain access to data stored in or generated by our products. We encourage reporting of potential vulnerabilities in the security of our products and we aim to remedy any reported and verified vulnerability. Accordingly, we have received reports of potential vulnerabilities in the past and have attempted to remedy them. However, there can be no assurance that vulnerabilities will not be exploited in the future before they can be identified, or that our remediation efforts are or will be successful.

Any unauthorized access to or control of our products or their systems or any loss of data could result in legal claims or proceedings. In addition, regardless of their veracity, reports of unauthorized access to our products, their systems or data, as well as other factors that may result in the perception that our products, their systems or data are capable of being "hacked," could negatively affect our brand and harm our business, prospects, financial condition and operating results.

Our business has risks that may not be adequately covered by insurance or indemnity.

We may face unanticipated risks of legal liability for damages caused by the actual or alleged failure of our products. While we have attempted to secure liability insurance coverage at an appropriate cost, it is impossible to adequately insure against all risks inherent in our industry, nor can we assure you that our insurers will pay a particular claim, or that we will be able to maintain coverage at reasonable rates in the future. Our insurance policies also contain deductibles, limitations and exclusions, which increase our costs in the event of a claim. Even a partially uninsured claim of significant size, if successful, could have an adverse effect on our financial condition. In addition, we may not be able to continue to obtain insurance coverage on commercially reasonable terms, or at all, and our existing policies may be canceled or otherwise terminated by the insurer. Maintaining adequate insurance and successfully accessing insurance coverage that may be due for a claim can require a significant amount of our management's time, and we may be forced to spend a substantial amount of money in that process. Substantial claims in excess of or not otherwise covered by indemnity or insurance could harm our financial condition and operating results.

Risks Related to Intellectual Property

We may not be able to adequately protect our proprietary and intellectual property rights in our data or technology.

Our success is dependent, in part, upon protecting our proprietary information and technology. Our intellectual property portfolio primarily consists of patents, patent applications, registered and unregistered trademarks, unregistered copyrights, domain names, know-how, and trade secrets. We may be unsuccessful in adequately protecting our intellectual property.

Our trade secrets, know-how and other unregistered proprietary rights are a key aspect of our intellectual property portfolio. While we take reasonable steps to protect our trade secrets and confidential information and enter into confidentiality and invention assignment agreements intended to protect such rights, such agreements can be difficult and costly to enforce or may not provide adequate remedies if violated, and we may not have entered into such agreements with all relevant parties. Such agreements may be breached and trade secrets or confidential information may be willfully or unintentionally disclosed, including by employees who may leave our company and join our competitors, or our competitors or other parties may learn of the information in some other way. Additionally, certain unauthorized use of our intellectual property may go undetected, or we may face legal or practical barriers to enforcing our legal rights even where unauthorized use is detected. The disclosure to, or independent development by, a competitor of any of our trade secrets, know-how or other technology not protected by a patent or other intellectual property system could materially reduce or eliminate any competitive advantage that we may have over such competitor. This concern could manifest itself in particular with respect to our proprietary materials that are used with our systems. Portions of our proprietary materials may not be afforded patent protection. Our pending patent applications may not be granted, and we may not be able to obtain foreign patents or pending applications corresponding to our U.S. patents. Even if foreign patents are granted, effective enforcement in foreign countries may not be available. If our patents and other intellectual property do not adequately protect our technology, our competitors may be able to offer products similar to ours. Our competitors may also be able to develop similar technology independently or design around our patents and other intellectual property. Any of the foregoing events would lead to increased competition and reduce our revenue or gross margin, which would adversely affect our operating results.

Current laws may not provide for adequate protection of our products, especially in foreign jurisdictions which may have laws that provide insufficient protections to companies. In addition, legal standards relating to the validity, enforceability, and scope of protection of proprietary rights in internet-related businesses are uncertain and evolving, and changes in these standards may adversely

impact the viability or value of our proprietary rights. Some license provisions protecting against unauthorized use, copying, transfer, and disclosure of our products, or certain aspects of our products may be unenforceable under the laws of certain jurisdictions. Further, the laws of some countries do not protect proprietary rights to the same extent as the laws of the United States, and the laws and mechanisms for protection and enforcement of intellectual property rights in some foreign countries may be inadequate. As we continue to operate in foreign countries and expand our international activities, we have encountered and may in the future encounter challenges in navigating the laws of foreign countries, which may adversely affect our ability to protect our proprietary rights. Further, competitors, foreign governments, foreign government-backed actors, criminals, or other third parties may gain unauthorized access to our proprietary information and technology. Accordingly, despite our efforts, we may be unable to prevent third parties from infringing upon or misappropriating our technology and intellectual property or claiming that we infringe upon or misappropriate their technology and intellectual property.

To protect our intellectual property rights, we may be required to spend significant resources to monitor, protect, and defend these rights, and we may or may not be able to detect infringement by our customers or third parties. Litigation has been and may be necessary in the future to enforce our intellectual property rights and to protect our trade secrets. Such litigation, regardless of merit, could be costly, time consuming, and distracting to management and key technical personnel, and could result in the impairment or loss of portions of our intellectual property. Furthermore, 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 rights. 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 further sales or the implementation of our platform, impair the functionality of our platform, delay introductions of new features, integrations, and capabilities, result in our substituting inferior or more costly technologies into our platform, or injure our reputation. In addition, we may be required to license additional technology from third parties to develop and market new features, integrations, and capabilities, and we cannot be certain that we could license that technology on commercially reasonable terms or at all, and our inability to license this technology could harm our ability to compete.

As part of any settlement or other compromise to avoid complex, protracted litigation, we may agree not to pursue future claims against a third party, including related to alleged infringement of our intellectual property rights. Part of any settlement or other compromise with another party may resolve a potentially costly dispute but may also have future repercussions on our ability to defend and protect our intellectual property rights, which in turn could adversely affect our business.

If third parties claim that we infringe upon or otherwise violate their intellectual property rights, our business could be adversely affected.

We are, have in the past and may in the future be subject to claims that we have infringed or otherwise violated third parties' intellectual property rights. There is patent, copyright and other intellectual property development and enforcement activity in our industry and relating to the additive manufacturing technology we use in our business. Our future success depends in part on not infringing upon or otherwise violating the intellectual property rights of others. From time to time, our competitors or other third parties (including non-practicing entities and patent holding companies) may claim that we are infringing upon or otherwise violating their intellectual property rights, and we may be found to be infringing upon or otherwise violating such rights. We may be unaware of the intellectual property rights of others that may cover some or all of our current or future technology or conflict with our rights, and the patent, copyright, and other intellectual property rights of others may limit our ability to improve our technology and compete effectively. Any claims of intellectual property infringement or other intellectual property violations, even those without merit, could:

- be expensive and time consuming to defend;
- cause us to cease making, licensing or using our platform or products that incorporate the challenged intellectual property;
- require us to modify, redesign, reengineer or rebrand our platform or products, if feasible;
- divert management's attention and resources; or
- require us to enter into royalty or licensing agreements to obtain the right to use a third-party's intellectual property.

Any royalty or licensing agreements, if required, may not be available to us on acceptable terms or at all. A successful claim of infringement against us could result in our being required to pay significant damages, enter into costly settlement agreements, or prevent us from offering our platform or products, any of which could have a negative impact on our operating profits and harm our future prospects. We may also be obligated to indemnify our customers or business partners in connection with any such litigation and to obtain licenses, modify our platform or products, or refund premium subscription fees, which could further exhaust our resources. Such disputes could also disrupt our platform or products, adversely affecting our customer satisfaction and ability to attract customers.

Our additive manufacturing technology contains third-party open-source software components, and failure to comply with the terms of the underlying open-source software licenses could restrict our ability to commercialize our products.

Our additive manufacturing technology contains components that are licensed under so-called “open source,” “free” or other similar licenses. Open source software is made available to the general public on an “as-is” basis under the terms of a non-negotiable license. We currently combine our proprietary software with open source software and intend to continue doing so in the future. Additionally, we make some of our source code available under open source licenses, which may limit our ability to protect our intellectual property rights in our source code and prevent our competitors or others from using such source code. Our use and distribution of open source software may entail greater risks than use of third-party commercial software because open source licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the code. In addition, if we combine our proprietary software with open source software in a certain manner, we could, under certain open source licenses, be required to disclose or make available the source code of our proprietary software to third parties. We may also face claims alleging noncompliance with open source license terms or infringement or misappropriation of third-party intellectual property rights in open source software. These claims could result in litigation, require us to purchase a costly license or remove the software. In addition, if the license terms for open source software that we use change, we may be forced to re-engineer our solutions, incur additional costs or discontinue the sale of our offerings if re-engineering could not be accomplished on a timely basis. Although we monitor our use of open source software to avoid subjecting our offerings to unintended conditions, there is a risk that these licenses could be construed in a way that could impose unanticipated conditions or restrictions on our ability to commercialize our offerings. We cannot guarantee that we have incorporated open source software in our software in a manner that will not subject us to liability or in a manner that is consistent with our current policies and procedures.

General Risk Factors

We will continue to incur increased costs as a result of operating as a public company, and our management are required to devote substantial time to new compliance initiatives.

As a public company, we incur significant legal, accounting and other expenses that we did not incur as a private company. In addition, the Sarbanes Oxley Act of 2002 and rules subsequently implemented by the Securities and Exchange Commission and the New York Stock Exchange (“NYSE”) have imposed various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel need to devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations increase our legal and financial compliance costs and make some activities more time-consuming and costly. For example, we expect that these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance.

Pursuant to Section 404 of the Sarbanes Oxley Act of 2002 (the “Sarbanes Oxley Act”), we are required to furnish a report by our management on our internal control over financial reporting, including an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. However, while we remain an emerging growth company, we are not required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with Section 404 of the Sarbanes Oxley Act within the prescribed period, we are engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we need to continue to dedicate internal resources, potentially engage outside consultants and adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that neither we nor our independent registered public accounting firm will be able to conclude within the prescribed timeframe that our internal control over financial reporting is effective as required by Section 404 of the Sarbanes Oxley Act. This could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements. In addition, if we are not able to continue to meet these requirements, we may not be able to remain listed on NYSE.

Changes in accounting rules and regulations, or interpretations thereof, could result in unfavorable accounting charges or require us to change our compensation policies.

Accounting methods and policies for public companies are subject to review, interpretation and guidance from our independent registered accounting firm and relevant accounting authorities, including the SEC. Changes to accounting methods or policies, or interpretations thereof, may require us to reclassify, restate or otherwise change or revise our consolidated financial statements.

Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.

We designed our disclosure controls and procedures to reasonably assure that information we must disclose in reports we file or submit under the Exchange Act is accumulated and communicated to management, and recorded, processed, summarized and reported

within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures or internal controls and procedures, no matter how well-conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls.

Our management team has limited experience managing a public company.

Our management team has limited experience managing a publicly traded company, interacting with public company investors, and complying with the increasingly complex laws, rules and regulations that govern public companies. As a public company, we are subject to significant obligations relating to reporting, procedures and internal controls, and our management team may not successfully or efficiently manage such obligations. These obligations and scrutiny require significant attention from our 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 results of operations.

Our internal controls over financial reporting currently do not meet all of the standards contemplated by Section 404 of the Sarbanes Oxley Act, and failure to achieve and maintain effective internal controls over financial reporting in accordance with Section 404 of the Sarbanes Oxley Act could impair our ability to produce timely and accurate financial statements or comply with applicable regulations and have a material adverse effect on our business.

We operated as a private company until July 2021. Our management has significant requirements for enhanced financial reporting and internal controls as a public company. The process of designing and implementing effective internal controls is a continuous effort that requires us to anticipate and react to changes in our business and the economic and regulatory environments and to expend significant resources to maintain a system of internal controls that is adequate to satisfy our reporting obligations as a public company. If we are unable to establish or maintain appropriate internal financial reporting controls and procedures, it could cause us to fail to meet our reporting obligations on a timely basis or result in material misstatements in our consolidated financial statements, which could harm our operating results. In addition, we are required, pursuant to Section 404 of the Sarbanes Oxley Act, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting. This assessment needs to include disclosure of any material weaknesses identified by our management in our internal control over financial reporting.

The rules governing the standards that must be met for our management to assess our internal control over financial reporting are complex and require significant documentation, testing, and possible remediation. Testing and maintaining internal controls may divert management's attention from other matters that are important to our business. Our independent registered public accounting firm will be required to attest to the effectiveness of our internal control over financial reporting on an annual basis. However, while we remain an emerging growth company, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. If we are not able to complete our initial assessment of our internal controls and otherwise implement the requirements of Section 404 of the Sarbanes Oxley Act in a timely manner or with adequate compliance, our independent registered public accounting firm may not be able to certify as to the adequacy of our internal control over financial reporting.

In addition to our results determined in accordance with GAAP, we believe certain non-GAAP measures may be useful in evaluating our operating performance. We present certain non-GAAP financial measures in this Annual Report on Form 10-K and intend to continue to present certain non-GAAP financial measures in future filings with the SEC and other public statements. Any failure to accurately report and present our non-GAAP financial measures could cause investors to lose confidence in our reported financial and other information, which would likely have a negative effect on the trading price of our common stock.

We have identified material weaknesses in our internal control over financial reporting and may identify additional material weaknesses in the future or fail to maintain effective internal control over financial reporting, which may result in material misstatements of our consolidated financial statements or cause us to fail to meet our periodic reporting obligations.

We have identified material weaknesses in our internal control over financial reporting. 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 annual or interim financial statements will not be prevented or detected on a timely basis. These material weaknesses are as follows:

- We did not design and maintain an effective control environment commensurate with our financial reporting requirements. Specifically, we lacked a sufficient complement of resources with (i) an appropriate level of accounting knowledge, experience and training to appropriately analyze, record and disclose accounting matters timely and accurately, and (ii) an appropriate level of knowledge and experience to establish effective processes and controls.

Additionally, the lack of a sufficient number of professionals resulted in an inability to consistently establish appropriate authorities and responsibilities in pursuit of our financial reporting objectives, as demonstrated by, among other things, insufficient segregation of duties in our finance and accounting functions. This material weakness contributed to the following additional material weaknesses:

- We did not design and maintain effective controls related to the period-end financial reporting process, including designing and maintaining formal accounting policies, procedures and controls to achieve complete, accurate and timely financial accounting, reporting and disclosures. Additionally, we did not design and maintain controls over the preparation and review of account reconciliations and journal entries, including maintaining appropriate segregation of duties.
- We did not design and maintain effective controls related to the identification of and accounting for certain non-routine, unusual or complex transactions, including the proper application of U.S. GAAP of such transactions. Specifically, we did not design and maintain controls to timely identify and account for share repurchase transactions, warrant instruments, and performance based stock awards.

These material weaknesses resulted in audit adjustments to the following financial statement line items in our financial statements: operating expense, other expense, interest expense, other assets, other liabilities, additional paid in capital, treasury stock, retained earnings, note receivable—equity, and series D preferred stock. These adjustments were recorded prior to the issuance of the consolidated financial statements as of and for the years ended December 31, 2020 and 2019. Additionally, these material weaknesses resulted in audit adjustments to additional paid in capital and stock based compensation expense for the quarters ended June 30, 2021, September 30, 2021, and December 31, 2021. The material weakness related to accounting for warrant instruments resulted in the restatement of the previously issued financial statements of AONE, the entity we merged with at Closing, related to warrant liabilities and equity. Additionally, these material weaknesses could result in a misstatement of substantially all of our accounts or disclosures that would result in a material misstatement to the annual or interim consolidated financial statements that would not be prevented or detected.

- We did not design and maintain effective controls over information technology (“IT”) general controls for information systems that are relevant to the preparation of our financial statements. Specifically, we did not design and maintain (i) program change management controls for financial systems to ensure that information technology program and data changes affecting financial IT applications and underlying accounting records are identified, tested, authorized and implemented appropriately; (ii) user access controls to ensure appropriate segregation of duties and that adequately restrict user and privileged access to financial applications, programs, and data to appropriate Company personnel; (iii) computer operations controls to ensure that critical batch jobs are monitored, privileges are appropriately granted, and data backups are authorized and monitored; and (iv) testing and approval controls for program development to ensure that new software development is aligned with business and IT requirements. These IT deficiencies did not result in any misstatements to the financial statements, however, the deficiencies, when aggregated, could impact our ability to maintain effective segregation of duties, as well as the effectiveness of IT-dependent controls (such as automated controls that address the risk of material misstatement to one or more assertions, along with the IT controls and underlying data that support the effectiveness of system-generated data and reports) that could result in misstatements potentially impacting all financial statement accounts and disclosures that would result in a material misstatement to the annual or interim financial statements that would not be prevented or detected. Accordingly, management has determined these deficiencies in the aggregate constitute a material weakness.

We are in the process of designing and implementing controls and taking other actions to remediate the material weaknesses described above, including the following:

- Hired additional accounting and IT personnel, including a new chief financial officer, hired in April 2021, to bolster our reporting, technical accounting and IT capabilities.
- Engaging a third party to assist in designing and implementing controls related to period-end financial reporting, segregation of duties, and IT general controls.
- Designing and implementing controls to formalize roles and review responsibilities to align with our team’s skills and experience and designing and implementing controls over segregation of duties.
- Designing and implementing controls to timely identify and account for non-routine, unusual or complex transactions and other technical accounting and financial reporting matters, including controls over the preparation and review of accounting memoranda addressing these matters.

- Designing and implementing formal accounting policies, procedures and controls supporting our period-end financial reporting process, including controls over the preparation and review of account reconciliations and journal entries.
- Designing and implementing IT general controls, including controls over program change management, the review and update of user access rights and privileges, controls over batch jobs and data backups, and program development approvals and testing.

We have hired additional accounting and IT personnel, including the hiring of a new chief financial officer in April 2021, engaged third party resources to assist us in designing and implementing controls related to period-end financial reporting, segregation of duties, and IT general controls, and begun to implement appropriate segregation of duties in the operation of manual controls. The material weaknesses will not be considered remediated until management completes the design and implementation of the measures described above and the controls operate for a sufficient period of time and management has concluded, through testing, that these controls are effective.

We are working to remediate the material weaknesses as efficiently and effectively as possible and expect full remediation could potentially go beyond December 31, 2022. At this time, we cannot provide an estimate of costs expected to be incurred in connection with implementing this remediation plan; however, these remediation measures will be time consuming, will result in us incurring significant costs, and will place significant demands on our financial and operational resources.

Our ability to use net operating loss (“NOL”) carryforwards and other tax attributes may be limited following the Merger.

We have incurred substantial losses during our history and our ability to become profitable in the near future is uncertain. To the extent that we continue to generate taxable losses, unused losses will carry forward to offset future taxable income, if any, until such unused losses expire (if at all). As of December 31, 2021, we had federal NOL carryforwards of approximately \$114.5 million, of which \$15.0 million are subject to expire at various times beginning in 2033, and \$99.5 million that have no expiration date and will be carried forward indefinitely. We also had state NOL carryforwards of approximately \$61.6 million that will begin to expire in 2033, unless previously utilized. On December 31, 2021, we had federal and state research and development credit carryforwards of approximately \$2.5 million and \$1.6 million, respectively. The research and development credit carryforwards will begin expiring in 2030, unless previously utilized.

Federal NOLs incurred in tax years beginning after December 31, 2017 and before January 1, 2021 may be carried back to each of the five tax years preceding such loss, and NOLs arising in tax years beginning after December 31, 2020 may not be carried back. Because we have had no taxable income in prior years, we do not anticipate carrying back any of our net operating losses. Moreover, federal NOLs generated in taxable years ending after December 31, 2017, may be carried forward indefinitely, but the deductibility of such federal NOLs may be limited to 80% of our taxable income annually for tax years beginning after December 31, 2020. Our NOL carryforwards are subject to review and possible adjustment by the IRS, and state tax authorities. In addition, under Sections 382 and 383 of the Code, a corporation that undergoes an “ownership change” is subject to limitations on its ability to utilize its pre-change NOLs or tax credits to offset future taxable income or taxes. For these purposes, an ownership change generally occurs where the aggregate stock ownership of one or more stockholders or groups of stockholders who own at least 5% of a corporation’s stock increases their ownership by more than 50 percentage points over their lowest ownership percentage within a specified testing period. Our existing NOLs or credits may be subject to limitations arising from previous ownership changes, and future changes in our stock ownership, many of which are outside of our control, could result in an ownership change under Sections 382 and 383 of the Code. Our NOLs or credits may also be impaired under state law. Accordingly, we may not be able to utilize a material portion of our NOLs or credits. If we determine that an ownership change has occurred and our ability to use our historical NOLs or credits is materially limited, it will harm our future operating results by effectively increasing our future tax obligations. Section 382 and 383 of the Code would apply to all net operating loss and tax credit carryforwards, whether the carryforward period is indefinite or not. If we earn taxable income, such limitations could result in increased future tax liability to us and our future cash flows could be adversely affected. We have recorded a full valuation allowance related to our NOLs and other deferred tax assets due to the uncertainty of the ultimate realization of the future benefits of those assets.

Comprehensive tax reform legislation could adversely affect our business and financial condition.

The rules dealing with U.S. federal, state and local income taxation are constantly under review by persons involved in the legislative process and by the Internal Revenue Service, or IRS, and the U.S. Treasury Department. Changes to tax laws (which changes may have retroactive application) could adversely affect us or holders of our common stock. In recent years, many changes have been made and changes are likely to continue to occur in the future.

Additional changes to U.S. federal income tax law are currently being contemplated. Future changes in tax laws could have a material adverse effect on our business, cash flow, financial condition or results of operations. It cannot be predicted whether, when,

in what form, or with what effective dates, new tax laws may be enacted, or regulations and rulings may be enacted, promulgated or issued under existing or new tax laws, which could result in an increase in our or our stockholders' tax liability or require changes in the manner in which we operate in order to minimize or mitigate any adverse effects of changes in tax law or in the interpretation thereof.

Additional Risks Related to Ownership of Our Common Stock and Us Operating as a Public Company

The price of our common stock and warrants may be volatile.

The price of our Common Stock as well as our Common Stock Warrants may fluctuate due to a variety of factors, including:

- changes in the industries in which we and our customers operate;
- developments involving our competitors;
- changes in laws and regulations affecting our business;
- variations in our operating performance and the performance of our competitors in general;
- actual or anticipated fluctuations in our quarterly or annual operating results;
- publication of research reports by securities analysts about us or our competitors or our industry;
- the public's reaction to our press releases, other public announcements and filings with the SEC;
- actions by stockholders;
- additions and departures of key personnel;
- commencement of, or involvement in, litigation involving the combined company;
- changes in our capital structure, such as future issuances of securities or the incurrence of additional debt;
- the volume of shares of our Common Stock available for public sale; and
- general economic and political conditions, including but not limited to the COVID-19 pandemic, global supply chain disruptions, recessions, interest rates, local and national elections, fuel prices, international currency fluctuations, corruption, political instability and acts of war or terrorism.

These market and industry factors may materially reduce the market price of our Common Stock and warrants regardless of the operating performance of us.

We do not intend to pay cash dividends for the foreseeable future.

We currently intend to retain our future earnings, if any, to finance the further development and expansion of our business and do not intend to pay cash dividends in the foreseeable future. Any future determination to pay dividends will be at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, restrictions contained in future agreements and financing instruments, business prospects and such other factors as its board of directors deems relevant.

If analysts do not continue to publish research about our business or if they publish inaccurate or unfavorable research, our stock price and trading volume could decline.

The trading market for our common stock depends in part on the research and reports that analysts publish about our business. We do not have any control over these analysts. We currently have limited research coverage by securities and industry analysts. If other securities or industry analysts do not commence coverage of our company, the trading price for our stock could be negatively impacted. If one or more of the analysts who cover us downgrade our common stock or publish inaccurate or unfavorable research about our business, the price of our common stock would likely decline. If few analysts cover us, demand for our common stock could decrease and our common stock price and trading volume may decline. Similar results may occur if one or more of these analysts stop covering us in the future or fail to publish reports on us regularly.

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

The market price of our common stock may be volatile and, in the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We may be the target of this type of litigation in the future.

Securities litigation against us could result in substantial costs and divert management's attention from other business concerns, which could seriously harm our business.

Future issuances and/or resales of our Common Stock may increase the volatility of and/or cause the market price of our securities to drop significantly, even if our business is doing well.

14,666,667 shares of our Common Stock may be issued (the "Markforged Earnout Shares") upon the Company achieving certain Earnout Triggering Events (as described in the Merger Agreement and Note 11 to our consolidated financial statements), and additional shares may be issued upon exercise of the outstanding warrants to purchase shares of our Common Stock. To the extent such additional shares of our Common Stock are issued, it will result in dilution to the holders of our Common Stock and an increase to the number of shares eligible for resale in the public market. Sales, or the potential for sales, of substantial numbers of such shares in the public market could increase the volatility of and/or adversely affect the market price of our Common Stock.

The obligations associated with being a public company involve significant expenses and require significant resources and management attention, which may divert from our business operations.

As a public company, we are subject to the reporting requirements of the Exchange Act and the Sarbanes-Oxley Act. The Exchange Act requires the filing of annual, quarterly and current reports with respect to a public company's business and financial condition. The Sarbanes-Oxley Act requires, among other things, that a public company establish and maintain effective internal control over financial reporting. As a result, we incur significant legal, accounting and other expenses that we did not previously incur. Our entire management team and many of its other employees will need to devote substantial time to compliance, and may not effectively or efficiently manage its transition into a public company.

These rules and regulations result in us incurring substantial legal and financial compliance costs and make some activities more time-consuming and costly. For example, these rules and regulations will likely continue to make it more difficult and more expensive for us to obtain director and officer liability insurance, and it may be required to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. As a result, it may be difficult for us to attract and retain qualified people to serve on its board of directors, its board committees or as executive officers.

We are currently an emerging growth company within the meaning of the Securities Act, and to the extent we have taken advantage of certain exemptions from disclosure requirements available to emerging growth companies or smaller reporting companies, this could make our securities less attractive to investors and may make it more difficult to compare our performance with other public companies.

We are currently an "emerging growth company" within the meaning of the Securities Act, as modified by the JOBS Act, and we may take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved. As a result, our shareholders may not have access to certain information they may deem important. We cannot predict whether investors will find our securities less attractive because we will rely on these exemptions. If some investors find our securities less attractive as a result of our reliance on these exemptions, the trading prices of our securities may be lower than they otherwise would be, there may be a less active trading market for our securities and the trading prices of our securities may be more volatile.

Further, Section 102(b)(1) of the JOBS Act exempts emerging growth companies from being required to comply with new or revised financial accounting standards until private companies (that is, those that have not had a Securities Act registration statement declared effective or do not have a class of securities registered under the Exchange Act) are required to comply with the new or revised financial accounting standards. The JOBS Act provides that a company can elect to opt out of the extended transition period and comply with the requirements that apply to non-emerging growth companies but any such election to opt out is irrevocable. We have elected not to opt out of such extended transition period, which means that when a standard is issued or revised and it has different application dates for public or private companies, we, as an emerging growth company, can adopt the new or revised standard at the time private companies adopt the new or revised standard. This may make comparison of our financial statements with another public company, which is neither an emerging growth company nor an emerging growth company which has opted out of using the extended transition period, difficult or impossible because of the potential differences in accounting standards used.

When we cease to be an emerging growth company, we will no longer be able to take advantage of certain exemptions from reporting, and, absent other exemptions or relief available from the SEC, we will also be required to comply with the auditor

attestation requirements of Section 404 of the Sarbanes-Oxley Act. We will incur additional expenses in connection with such compliance and our management will need to devote additional time and effort to implement and comply with such requirements.

Delaware law and our certificate of incorporation and bylaws contain certain provisions, including anti-takeover provisions that limit the ability of stockholders to take certain actions and could delay or discourage takeover attempts that stockholders may consider favorable.

The DGCL and our certificate of incorporation and bylaws contain provisions that could have the effect of rendering more difficult, delaying, or preventing an acquisition that stockholders may consider favorable, including transactions in which stockholders might otherwise receive a premium for their shares. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock, and therefore depress the trading price of our Common Stock. These provisions could also make it difficult for stockholders to take certain actions, including electing directors who are not nominated by the current members of our board of directors or taking other corporate actions, including effecting changes in our management. Among other things, our certificate of incorporation and bylaws include provisions regarding:

- the ability of our board of directors to issue shares of preferred stock, including “blank check” preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquirer;
- the board of directors are classified into three classes, with only one class being elected each year to serve three-year terms. As a result, in most circumstances, a person can gain control of our board only by successfully engaging in a proxy contest at two or more annual stockholders meetings;
- the certificate of incorporation will prohibit cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- the limitation of the liability of, and the indemnification of, our directors and officers;
- the ability of our board of directors to amend the bylaws, which may allow our board of directors to take additional actions to prevent an unsolicited takeover and inhibit the ability of an acquirer to amend the bylaws to facilitate an unsolicited takeover attempt; and
- advance notice procedures with which stockholders must comply to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders’ meeting, which could preclude stockholders from bringing matters before annual or special meetings of stockholders and delay changes in our board of directors and also may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer’s own slate of directors or otherwise attempting to obtain control of us.

These provisions, alone or together, could delay or prevent hostile takeovers and changes in control or changes in our board of directors or management.

The provisions of our bylaws requiring exclusive forum in the Court of Chancery of the State of Delaware and the federal district courts of the United States for certain types of lawsuits may have the effect of discouraging certain lawsuits, including derivative lawsuits and lawsuits against the directors and officers of us, by limiting plaintiffs’ ability to bring a claim in a judicial forum that they find favorable.

Our bylaws provide that, to the fullest extent permitted by law, and unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, in the event that such court does not have jurisdiction, the federal district court for the District of Delaware or other state courts of the State of Delaware) will be the sole and exclusive forum for any state law claims for (i) any derivative action or proceeding brought on behalf of us, (ii) any action asserting a claim for or based on a breach of a fiduciary duty owed by any current or former director, officer or other employee of us to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the DGCL or the Bylaws or Certificate of Incorporation (as either may be amended from time to time) (including the interpretation, validity and enforceability thereof), (iv) any action asserting a claim related to or involving us that is governed by the internal affairs doctrine, and (v) any action asserting an “internal corporate claim” as that term is defined in Section 115 of the DGCL (the “Delaware Forum Provision”). The Delaware Forum Provision, however, does not apply to actions or claims arising under the Exchange Act. The Bylaws also provide that, unless we consent in writing to the selection of an alternate forum, the sole and exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act, and the rules and regulations promulgated thereunder, will be the Federal District Courts of the United States (the “Federal Forum Provision,” and with the Delaware Forum Provision, the “Exclusive Forum Provisions”). In addition, the Bylaws provide that any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock is deemed to have notice of and consented to the Delaware Forum Provision and the Federal Forum Provision. However, Section 27 of the Exchange Act

creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder; cannot and will not be deemed to have waived compliance with the U.S. federal securities laws and the rules and regulations thereunder.

These provisions may impose additional litigation costs on stockholders in pursuing any such claims and have the effect of discouraging certain lawsuits, including derivative lawsuits and lawsuits against our directors and officers, by limiting plaintiffs' ability to bring a claim in a judicial forum that they find favorable. In addition, while the Delaware Supreme Court ruled in March 2020 that federal forum selection provisions purporting to require claims under the Securities Act be brought in federal court are "facially valid" under Delaware law, there is uncertainty as to whether other courts will enforce our Federal Forum Provision. The Federal Forum Provision may also impose additional litigation costs on stockholders who assert that the provision is not enforceable or invalid, and if the Federal Forum Provision is found to be unenforceable, we may incur additional costs associated with resolving such matters. The Court of Chancery of the State of Delaware and the Federal District Courts of the United States may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments may be more or less favorable to us than our stockholders.

The private placement warrants issued to the Sponsor and the Markforged Earnout Shares, are accounted for as liabilities recorded at fair value upon issuance with changes in fair value each period reported in earnings, which may have an adverse effect on the market price of our Common Stock.

Under U.S. GAAP, we are required to evaluate our warrants to determine whether they should be accounted for as a warrant liability or as equity. We have concluded that the warrants contain provisions requiring liability classification. Therefore, we are accounting for the warrants as a warrant liability and recorded that liability at fair value upon issuance. We will record any subsequent changes in fair value as of the end of each period for which earnings are reported. The impact of changes in fair value on earnings may have an adverse effect on the market price of our common stock and may cause fluctuations in our results of operations based on factors that are outside of our control.

Additionally, the Markforged Earnout Shares are also accounted for as a liability because the triggering events that determine the number of shares to be earned included events that were not indexed to our Common Stock. These liabilities are subject to re-measurement at each balance sheet date. With each such re-measurement, the earnout liability will be adjusted to fair value, with a resulting non-cash gain or loss related to the change in the fair value being recognized in our earnings in the statement of operations. The impact of changes in fair value on earnings may have an adverse effect on the market price of our Common Stock. Due to the recurring fair value measurement, we expect that we will recognize non-cash gains or losses for each future reporting period and that the amount of such gains or losses could be material.

Item 1B. Unresolved Staff Comments.

Not applicable.

Item 2. Properties.

Our corporate headquarters is located in an approximately 36,000 square foot facility that we lease at 480 Pleasant Street, Watertown, Massachusetts 02472. The lease of this facility expires in July 2028. We lease another 32,000 square foot facility at 85 School Street, Watertown, Massachusetts 02472. The lease of that facility expires in July 2028. In addition, we lease a 47,000 square foot facility at 4 Suburban Park Drive, Billerica, Massachusetts 10821. The Billerica facility lease expires May 2029. We entered into a lease for a 120,681 square foot facility located at 60 Tower Road, Waltham, Massachusetts 02451, which will become our corporate headquarters. The lease of this facility will begin on April 1, 2022 and expire on September 30, 2031. We believe that our facilities are adequate for our current needs and, should the company need additional space, we believe we will be able to obtain additional space on commercially reasonable terms.

Item 3. Legal Proceedings.

From time to time we are involved in claims that arise during the ordinary course of business. Although the results of litigation and claims cannot be predicted with certainty, we do not currently believe that the outcome of any of these other legal matters (including the matter involving Continuous Composites Inc., which is described in Note 14 to our consolidated financial statements and incorporated herein by reference) will have a material adverse effect on our results of operation or financial condition. Regardless of the outcome, litigation can be costly and time consuming, as it can divert management's attention from important business matters and initiatives, negatively impacting our overall operations.

Item 4. Mine Safety Disclosures.

Not Applicable.

PART II

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

Market Information

Our Common Stock and warrants are listed on the New York Stock Exchange under the symbols "MKFG" and "MKFG.WS", respectively.

Stockholders

As of March 31, 2022, there were 61 holders of record of our Common Stock and 7 holders of record of our warrants. The actual number of stockholders of our Common Stock and the actual number of holders of our warrants is greater than the number of record holders and includes stockholders of our warrants whose Common Stock or warrants are held in street name by brokers and other nominees.

Dividend Policy

We have never declared or paid cash dividends on our capital stock. We do not expect to pay dividends on our capital stock for the foreseeable future, instead anticipating that all of our earnings for the foreseeable future will be used for the operation and growth of our business. The payment of any future dividends will be at the discretion of our board of directors and will depend on various factors, including our operating results, financial condition, capital requirements, growth plans, any contractual and legal restrictions on our payment of dividends, and any other factors deemed relevant by our board of directors.

Recent Sales of Unregistered Securities

All sales of unregistered securities by us during the year ended December 31, 2021 have been included previously in a Quarterly Report on Form 10-Q or in a Current Report on Form 8-K.

Issuer Purchases of Equity Securities

None.

Item 6. Reserved

Reserved.

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

Unless otherwise indicated or the context otherwise requires, references in this section to "Markforged," "we," "us," "our" and other similar terms refer to Markforged Holding Corporation and its subsidiaries after giving effect to the Merger. The following discussion and analysis summarizes the significant factors affecting the consolidated operating results, financial condition, liquidity and cash flows of our company as of and for the periods presented below. The following discussion and analysis should be read in conjunction with our consolidated financial statements and the related notes thereto included elsewhere in this Annual Report on Form 10-K. The discussion contains forward-looking statements that are based on the beliefs of management, as well as assumptions made by, and information currently available to, our management. Actual results could differ materially from those discussed in or implied by forward-looking statements as a result of various factors, including those discussed below and elsewhere in this Annual Report on Form 10-K, particularly in the sections entitled "Risk Factors" and "Cautionary Note Regarding Forward-Looking Statements."

Business Overview

Our platform, The Digital Forge, is an intuitive additive manufacturing platform powering engineers, designers and manufacturing professionals globally. The Digital Forge combines precise and reliable 3D printers and metal and composite proprietary materials seamlessly with its cloud-based learning software offering to empower manufacturers to create more resilient and agile supply chains. Founded in 2013 by two MIT-educated engineers, Markforged is based in greater Boston, Massachusetts, where we have our own in-house manufacturing facility and where we design all of our industrial 3D printers, software and metal and composite proprietary materials.

Since our inception, we have incurred significant operating losses. Our ability to generate revenue sufficient to achieve profitability will depend on the successful further development and commercialization of our products. We generated revenue of \$91.2 million and \$71.9 million for the years ended December 31, 2021 and 2020, respectively, and incurred net profit of \$3.9 million including \$65.2 million of non-cash mark-to-market gains, and net loss of \$18.0 million for those same years. As of December 31, 2021, we had an accumulated deficit of \$75.7 million. We expect to continue to incur net losses as we focus on growing commercial sales of our products in both the United States and international markets, including growing our sales teams, scaling our manufacturing operations, continuing research and development efforts to develop new products and further enhance our existing products. Further, we expect to continue to incur additional general and administrative expenses associated with operating as a public company. In addition, we will incur substantial additional spending to build out the global footprint of our sales network, continue investing in research and development to accelerate product innovation, and fund inorganic growth opportunities.

Recent Developments

Merger agreement

On February 23, 2021, one, a Cayman Islands exempted company ("AONE"), entered into an Agreement and Plan of Merger (the "Merger Agreement") with Caspian Merger Sub Inc., a wholly owned subsidiary of AONE ("Merger Sub"), and MarkForged, Inc. ("Legacy Markforged"), pursuant to which (i) AONE would deregister as a Cayman Islands company and domesticate as a corporation in the State of Delaware and would be renamed "Markforged Holding Corporation" (the "Domestication") and (ii) Merger Sub would merge with and into Legacy Markforged with Legacy Markforged surviving as a wholly owned subsidiary of Markforged Holding Corporation (the "Merger"). AONE's shareholders approved the transactions contemplated by the Merger Agreement on July 13, 2021, and the Domestication and the Merger were completed on July 14, 2021.

Cash proceeds of the Merger were funded through a combination of AONE's \$132.5 million of cash held in trust (after redemptions of \$64.2 million) and an aggregate of \$210.0 million in fully committed common stock transactions at \$10.00 per share. Upon closing of the Merger (the "Closing"), Legacy Markforged repurchased shares of common stock from certain of its stockholders, for a total value of \$45.0 million of cash on hand (the "Employee Transactions"). Total net proceeds upon the Closing, net of the Employee Transactions and transaction costs paid at the Closing of \$27.1 million, were \$288.8 million.

Impact of the COVID-19 Pandemic and Global Supply Chain Disruption

In December 2019, a novel coronavirus disease ("COVID-19") was identified and on March 11, 2020, the World Health Organization characterized COVID-19 as a pandemic. We are continuing to closely monitor the impact of the COVID-19 pandemic on all aspects of our business, including how it is impacting our customers, employees, supply chain, and distribution network, as well as the demand for our products in the markets that we serve.

As a result of COVID-19 restrictions on facilities imposed to contain the spread of COVID-19, we experienced delays in shipments and installations as well as decreased utilization of our installed products, leading to a decrease in sales of consumables

materials, which had an adverse effect on our revenue, especially in March and April 2020. In response, we undertook certain measures to mitigate the impacts of the COVID-19 pandemic on our financial position, cash flows and supply chain, including a reduction in force during 2020 to control headcount related costs.

More recently, we have experienced longer lead-times, higher costs, and delays in procuring parts and materials. For example, we recently experienced longer lead times and capacity constraints in connection with the raw resources required to manufacture our printing material and we are also facing increased prices in connection with the procurement of the electronic components and custom metal fabricated parts for our printers. We are working closely with our suppliers and customers to minimize impacts, and we continue to closely monitor availability and supply of parts and materials required for our business. However, the extent to which our operations may continue to be impacted by the COVID-19 pandemic and related supply-chain disruptions will depend largely on future developments, which are uncertain and cannot be accurately predicted, including the timing, pace and scale of the recovery of global economic conditions. The magnitude of the adverse impact on our financial condition, results of operations and cash flows will depend on the evolution of our supply chain difficulties.

On September 9, 2021, President Biden directed the Department of Labor’s Occupational Safety and Health Administration (“OSHA”) to issue an Emergency Temporary Standard (“ETS”) requiring that all employers with at least 100 employees ensure that their employees are fully vaccinated for COVID-19 or obtain a negative COVID-19 test at least once a week. However, OSHA withdrew the ETS on January 26, 2022 as an enforceable emergency temporary standard following the Supreme Court’s granting of a stay of its enforcement. OSHA explicitly did not withdraw the ETS as a proposed rule, such that it is possible that a permanent rule regarding COVID-19 vaccination and testing requirements will ultimately be issued by OSHA following a formal rulemaking process. President Biden also issued an Executive Order requiring certain COVID-19 precautions for government contractors and their subcontractors, including mandatory employee vaccination (subject to medical and religious exemptions). These requirements for federal contractors have been the subject of multiple lawsuits and enforcement has been enjoined nationwide, with appeals from those decisions pending in multiple federal appellate courts. It is not currently possible to predict the impact on the Company of a permanent OSHA rule, or the requirements for government contractors and their subcontractors, to the extent that such OSHA rule and requirements for federal contractors are ultimately implemented and enforced. Further, state and local governments in the United States and in international jurisdictions where we operate may implement vaccine mandates and it is not clear if such mandates will go into effect, or stay in effect; whether any will apply to all employees or only to employees who work in the office; and how compliance will be documented. Should such mandates apply to us, we may be required to implement a requirement that all of our employees get vaccinated, subject to limited exceptions. Any requirement to mandate COVID-19 vaccination of our workforce or require our unvaccinated employees to be tested weekly could result in employee attrition and difficulty securing future labor needs. In addition, any requirement to impose obligations on our suppliers under the Executive Order covering government contractors and their subcontractors could impact the price and availability of our supply of raw materials and our results of operations and financial condition could be adversely affected.

Our focus on longer term profitability is based on our investments in research and development, our value added reseller (“VAR”) network, and go to market strategy. Research and development are core to our growth strategy to enable our platform to expand customer use cases and additive technology. We endeavor to expand and optimize our network of VARs which has been key to our expanding unit economics and global distribution.

For more information on operations and risks related to the pandemic and global supply chain disruptions, please see the section of this Annual Report on Form 10-K titled “*Risk Factors — General Risk Factors, The global COVID-19 pandemic has significantly affected our business and operations*”.

Key Factors Affecting Operating Results

We believe that our financial performance has been and in the foreseeable future will continue to be primarily driven by the factors discussed below. While each of these factors presents significant opportunities for our business, they also pose important challenges that we must successfully address in order to sustain our growth and improve our results of operations.

Hardware sales

Our financial performance has largely been driven by, and in the future will continue to be impacted by, the rate of sales of our hardware. Management focuses on hardware sales as an indicator of current business success and a leading indicator of likely future recurring revenue from consumables, success plans, and premium software subscriptions. We expect our hardware sales to continue to grow as we increase penetration in our existing markets and expand into new markets.

Recurring revenue

We regularly assess trends relating to recurring revenue which includes consumables, services, and premium software subscriptions. The consumables revenue stream includes metals, continuous fiber, and chopped fiber materials used by customers as print media. Our services revenue is made up of revenue generated from hardware maintenance contracts (which we also refer to as “Success Plans”) and premium software subscriptions. The Success Plan revenue stream primarily consists of hardware maintenance services generally realized over a period of one to three years. Premium software subscriptions relate to certain cloud software solutions sold separately from our standard cloud-based software platform offering that is fully integrated with our hardware. Recurring revenue was 29% and 27% of total revenue for the years ended December 31, 2021 and 2020, respectively. Our recurring revenue as a percentage of total revenue may vary based upon new product placements in the period as well as consumption trends impacted by macroeconomic factors, customer behavior, and the useful life of our hardware. As our cumulative historical hardware sales increase, recurring revenue on an absolute basis is expected to increase and over time should be an increasingly important contributor to our total revenue.

Go to market

We believe that we are in a strong position within the industry with our accessible solutions that offer users design flexibility and industrial strength parts. Accordingly, we continue to invest in operations and sales channels necessary to scale out business and continue to gain market share and open new market opportunities. We have proven an ability to design, manufacture, and distribute products through channels that provide a high value to customers at gross margins higher than many of our competitors. In addition to our go to market strategy, our integrated platform of hardware, software and consumables has been core to our success and we will continue to drive value through research and development as we introduce smarter and more adaptive technology that is expected to improve our integrated platform and, ultimately, the value provided by our 3D printers. We believe these investments are critical to achieve long-term scalability, but expect the near term impacts will be a muting of our short term profitability.

Seasonality

Historically, the sales of our 3D printers have been subject to seasonality and we have seen higher hardware sales in the third and fourth quarters. We believe this trend is likely driven by available funds in federal capital budgets at the end of the third quarter and commercial budgets at year end which they direct towards the evolution of their manufacturing processes through investments in additive manufacturing.

Components of Results of Operations

Revenue

The majority of our revenue results from the sale of hardware, including our additive manufacturing products, and related consumables. We deliver products and services primarily through our VAR network, who purchase and resell our products to end users. Hardware and consumables revenue is recognized upon transfer of control to the customer, which is typically the VAR, and generally takes place at the point of shipment. We also generate a portion of our revenue from hardware maintenance services and our premium software subscriptions. Revenue from hardware maintenance services for our additive manufacturing products is primarily generated through one-year or three-year contracts and is recognized ratably over the term of the agreement. Revenue related to software subscriptions is recognized ratably over the term of the subscription. Our VARs may provide installation services, as needed depending on the product.

Cost of revenue

Our cost of revenue consists of the cost of product, software subscriptions, maintenance services, personnel costs, third party logistics, warranty fulfillment costs, and overhead. Cost of products includes the manufacturing cost of our additive manufacturing products and consumables. We primarily utilize third party manufacturers for the production of our additive manufacturing hardware while we utilize our own manufacturing facilities and personnel for the production of our consumables. The costs of revenue for internally manufactured products include the cost of raw materials, labor conversion costs, and overhead related to our manufacturing operations, including depreciation. Cost of maintenance services includes personnel-related costs associated with our customer success teams’ provision of remote and on-site support services to our customers and the costs of replacement parts.

Our cost of revenue also includes indirect costs of providing our products and services to customers which consist primarily of reserves for excess and obsolete inventory and stock-based compensation.

We expect our cost of revenue to increase in absolute dollars in future periods as we expect our revenues to continue to grow.

Gross profit and gross margin

Our gross profit is calculated based on the difference between our revenues and cost of revenue. Gross margin is the percentage obtained by dividing gross profit by our revenue. Our gross profit and gross margin are, or may be, influenced by a number of factors, including:

- Market conditions and competition that may impact our pricing;
- Product mix changes between our printer product lines and consumables trends;
- The impact of COVID-19 and the global supply chain disruptions on the cost to both procure materials and ship materials and finished goods;
- Growth in the number of customers utilizing our additive manufacturing products and changes in customer utilization rates, which affects sales of our consumable materials and may result in excess or obsolete inventories;
- Our cost structure for manufacturing operations, including the extent to which we utilize contract manufacturers compared to in-house manufacturing, the ability to achieve economies of scale in our purchase volumes, and any impacts to changes in our manufacturing on our product warranty obligations; and
- Our ability to directly monetize the capabilities of our software solutions in the future.

We expect our gross margins to fluctuate over time, depending on the factors described above.

Research and development

Our research and development expenses represent costs incurred to support activities that advance the development of innovative additive manufacturing technology, new printer products, development of proprietary printing materials, as well as activities that enhance the functionality of our offerings. Our research and development expenses consist primarily of employee-related personnel expenses, prototypes, facilities costs, and engineering services. We expect research and development costs will increase in absolute dollars over time as we continue to invest in our product portfolio.

Sales and marketing

Sales and marketing expenses consist primarily of personnel-related costs for our sales and marketing departments, costs related to sales commissions, trade shows, advertising, facilities costs, and other demand generation services. We expect our sales and marketing costs will increase over time as we expand our headcount, optimize our reseller network and invest in brand awareness and demand generation.

General and administrative

General and administrative expenses consist primarily of personnel-related costs for our executive leadership and finance, human resources and IT departments. We expect our general and administrative costs will increase over time as we expand our headcount to support growth in our global business, our VAR network and our customer base.

Change in fair value of derivative liabilities

Change in fair value of derivative liabilities primarily includes the change in fair value of the contingent earnout liability and private placement warrant liability. Each was accounted for as a liability as of the date of the Merger and remeasured to fair value at the end of the reporting period.

Other expense

Other expense includes other non-operating expenses.

Interest expense

Interest expense includes interest accrued on our debt and the amortization of deferred debt issuance costs.

Interest income

Interest income includes interest earned on deposits and short-term investments.

Income taxes

Our income tax provision consists of an estimate for U.S. federal and state income taxes based on enacted rates, as adjusted for allowable credits, deductions, changes in deferred tax assets and liabilities and changes in tax law. Due to cumulative losses, we maintain a valuation allowance against our U.S. and state deferred tax assets.

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 Annual Report on Form 10-K. The following tables set forth our results of operations for the periods presented.

Comparison of the year ended December 31, 2021 and 2020

(dollars in thousands)	Year Ended December 31,		\$ Change	% Change
	2021	2020		
Revenue	\$ 91,221	\$ 71,851	\$ 19,370	27 %
Cost of revenue	38,368	29,921	8,447	28 %
Gross profit	52,853	41,930	10,923	26 %
Operating expense				
Sales and marketing	35,966	22,413	13,553	60 %
Research and development	32,155	17,176	14,979	87 %
General and administrative	45,772	20,080	25,692	128 %
Total operating expense	113,893	59,669	54,224	91 %
Loss from operations	(61,040)	(17,739)	(43,301)	244 %
Change in fair value of warrant liabilities	1,808	(175)	1,983	NM
Change in fair value of contingent earnout liability	63,407	—	63,407	100 %
Other expense	(265)	(9)	(256)	NM
Interest expense	(16)	(98)	82	(84) %
Interest income	17	147	(130)	(88) %
Profit (loss) before income taxes	3,911	(17,874)	21,785	(122) %
Income tax (benefit) expense	56	111	(55)	(50) %
Net profit (loss) and comprehensive income (loss)	<u>\$ 3,855</u>	<u>\$ (17,985)</u>	<u>\$ 21,840</u>	<u>(121) %</u>

NM — Not meaningful

Revenue, cost of revenue, and gross margin

We earn revenue from the sale of hardware, consumables, and service contracts. The hardware revenue stream includes 3D composite printers, 3D metal printers, and sintering furnaces. The consumables revenue stream includes chopped fiber materials, metals, and continuous fiber used by customers as print media. The services revenue stream primarily consists of warranty and maintenance contracts and software subscriptions.

The following table sets forth the changes in the components of gross margin for the years ended December 31, 2021 and 2020.

(dollars in thousands)	Year Ended December 31,		\$ Change	% Change
	2021	2020		
Revenue	\$ 91,221	\$ 71,851	\$ 19,370	27 %
Cost of revenue	38,368	29,921	8,447	28 %
Gross profit	52,853	41,930	10,923	26 %
Gross margin	58 %	58 %	—	—

Comparison of revenue

The following table disaggregates the Company's revenue based on the nature of the products and services:

(in thousands)	Year Ended December 31,		\$ Change	% Change
	2021	2020		
Hardware	\$ 64,974	\$ 52,119	\$ 12,855	25 %
Consumables	19,567	15,498	4,069	26 %
Services	6,680	4,234	2,446	58 %
Total Revenue	<u>\$ 91,221</u>	<u>\$ 71,851</u>	<u>\$ 19,370</u>	27 %

Consolidated revenue for the year ended December 31, 2021 was \$91.2 million compared with prior year revenue of \$71.9 million representing an increase of 27%, predominantly driven by an increase in hardware revenue as well as consumables revenue.

Hardware revenue increased approximately 25% for the year ended December 31, 2021 compared to the year ended December 31, 2020 primarily driven by more hardware units of our industrial composite and metal printers sold. Consumables revenue increased 26% primarily driven by the increase in material utilization by active printers in the field, the incremental volume as a result of new printer sales, and the return of certain printers to active duty following inactivity caused by the COVID-19 pandemic. Service revenue increased 58% primarily driven by an increase in the number of hardware units sold, which have a warranty and maintenance contract, as well as the introduction of software subscription services, including Eiger Fleet and Blacksmith.

Cost of revenue and gross profit

Consolidated cost of revenue for the year ended December 31, 2021 was \$38.4 million compared with cost of revenue of \$29.9 million for the year ended December 31, 2020 representing an increase of 28%, primarily due to an increase in the volume and cost of mechanical and electronic components and labor to support increased hardware sales, offset by efficiencies in hardware production. The increased costs were largely driven by the labor shortages and supply chain constraints that were prevalent in the market throughout 2021. Gross profit for the year ended December 31, 2021 was \$52.9 million compared with gross profit of \$41.9 million for the year ended December 31, 2020 representing an increase of 26%. Gross profit margin for the years ending December 31, 2021 and 2020 was 58%.

Operating expenses

The following table sets forth the components of operating expenses for the years ended December 31, 2021 and 2020.

(dollars in thousands)	Year Ended December 31,		2020		Change	
	2021					
	Amount	% Revenue	Amount	% Revenue	\$	%
Operating expenses						
Sales and marketing	\$ 35,966	39 %	\$ 22,413	31 %	\$ 13,553	60 %
Research and development	32,155	35 %	17,176	24 %	14,979	87 %
General and administrative	45,772	50 %	20,080	28 %	25,692	128 %
Total operating expenses	<u>\$ 113,893</u>	125 %	<u>\$ 59,669</u>	83 %	<u>\$ 54,224</u>	91 %

Sales and marketing expenses increased 60% for the year ended December 31, 2021, primarily due to an increase in headcount and related costs of \$3.0 million, external contractor costs of \$3.0 million, advertising expense of \$3.0 million, and stock-based compensation expense of \$1.6 million. There was also an increase in trade show participation and related expenses of \$0.8 million. The increase in sales and marketing expense is directly correlated to our growth strategy as additional personnel, contractors, and advertising efforts were deployed to increase sales and brand recognition.

Research and development expenses increased 87% for the year ended December 31, 2021 primarily due to an increase in headcount and related costs of \$6.0 million, stock-based compensation of \$3.8 million, prototype research and development costs of \$1.8 million, and external contractor costs of \$1.1 million. The increase in research and development expenses is directly related to the continued investment in product growth and development. The latest product introduced to the public, the FX20 industrial 3D printer, debuted in November 2021.

General and administrative expenses increased 128% in the year ended December 31, 2021 primarily due to an increase in headcount and related costs of \$6.4 million and stock-based compensation expense of \$10.8 million. These increases were driven by additions to our management team to position the company for future growth and additional key personnel to support our public company infrastructure. There were various other expenses incurred due to the Merger, including an increase in legal fees of \$3.0 million, contractor expenses of \$2.0 million, and transaction expenses of \$2.0 million related to our public offering.

Change in fair value of warrant liabilities and contingent earnout liability, and other expense

The following table sets forth the fair value changes and other expense for the years ended December 31, 2021 and 2020:

(dollars in thousands)	Year Ended December 31,		\$ Change	% Change
	2021	2020		
Change in fair value of warrant liabilities	\$ 1,808	\$ (175)	\$ 1,983	NM
Change in fair value of contingent earnout liability	63,407	—	63,407	100 %
Other expense	(265)	(9)	(256)	NM

NM — Not meaningful

Fair value of derivative liabilities decreased creating additional income of \$65.2 million for the year ended December 31, 2021 compared to the year ended December 31, 2020, primarily related to the change in fair value of the derivative liability for the earnout shares of \$63.4 million, calculated as the change in value between the Closing of \$123.1 million and the value as of December 31, 2021 of \$59.7 million. The change in fair value of the Private Placement Warrants (as defined below) issued since the Closing was \$3.1 million. The changes in fair value directly correlate with the change in the Company's common stock price between the Closing date of July 14, 2021 and December 31, 2021. The offsetting change of \$1.3 million is due to the increase in fair value of the warrants held prior to the Merger.

The increase in other expense was primarily due to the \$0.1 million increase in foreign exchange loss driven by the increase of sales to foreign countries, and a \$0.1 million increase in franchise tax.

Provision for income taxes

We recorded a de minimis provision for income taxes for both the years ended December 31, 2021 and 2020.

Non-GAAP Financial Measures

In addition to our financial results determined in accordance with U.S. generally accepted accounting principles (“GAAP”), we believe that Adjusted EBITDA, a non-GAAP financial measure, has been useful in evaluating the performance of our business. However, we intend to stop using Adjusted EBITDA as a financial measure beginning in 2022.

We define EBITDA, a non-GAAP financial measure used in calculating Adjusted EBITDA, as net profit (loss) and comprehensive income (loss) less interest income, interest expense, income tax expense, and depreciation and amortization expense. We define Adjusted EBITDA, a non-GAAP financial measure, as EBITDA less stock-based compensation expense, net change in fair value of warrant liabilities and contingent earnout liabilities, and non-recurring transaction costs.

We have historically monitored Adjusted EBITDA as a measure of our overall business performance, which enables us to analyze our performance without the effects of non-cash items and one-time charges. While we believe that Adjusted EBITDA has historically been useful in evaluating our business, Adjusted EBITDA is a non-GAAP financial measure that has limitations as an analytical tool. Adjusted EBITDA can be useful in evaluating our performance by eliminating the effect of financing, capital expenditures, and non-cash expenses such as stock-based compensation, however, we may incur such expenses in the future which could impact future results. We also believe that the presentation of the non-GAAP financial measures in this Annual Report on Form 10-K provides an additional tool for investors to use in comparing our core business and results of operations over multiple periods with other companies in our industry, many of which present similar non-GAAP financial measures to investors.

In addition, other companies, including companies in our industry, may calculate Adjusted EBITDA differently or not at all, which reduces the usefulness of this measure as a tool for comparison.

A summary of our cash flows from operating, investing and financing activities is provided below. We recommend that you review the reconciliation of Adjusted EBITDA to net profit (loss) and comprehensive income (loss), the most directly comparable GAAP financial measures, and that you not rely on any single financial measure to evaluate our business.

Adjusted EBITDA

(dollars in thousands)	For the Year Ended December 31,	
	2021	2020
Net profit (loss) and comprehensive income (loss)	\$ 3,855	\$ (17,985)
Interest income	(17)	(147)
Interest expense	16	98
Income tax expense	56	111
Depreciation and amortization	1,720	1,795
EBITDA	\$ 5,630	\$ (16,128)
Stock compensation expense	18,930	2,569
Change in fair value of warrant liabilities	(1,808)	175
Change in fair value of contingent earnout liability	(63,407)	—
Transaction costs expensed	1,996	—
Adjusted EBITDA	\$ (38,659)	\$ (13,384)

Liquidity and Capital Resources

We have historically funded our primary operations through the sale of convertible preferred stock offerings, the proceeds from the Merger and reverse recapitalization including the sale of common stock, and the sale of our products. Since inception we have focused on growth which has required ongoing investment to support scaling of our business, research and development efforts, and day to day operations. We had a cash and cash equivalents balance of \$288.6 million as of December 31, 2021. We incurred net profit of \$3.9 million, including \$65.2 million of non-cash mark-to-market gains, and net loss of \$18.0 million for the years ended December 31, 2021 and 2020, respectively.

As noted in the “Recent Developments” section, we completed the Merger with AONE in 2021. At Closing we received \$288.8 million in cash, which we expect to provide funding for the build out of the global footprint of our sales network, continued investing in research and development to accelerate product innovation, as well as the potential funding of inorganic growth opportunities.

Our material cash requirements from known contractual and other obligations relate to minimum operating lease obligations as of December 31, 2021 that are as follows: 2022 - \$5.5 million; 2023 - \$8.3 million; 2024 - \$7.5 million; 2025- \$7.6 million; 2026 - \$7.8 million; and subsequent years - \$31.4 million.

Currently we generate negative operating cash flows as we pursue further business growth. Our cash and cash equivalents balance as of December 31, 2021 of \$288.6 million is more than sufficient to meet the working capital and capital expenditure needs for the next 12 months following the filing for this Annual Report on Form 10-K. Our future capital requirements will depend on many factors, including our revenue growth rate, the timing and the amount of cash received from customers, the expansion of sales and marketing activities, the timing and extent of spending to support development efforts, expenses associated with our international expansion, the introduction of platform enhancements, and the continuing market adoption of The Digital Forge platform. In the future, we may enter into arrangements to acquire or invest in complementary businesses, products, and technologies. We may be required to seek additional equity or debt financing. In the event that we require additional financing, we may not be able to raise such financing on terms acceptable to us or at all. If we are unable to raise additional capital or generate cash flows necessary to expand our operations and invest in continued innovation, we may not be able to compete successfully, which would harm our business, results of operations, and financial condition.

Cash flows

For the years ended December 31, 2021 and 2020

The following table sets forth a summary of Markforged's cash flows for the periods indicated:

(dollars in thousands)	Year Ended December 31,		Change	
	2021	2020	\$	%
Net cash used in operating activities	\$ (45,702)	\$ (6,459)	\$ (39,243)	608 %
Net cash used in investing activities	(3,788)	(522)	(3,266)	626 %
Net cash provided by financing activities	279,378	5,928	273,450	NM
Net change in cash and cash equivalents	<u>\$ 229,889</u>	<u>\$ (1,053)</u>	<u>\$ 230,942</u>	<u>NM</u>

NM — Not meaningful

Cash flow from operations

Net cash used in operating activities for the years ended December 31, 2021 and 2020 was \$45.7 million and \$6.5 million, respectively. Operating cash flows and changes in working capital for comparative periods were as follows:

(dollars in thousands)	Year Ended December 31,	
	2021	2020
Operating cash flows before working capital	\$ (38,300)	\$ (12,818)
Changes in working capital	(7,401)	6,359

The changes in working capital for the year ended December 31, 2021 were due to the growth of the business which caused increases in accounts receivable of \$10.4 million, inventory of \$4.0 million, and prepaid expenses of \$2.4 million. Offsetting these asset increases were increases in accounts payable and accrued expenses of \$7.3 million and deferred revenue of \$0.9 million.

The change in working capital for the year ended December 31, 2020 was primarily attributable to deferred revenue increasing by approximately \$5.0 million due to a significant sale in the fourth quarter.

Cash flow from investing activities

Net cash used in investing activities for the years ended December 31, 2021 and 2020 was \$3.8 million and \$0.5 million, respectively. The increase in cash used of \$3.3 million was primarily due to an increase in investments in property and equipment as we continue to grow and invest in machinery and equipment, as well as headcount related costs such as computers and software.

Cash flow from financing activities

Cash provided by financing activities was \$279.4 million and \$5.9 million for the years ended December 31, 2021 and 2020, respectively. The increase in cash provided of \$273.4 million was primarily due to the net cash proceeds related to the Merger. At Closing we received \$288.8 million in cash, compared with the \$5.0 million proceeds received in April 2020 related to our borrowings under the PPP Loan program.

Critical accounting policies and estimates

Our consolidated financial statements are prepared in accordance with GAAP and require management to make certain estimates and assumptions that impact the reported balances of assets, liabilities, revenue, and expenses. On an ongoing basis, as required by GAAP, we update our estimates and assumptions. The actual results may differ from our estimates if our circumstances and conditions that occur do not align with our assumptions.

Revenue

Our customer contracts include multiple products and services. We are required to perform allocations of the contract value to the products and services deemed to be distinct performance obligations by GAAP in order to recognize revenue at the appropriate time. These allocations are based on a relative standalone selling price methodology, which requires us to determine the standalone selling price for each performance obligation. We utilize selling prices from standalone sales of the product or service when available.

However, certain products are not sold on a standalone basis or do not have a sufficient history of standalone sales and we are required to estimate the standalone selling price for the purposes of our allocation. We utilize market information, historical selling practices, and other available information to produce as accurate an estimate as possible. However, to the extent our pricing practices change or estimated selling prices differ from actual standalone sales in the future, the timing of our revenue recognition in contracts with multiple products and services may change.

Inventory

Inventory is stated at average costs subject to impairment when carrying value is in excess of the net realizable value. The costs included materials, labor, and manufacturing overhead related to the acquisition of raw materials and production into finished goods. The net realizable value considers our intent and ability to utilize the inventory prior to perishing as well as the estimated selling price and costs of completion and sale. We regularly review our inventory on hand, product development plans, and sales forecasts to identify carrying values in excess of net realizable value.

Stock-based compensation

Compensation costs related to stock-based compensation for employees is measured using the fair value recognition provisions of Financial Accounting Standards Board Accounting Standards Codification, or ASC, Topic 718 Compensation-Stock Compensation. We recognize compensation costs related to stock options granted based on the estimated fair value of the award on the date of grant. The methodology used to estimate the grant date fair value of stock awards is described below and in Note 3. Summary of Significant Accounting Policies in the accompanying consolidated financial statements.

Common Stock Valuation

One of the inputs to the estimate of grant date fair value of stock awards is the fair value of our common stock. There has been no public market for our equity instruments through the consummation of the Merger; as a result, the estimated fair value of our common shares has historically been determined by our board of directors as of the grant date. The assumptions used to determine the estimated fair value of our common stock are based on numerous objective and subjective factors, combined with management's judgment, including:

- contemporaneous third-party valuations of our common stock;
- external market conditions affecting our industry and trends within the industry;
- the rights, preferences and privileges of our convertible preferred stock relative to those of our common stock;
- our financial condition and operating results, including liquidity and capital resources;
- the likelihood of achieving a liquidity event, such as an initial public offering or a sale given prevailing market conditions;
- the history and nature of our business, industry trends and competitive environment;
- the lack of marketability of our common stock; and
- equity market conditions affecting comparable public companies.

Estimates of the fair value of our common shares consider our most recently available third-party valuations of common shares and have historically coincided with an issuance of convertible preferred shares. We issued our Series D convertible preferred stock on March 13, 2019. The Company subsequently engaged third party valuation specialists to perform valuation estimates of our common stock as of March 13, 2020, September 30, 2020, March 31, 2021, and June 10, 2021.

For the March 13, 2019 valuation, we used the Option Pricing Method (OPM), which models each class of equity securities as a call option with a unique claim on our assets. The OPM treats Markforged common stock and convertible preferred stock as call options on an equity value with exercise prices based on the liquidation preference of our convertible preferred stock. The common stock is modeled as a call option with a claim on the equity value at an exercise price equal to the remaining value immediately after our convertible preferred stock is liquidated. The exclusive reliance on the OPM until March 2020 was appropriate when the range of possible future outcomes was difficult to predict and resulted in a highly speculative forecast.

For the March 13, 2020 valuation, we used a combination of the income and market approaches. Specifically, we used the guideline public company method under the market approach, employing guideline public multiples as an input, and the discounted cash flow method under the income approach. We then weighted the indicated values from each approach to arrive at the fair value of equity as of the valuation date.

For the September 30, 2020, March 31, 2021 and June 10, 2021 valuations, we used a probability-weighted expected return method (“PWERM”), which was performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants, or AICPA, Practice Aid, Valuation of Privately-Held Company Equity Securities Issued as Compensation. The PWERM is a scenario-based methodology that estimates the fair value of common stock based upon an analysis of future values for Markforged, assuming various outcomes. The common stock value is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate and probability weighted to arrive at an indication of value for the common stock. For the September 30, 2020 valuation, we assigned a 10% probability that a SPAC exit will be completed by September 30, 2021 and a 90% probability of staying private. For the March 31, 2021 and the June 10, 2021 valuation, we assigned a 95% probability of completing the Merger with AONE and a 5% probability of remaining a private entity. We then used the OPM to arrive at a valuation given the assumptions.

We considered all objective and subjective factors that we believed to be relevant for each valuation conducted in accordance with the AICPA’s Practice Aid, including our best estimate of our business condition, prospects, operating performance, and potential future outcomes as of each valuation date. Changes in any or all of these estimates and assumptions or the relationships between those assumptions impact our valuations as of each valuation date and may have a material impact on the valuation of our common stock. Subsequent to closing the Merger discussed in this Annual Report on Form 10-K we will no longer have a need to rely on such complex valuation estimates and will rely on observable market prices to determine the fair value of our common stock.

Common Stock Warrants Liabilities

We assumed 5,374,984 Public Warrants and 3,150,000 Private Placement Warrants upon the Closing, all of which were issued in connection with AONE’s initial public offering and subsequent overallotment and entitle the holder to purchase one share of Common Stock at an exercise price of \$11.50 per share. The Warrants became exercisable at the later of 30 days after Closing or 12 months from the closing of AONE’s initial public offering, but can be terminated on the earlier of five years after the Closing, our liquidation, or the redemption date as determined by us.

We evaluated the Warrants and concluded that the Private Placement Warrants do not meet the criteria to be classified within stockholders’ equity. The agreement governing the Common Stock Warrants includes a provision that, if applied could result in a different settlement value for the Private Placement Warrants depending on their holder. Because the holder of an instrument is not an input into the pricing of a fixed-for-fixed option on our ordinary shares, the Private Placement Warrants are not considered to be “indexed to the Company’s own stock.” Such a provision precludes us from classifying the Private Placement Warrants in stockholders’ equity. As the Private Placement Warrants meet the definition of a derivative, we recorded these warrants as liabilities on the consolidated balance sheet at fair value, with subsequent changes in their respective fair values recognized in the consolidated statements of operations and comprehensive income (loss) at each reporting date. The provisions referenced above are not applicable to the Public Warrants which do not have differing settlement provisions based on the warrant holder, and therefore the Public Warrants are not precluded from being considered indexed to our stock and were recognized at fair value in stockholders’ equity at Closing.

Contingent Earnout Liability

The contingent obligations to issue Markforged Earnout Shares in respect of Legacy Markforged common stock and release from lock-up Sponsor Earnout Shares, are accounted for as liability classified instruments in accordance with Accounting Standards Codification (“ASC”) Topic 815-40, as the Earnout Triggering Events that determine the number of Sponsor and Markforged Earnout Shares required to be released or issued, as the case may be, include events that are not solely indexed to the fair value of our Common Stock. The liability was recognized at the Closing and is subsequently remeasured at each reporting date with changes in fair value recorded in the consolidated statements of operations and comprehensive income (loss). The valuation of the Markforged Earnout Shares and the surrendered Sponsor shares is based on a Monte Carlo simulation valuation model using a distribution of potential outcomes on a monthly basis over the Earnout period using the most reliable information available.

Markforged Earnout Shares issuable to employees with vested equity awards and Earnout RSUs are considered a separate unit of account from the Markforged Earnout Shares issuable in respect of Legacy Markforged common stock and are accounted for as equity classified stock compensation. The Markforged Earnout Shares issuable to employees with vested equity awards are fully vested upon issuance, thus there is no requisite service period and the value of these shares is recognized as a one-time stock compensation expense for the grant date fair value. Earnout RSUs are contingent upon an employee completing a service vesting condition, and as such, reflect a transaction in which we acquire employee services by offering to issue our shares, the amount of which is based in part on the share price of our Common Stock. Expense related to Earnout RSUs is recognized ratably over the requisite service period for the Earnout RSUs. The fair value of the earnout will increase or decrease uniformly with the current price of our publicly traded common stock.

Recent accounting pronouncements

Refer to Note 3 of Markforged's consolidated financial statements included elsewhere in this Annual Report on Form 10-K for the recent accounting pronouncements adopted and not yet adopted by the Company.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

We are a smaller reporting company as defined by Rule 12b-2 of the Exchange Act and are not required to provide the information otherwise required under this item. As of December 31, 2021, we were not subject to any market or interest rate risk. The net proceeds of the Initial Public Offering are invested in U.S. government securities with a maturity of 185 days or less or in money market funds that meet certain conditions under Rule 2a-7 under the Investment Company Act of 1940, as amended, that invest only in direct U.S. government treasury obligations. Due to the short-term nature of these investments, we believe there will be no associated material exposure to interest rate risk.

We have not engaged in any hedging activities since our inception and we do not expect to engage in any hedging activities with respect to the market risk to which we are exposed.

Internal control over financial reporting

In connection with the audit of our financial statements for the years ended December 31, 2021 and 2020, Markforged management identified material weaknesses in our internal controls. See the section titled “*Risk Factors, — We have identified material weaknesses in our internal control over financial reporting and may identify additional material weaknesses in the future or fail to maintain effective internal control over financial reporting, which may result in material misstatements of our consolidated financial statements or cause us to fail to meet our periodic reporting obligations.*”

JOBS Act accounting election

Markforged Holding Corporation is an “emerging growth company,” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. The JOBS Act permits companies with emerging growth company status to delay adopting new or revised accounting standards until those standards apply to private companies. Markforged Holding Corporation intends to use this extended transition period to enable it to comply with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date Markforged Holding Corporation (1) is no longer an emerging growth company or (2) affirmatively and irrevocably opts out of the extended transition period provided in the JOBS Act. Accordingly, our financial statements may not be comparable to companies that comply with the new or revised accounting standards as of public company effective dates.

Markforged Holding Corporation intends to rely on the other exemptions and reduced reporting requirements provided by the JOBS Act.

Item 8. Financial Statements and Supplementary Data.

Our consolidated financial statements, together with the report of our independent registered public accounting firm, appear beginning on page F-1 of this Annual Report for the year ended December 31, 2021.

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

None.

Item 9A. Controls and Procedures.*Evaluation of Disclosure Controls and Procedures*

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2021, as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act. Disclosure controls and procedures are designed to ensure that information required to be disclosed by the issuer in the reports that it files or submits under the Securities Exchange Act of 1934, as amended, is recorded, processed, summarized, and reported within the time periods specified in the rules and forms of the Securities and Exchange Commission (“SEC”), and that such information is accumulated and communicated to management, including the principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure. Based upon that evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were not effective as of December 31, 2021 because of the material weaknesses in internal control over financial reporting described below.

Management's Report on Internal Control over Financial Reporting

This Annual Report on Form 10-K does not include a report of management's assessment regarding our internal control over financial reporting (as defined in Rule 13a-15(f) and 15d-15(f) under the Exchange Act), or an attestation report of our independent registered public accounting firm, as allowed by the SEC for reverse acquisitions between an issuer and a private operating company when it is not possible to conduct an assessment of the private operating company's internal control over financial reporting in the period between the consummation date of the reverse acquisition and the date of management's assessment of internal control over financial reporting (pursuant to Section 215.02 of the SEC Division of Corporation Finance's Regulation S-K Compliance & Disclosure Interpretations).

As discussed elsewhere in this Annual Report on Form 10-K, we completed the Merger Transaction on July 14, 2021, pursuant to which we acquired Markforged, Inc. Prior to the Merger, we were a special purpose acquisition company formed for the purpose of effecting a merger. As a result, previously existing internal controls are no longer applicable or comprehensive enough as of the assessment date as our operations prior to the Merger were insignificant compared to those of the consolidated entity post-Merger. The design of internal control over financial reporting for the Company post-Merger has required and will continue to require significant time and resources from management and other personnel. As a result, management was unable, without incurring unreasonable effort or expense, to conduct an assessment of our internal control over financial reporting as of December 31, 2021.

Material Weaknesses in Internal Control over Financial Reporting

We have identified material weaknesses in our internal control over financial reporting. 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 annual or interim financial statements will not be prevented or detected on a timely basis. These material weaknesses are as follows:

We did not design and maintain an effective control environment commensurate with our financial reporting requirements. Specifically, we lacked a sufficient complement of resources with (i) an appropriate level of accounting knowledge, experience and training to appropriately analyze, record and disclose accounting matters timely and accurately, and (ii) an appropriate level of knowledge and experience to establish effective processes and controls. Additionally, the lack of a sufficient number of professionals resulted in an inability to consistently establish appropriate authorities and responsibilities in pursuit of our financial reporting objectives, as demonstrated by, among other things, insufficient segregation of duties in our finance and accounting functions. This material weakness contributed to the following additional material weaknesses:

We did not design and maintain effective controls related to the period-end financial reporting process, including designing and maintaining formal accounting policies, procedures and controls to achieve complete, accurate and timely financial accounting, reporting and disclosures. Additionally, we did not design and maintain controls over the preparation and review of account reconciliations and journal entries, including maintaining appropriate segregation of duties.

We did not design and maintain effective controls related to the identification of and accounting for certain non-routine, unusual or complex transactions, including the proper application of U.S. GAAP of such transactions. Specifically, we did not design and maintain controls to timely identify and account for share repurchase transactions, warrant instruments, and performance based stock awards.

These material weaknesses resulted in audit adjustments to the following financial statement line items in the historical Markforged financial statements: operating expense, other expense, interest expense, other assets, other liabilities, additional paid in capital, treasury stock, retained earnings, note receivable—equity, and series D preferred stock. These adjustments were recorded prior to the issuance of the consolidated financial statements as of and for the years ended December 31, 2020 and 2019. Additionally, these material weaknesses resulted in audit adjustments to additional paid in capital and stock based compensation expense for the quarters ended June 30, 2021, September 30, 2021, and December 31, 2021. The material weakness related to accounting for warrant instruments resulted in the restatement of the previously issued financial statements of AONE, the entity we merged with as part of the July 14, 2021 merger agreement related to warrant liabilities and equity. Additionally, these material weaknesses could result in a misstatement of substantially all of our accounts or disclosures that would result in a material misstatement to the annual or interim consolidated financial statements that would not be prevented or detected.

We did not design and maintain effective controls over information technology ("IT") general controls for information systems that are relevant to the preparation of our financial statements. Specifically, we did not design and maintain (i) program change management controls for financial systems to ensure that information technology program and data changes affecting financial IT applications and underlying accounting records are identified, tested, authorized and implemented appropriately; (ii) user access controls to ensure appropriate segregation of duties and that adequately restrict user and privileged access to financial applications,

programs, and data to appropriate Company personnel; (iii) computer operations controls to ensure that critical batch jobs are monitored, privileges are appropriately granted, and data backups are authorized and monitored; and (iv) testing and approval controls for program development to ensure that new software development is aligned with business and IT requirements. These IT deficiencies did not result in any misstatements to the financial statements, however, the deficiencies, when aggregated, could impact our ability to maintain effective segregation of duties, as well as the effectiveness of IT-dependent controls (such as automated controls that address the risk of material misstatement to one or more assertions, along with the IT controls and underlying data that support the effectiveness of system-generated data and reports) that could result in misstatements potentially impacting all financial statement accounts and disclosures that would result in a material misstatement to the annual or interim financial statements that would not be prevented or detected. Accordingly, management has determined these deficiencies in the aggregate constitute a material weakness.

Remediation of Material Weaknesses

We are in process of designing and implementing controls and taking other actions to remediate the material weaknesses described above, including the following:

We have hired additional accounting and IT personnel, including a new chief financial officer hired in April 2021, to bolster our reporting, technical accounting and IT capabilities. Additionally, we are in the process of designing and implementing controls to formalize roles and review responsibilities to align with our team's skills and experience and designing and implementing controls over segregation of duties.

We are in process of designing and implementing controls related to the period-end financial reporting process, including formal accounting policies, procedures and controls to achieve complete, accurate and timely financial accounting, reporting and disclosures. Additionally, we are in process of designing and implementing controls over the preparation and review of account reconciliations and journal entries.

We are in process of designing and implementing controls to timely identify and account for non-routine, unusual or complex transactions and other technical accounting and financial reporting matters, including controls over the preparation and review of accounting memoranda addressing these matters.

We are in process of designing and implementing IT general controls, including controls over program change management, the review and update of user access rights and privileges, controls over batch jobs and data backups, and program development approvals and testing.

The material weaknesses will not be considered remediated until management completes the design and implementation of the measures described above and the controls operate for a sufficient period of time and management has concluded, through testing, that these controls are effective.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting during the fiscal quarter ended December 31, 2021 covered by this Annual Report on Form 10-K that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

The information required under this item is incorporated herein by reference to the Company's definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission not later than 120 days after the close of the Company's fiscal year ended December 31, 2021.

We have adopted a code of business conduct and ethics for directors, officers, and employees, known as the Code of Business Conduct and Ethics. The Code of Business Conduct and Ethics is available on our website at www.markforged.com under the Governance section of our Investor Relations page. We will promptly disclose on our website (i) the nature of any amendment to the policy that applies to our principal executive officer, principal financial officer, or controller, or persons performing similar functions and (ii) the nature of any waiver, including an implicit waiver, from a provision of the policy that is granted to one of these specified individuals, the name of such person who is granted the waiver and the date of the waiver. Shareholders may request a free copy of the Code of Business Conduct and Ethics from our Compliance Officer, c/o Markforged Holding Corporation, 480 Pleasant Street, Watertown, MA 02472.

Item 11. Executive Compensation.

The information required under this item is incorporated herein by reference to the Company's definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission not later than 120 days after the close of the Company's fiscal year ended December 31, 2021.

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

The information required under this item is incorporated herein by reference to the Company's definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission not later than 120 days after the close of the Company's fiscal year ended December 31, 2021.

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

The information required under this item is incorporated herein by reference to the Company's definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission not later than 120 days after the close of the Company's fiscal year ended December 31, 2021.

Item 14. Principal Accounting Fees and Services.

The information required under this item is incorporated herein by reference to the Company's definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission not later than 120 days after the close of the Company's fiscal year ended December 31, 2021.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(1) For a list of the financial statements included herein, see Index to the Consolidated Financial Statements on page F-1 of this Annual Report on Form 10-K, incorporated into this Item by reference.

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

(3) Exhibits: The exhibits required by Item 601 of Regulation S-K and Item 15(b) of this Annual Report are listed in the Exhibit Index below. The exhibits listed in the Exhibits Index are incorporated by reference herein.

Exhibit Number	Description
2.1	<u>Agreement and Plan of Merger, dated as of February 23, 2021, by and among the Company, Caspian Merger Sub Inc., and MarkForged, Inc. (incorporated by reference to Annex A to Markforged Holding Corporation's Form S-4 filed on June 4, 2021).</u>
3.1	<u>Certificate of Incorporation of Markforged Holding Corporation (incorporated by reference to Exhibit 3.1 to Markforged Holding Corporation's Current Report on Form 8-K filed July 20, 2021).</u>
3.2	<u>Bylaws of Markforged Holding Corporation (incorporated by reference to Exhibit 3.2 to Markforged Holding Corporation's Current Report on Form 8-K filed July 20, 2021).</u>
4.1	<u>Warrant Agreement, dated August 17, 2020, between one and Continental Stock Transfer & Trust Company, as warrant agent (incorporated by reference to Exhibit 4.4 to one's Registration Statement on Form S-4/A filed June 4, 2021).</u>
4.2	<u>Specimen Common Stock Certificate of Markforged Holding Corporation (incorporated by reference to Exhibit 4.5 to one's Registration Statement on Form S-4/A filed June 4, 2021).</u>
4.3*	<u>Description of Securities.</u>
10.1	<u>Form of Indemnification Agreement (incorporated by reference to Exhibit 10.1 to Markforged Holding Corporation's Current Report on Form 8-K filed July 20, 2021).</u>
10.2	<u>Registration Rights Agreement, dated as of July 14, 2021, by and among Markforged Holding Corporation, A-star, certain affiliates of A-star and certain former stockholders of MarkForged, Inc. (incorporated by reference to Exhibit 10.5 to Markforged Holding Corporation's Current Report on Form 8-K filed July 20, 2021).</u>
10.3	<u>2021 Stock Option and Incentive Plan of Markforged Holding Corporation and forms of agreement thereunder (incorporated by reference to Exhibit 10.3 to Markforged Holding Corporation's Quarterly Report on Form 10-Q filed November 15, 2021).</u>
10.4	<u>Lock-up Agreement, dated as of July 14, 2021, by and between Markforged Holding Corporation, Inc. and the undersigned parties thereto (incorporated by reference to Exhibit 10.8 to Markforged Holding Corporation's Current Report on Form 8-K filed July 20, 2021).</u>
10.5	<u>Non-Employee Director Compensation Policy (incorporated by referenced to Exhibit 10.9 to Markforged Holding Corporation's Current Report on Form 8-K filed July 20, 2021).</u>
10.6	<u>2021 Employee Stock Purchase Plan (incorporated by referenced to Exhibit 10.10 to Markforged Holding Corporation's Current Report on Form 8-K filed July 20, 2021).</u>
10.7	<u>Senior Executive Cash Incentive Bonus Plan (incorporated by reference to Exhibit 10.11 to Markforged Holding Corporation's Current Report on Form 8-K filed July 20, 2021).</u>
10.8	<u>First Amendment to Lease dated December 7, 2021, by and between 900 Middlesex Property Owner, LLC and MarkForged, Inc. (incorporated by reference to Exhibit 10.11 to Markforged Holding Corporation's Current Report on Form 8-K filed December 13, 2021).</u>
10.9	<u>Consent to Assignment and Fifth Amendment dated as of December 17, 2021 by and Between MarkForged, Inc., 1265 Main Office Subsidiary LLC and Clarks Americas, Inc. (incorporated by reference to Exhibit 10.1 to Markforged Holding Corporation's Current Report on Form 8-K filed December 22, 2021).</u>
10.10	<u>Assignment and Assumption Agreement dated as of December 17, 2021 by and between MarkForged, Inc. and Clarks America's Inc. (incorporated by reference to Exhibit 10.2 to Markforged Holding Corporation's Current Report on Form 8-K filed December 22, 2021).</u>
10.11	<u>Lease dated as of April 30, 2015 by between 1265 Main Office Subsidiary LLC and Clarks Americas, Inc. (including the First Amendment to Lease dated as of July 11, 2016, the Second Amendment to Lease dated as of January 17, 2017, the Third Amendment to Lease dated as of May 21, 2020, and the Fourth Amendment to Lease dated as of January 28, 2021) (incorporated by reference to Exhibit 10.3 to Markforged Holding Corporation's Current Report on Form 8-K filed December 22, 2021).</u>

10.12*	<u>Transition Agreement by and between Markforged Holding Corporation and David Benhaim, dated as of January 10, 2022.</u>
21.1	<u>List of subsidiaries of the Registrant (incorporated by reference to Exhibit 21.1 to Markforged Holding Corporation's Current Report on Form 8-K filed July 20, 2021).</u>
23.1*	<u>Consent of PricewaterhouseCoopers LLP, independent registered public accounting firm.</u>
31.1*	<u>Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
31.2*	<u>Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
32.1*	<u>Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u>
32.2*	<u>Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u>
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

* Exhibits filed herein. All exhibits not so designated are incorporated by reference to a prior filing, as indicated.

Item 16. Form 10-K Summary

None.

SIGNATURES

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

Markforged Holding Corporation

Date: March 31, 2022

By:

/s/ Shai Terem
Shai Terem
Chief Executive Officer
(Principal Executive Officer)

POWER OF ATTORNEY AND SIGNATURES

Each person whose individual signature appears below hereby authorizes and appoints Shai Terem, Mark Schwartz and Stephen Karp, and each of them, with full power of substitution and resubstitution and full power to act without the other, as his or her true and lawful attorney-in-fact and agent to act in his or her name, place and stead and to execute in the name and on behalf of each person, individually and in each capacity stated below, and to file any and all amendments to this Annual Report on Form 10-K and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing, ratifying and confirming all that said attorneys-in-fact and agents or any of them or their or his or her substitute or substitutes may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Report has been signed below by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

Name	Title	Date
/s/ Alan Masarek Alan Masarek	Director and Chairman of the Board	March 31, 2022
/s/ Shai Terem Shai Terem	Chief Executive Officer, Director <i>(Principal Executive Officer)</i>	March 31, 2022
/s/ Mark Schwartz Mark Schwartz	Chief Financial Officer <i>(Principal Financial and Accounting Officer)</i>	March 31, 2022
/s/ Edward T. Anderson Edward T. Anderson	Director	March 31, 2022
/s/ Michael Medici Michael Medici	Director	March 31, 2022
/s/ Paul Milbury Paul Milbury	Director	March 31, 2022
/s/ Carol Meyers Carol Meyers	Director	March 31, 2022
/s/ Kevin Hartz Kevin Hartz	Director	March 31, 2022
/s/ Antonio Rodriguez Antonio Rodriguez	Director	March 31, 2022

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Markforged Holding Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Markforged Holding Corporation and its subsidiaries (the “Company”) as of December 31, 2021 and 2020, and the related consolidated statements of operations and comprehensive income (loss), of changes in convertible preferred stock and stockholders’ equity (deficit), and of cash flows for the years then ended, including the related notes (collectively referred to as 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, 2021 and 2020, and the results of its operations and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s 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 of these consolidated financial statements 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/ PricewaterhouseCoopers LLP
Boston, Massachusetts
March 31, 2022

We have served as the Company’s auditor since 2019.

MARKFORGED HOLDING CORPORATION

CONSOLIDATED BALANCE SHEETS

As of December 31, 2021 and 2020

(In thousands, except share data)

	December 31, 2021	December 31, 2020
Assets		
Current assets		
Cash and cash equivalents	\$ 288,603	\$ 58,715
Accounts receivable, net	26,777	16,601
Inventory	10,377	6,553
Prepaid expenses	3,921	1,496
Other current assets	511	1,373
Total current assets	330,189	84,738
Property and equipment, net	6,349	4,281
Other assets	776	584
Total assets	<u>\$ 337,314</u>	<u>\$ 89,603</u>
Liabilities, Convertible Preferred Stock, and Stockholders' Equity (Deficit)		
Current liabilities		
Accounts payable	\$ 11,403	\$ 3,369
Accrued expenses	7,411	8,168
Deferred revenue	6,288	6,196
Other current liabilities	310	300
Total current liabilities	25,412	18,033
Long-term debt	—	5,022
Long-term deferred revenue	3,742	2,905
Deferred rent	1,623	1,073
Contingent earnout liability	59,722	—
Other liabilities	2,646	545
Total liabilities	93,145	27,578
Commitments and contingencies (Note 14)		
Convertible preferred stock (Note 9)	—	137,497
Stockholders' equity (deficit)		
Common stock, \$0.0001 par value; 1,000,000,000 and 183,300,000 shares authorized on December 31, 2021 and 2020; 185,993,058 and 39,510,108 shares issued on December 31, 2021 and 2020, respectively	19	4
Additional paid-in capital	319,859	5,538
Treasury stock, 0 and 483,479 shares on December 31, 2021 and 2020, respectively	—	(1,450)
Accumulated deficit	(75,709)	(79,564)
Total stockholders' equity (deficit)	244,169	(75,472)
Total liabilities, convertible preferred stock, and stockholders' equity (deficit)	<u>\$ 337,314</u>	<u>\$ 89,603</u>

See notes to the consolidated financial statements.

MARKFORGED HOLDING CORPORATION

CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)

For the Years Ended December 31, 2021 and 2020

(In thousands, except share data)

	Year Ended December 31,	
	2021	2020
Revenue	\$ 91,221	\$ 71,851
Cost of revenue	38,368	29,921
Gross profit	52,853	41,930
Operating expenses		
Sales and marketing	35,966	22,413
Research and development	32,155	17,176
General and administrative	45,772	20,080
Total operating expenses	113,893	59,669
Loss from operations	(61,040)	(17,739)
Change in fair value of warrant liabilities	1,808	(175)
Change in fair value of contingent earnout liability	63,407	—
Other expense	(265)	(9)
Interest expense	(16)	(98)
Interest income	17	147
Profit (loss) before income taxes	3,911	(17,874)
Income tax (benefit) expense	56	111
Net profit (loss) and comprehensive income (loss)	\$ 3,855	\$ (17,985)
Deemed dividend - redemption of common stock	—	(826)
Net income (loss) attributable to common stockholders	3,855	(18,811)
Weighted average shares outstanding - basic	108,088,115	38,336,659
Weighted average shares outstanding - diluted	113,963,424	38,336,659
Net profit (loss) per share - basic	\$ 0.04	\$ (0.49)
Net profit (loss) per share - diluted	\$ 0.03	\$ (0.49)

See notes to the consolidated financial statements.

MARKFORGED HOLDING CORPORATION

CONSOLIDATED STATEMENTS OF CHANGES IN CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)
For the Years Ended December 31, 2021 and 2020
(In thousands, except share data)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Treasury Stock		Note Receivable	Accumulated Deficit	Total Stockholders' Equity (Deficit)	Total
	Shares	Amount	Shares	Amount		Shares	Amount				
December 31, 2019	107,452,541	\$ 136,797	37,385,121	\$ 4	\$ 2,008	233,007	\$ (624)	\$ (170)	\$ (61,579)	\$ (60,361)	\$ 76,436
Exercise of common stock options	—	—	2,124,987	—	961	—	—	170	—	1,131	1,131
Repurchase of common stock	—	—	—	—	—	250,472	(826)	—	—	(826)	(826)
Stock-based compensation expense	—	—	—	—	2,569	—	—	—	—	2,569	2,569
Exercise of Series D warrants	140,260	700	—	—	—	—	—	—	—	—	700
Net loss and comprehensive loss	—	—	—	—	—	—	—	—	(17,985)	(17,985)	(17,985)
December 31, 2020	107,592,801	\$ 137,497	39,510,108	\$ 4	\$ 5,538	483,479	\$ (1,450)	\$ —	\$ (79,564)	\$ (75,472)	\$ 62,025
Exercise of common stock options	—	—	2,020,709	—	1,967	—	—	—	—	1,967	1,967
Stock vested under compensation plan	—	—	106,800	—	—	—	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	11,881	—	—	—	—	11,881	11,881
Exercise of Series D warrants	110,212	550	—	—	—	—	—	—	—	—	550
Exercise of common stock warrants	—	—	179,572	—	1,793	—	—	—	—	1,793	1,793
Conversion of convertible preferred stock into common stock upon reverse recapitalization	(107,703,013)	(138,047)	107,703,013	11	138,036	—	—	—	—	138,047	—
Retirement of treasury stock upon reverse recapitalization	—	—	(483,479)	—	(1,450)	(483,479)	1,450	—	—	—	—
Repurchase of common stock upon reverse recapitalization	—	—	(4,499,998)	—	(45,000)	—	—	—	—	(45,000)	(45,000)
Issuance of common stock upon the reverse recapitalization, net of transaction costs	—	—	20,456,333	2	113,176	—	—	—	—	113,178	113,178
Issuance of common stock related to PIPE Investment	—	—	21,000,000	2	209,998	—	—	—	—	210,000	210,000
Recognition of derivative liability related to earnout	—	—	—	—	(123,129)	—	—	—	—	(123,129)	(123,129)
Earnout stock-based compensation expense	—	—	—	—	7,049	—	—	—	—	7,049	7,049
Net profit and comprehensive income	—	—	—	—	—	—	—	—	3,855	3,855	3,855
December 31, 2021	—	\$ —	185,993,058	\$ 19	\$ 319,859	—	\$ —	\$ —	\$ (75,709)	\$ 244,169	\$ 244,169

See notes to the consolidated financial statements.

MARKFORGED HOLDING CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
For the Years Ended December 31, 2021 and 2020
(In thousands, except share data)

	Year Ended December 31,	
	2021	2020
Operating Activities:		
Net profit (loss)	3,855	\$ (17,985)
Adjustments to reconcile net loss to cash used in operating activities		
Depreciation	1,720	1,795
Provision for doubtful accounts	263	591
Reserve for excess and obsolete inventory	151	37
Change in fair value of warrant liabilities	(1,808)	175
Change in fair value of contingent earnout liability	(63,407)	—
Stock-based compensation expense	18,930	2,569
Transaction costs expensed	1,996	—
Changes in operating assets and liabilities		
Accounts receivable	(10,439)	967
Inventory	(3,975)	(808)
Prepaid expenses	(2,425)	(333)
Other current assets	862	840
Other assets	(191)	49
Accounts payable and accrued expenses	7,277	852
Other current liabilities	10	(366)
Deferred rent	550	100
Deferred revenue	929	5,058
Net cash used in operating activities	(45,702)	(6,459)
Investing Activities:		
Purchases of property and equipment	(3,788)	(640)
Proceeds from sale and disposal of fixed assets	—	118
Net cash used in investing activities	(3,788)	(522)
Financing Activities:		
(Repayments) proceeds of debt obligations	(5,022)	5,022
Proceeds from Merger	132,926	—
Proceeds from PIPE investment	210,000	—
Repurchase of common stock	(45,000)	(826)
Payment of transaction costs for the Merger	(16,043)	—
Proceeds from exercise of Series D warrants	550	700
Proceeds from the exercise of common stock options	1,967	1,131
Taxes paid related to net share settlement of equity awards	—	(98)
Principal repayments of capital lease obligations	—	(1)
Net cash provided by financing activities	279,378	5,928
Net change in cash and cash equivalents	229,888	(1,053)
Cash and cash equivalents		
Beginning of year	58,715	59,768
End of period	<u>\$ 288,603</u>	<u>\$ 58,715</u>
Supplemental disclosure of cash flow information		
Cash paid for income taxes	\$ —	\$ 84
Supplemental disclosure of Non cash financing and investing activities		
Purchase of property and equipment in accounts payable and accrued expenses	\$ 532	\$ —
Recognition of contingent earnout liability related to earnout shares	123,129	—
Recognition of one public warrant acquired as part of the Merger in additional paid-in capital	9,729	—
Recognition of private placement warrant liability upon Merger	5,702	—
Exercise of common stock warrants, net of shares withheld for exercise	1,793	—
Conversion of convertible preferred stock into common stock upon reverse recapitalization	138,047	—

See notes to the consolidated financial statements.

MARKFORGED HOLDING CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1. Organization, Nature of the Business, and Risks and Uncertainties

Organization and Nature of Business

Unless otherwise indicated or the context otherwise requires, references to the “Company” and “Markforged” refer to the consolidated operations of Markforged Holding Corporation and its subsidiaries. References to “AONE” refer to the company prior to the consummation of the Merger and references to “Legacy Markforged” refer to MarkForged, Inc. and its consolidated subsidiaries prior to the consummation of the Merger.

Legacy Markforged was founded in 2013 to transform the manufacturing industry with high strength, cost effective parts using additive manufacturing. Markforged produces and sells 3D printers, materials, software, and other related services worldwide to customers who can build parts strong enough for the factory floor with significantly reduced lead time and cost. The printers print in plastic, nylon, metal, and the parts can be reinforced with carbon fiber for industry leading strength at an affordable price point.

On February 23, 2021, one, a Cayman Islands exempted company (“AONE”), entered into an Agreement and Plan of Merger (the “Merger Agreement”) with Caspian Merger Sub Inc., a wholly owned subsidiary of AONE (“Merger Sub”), and Legacy Markforged, pursuant to which (i) AONE would deregister as a Cayman Islands company and domesticate as a corporation in the State of Delaware and would be renamed “Markforged Holding Corporation” (the “Domestication”) and (ii) Merger Sub would merge with and into Legacy Markforged with Legacy Markforged surviving as a wholly owned subsidiary of Markforged Holding Corporation (the “Merger”). AONE’s shareholders approved the transactions contemplated by the Merger Agreement on July 13, 2021, and the Domestication and the Merger were completed on July 14, 2021 (the “Closing”).

Cash proceeds of the merger were funded through a combination of AONE’s \$132.5 million of cash held in trust (after redemptions of \$64.2 million) and an aggregate of \$210.0 million in fully committed common stock transactions at \$10.00 per share. Immediately prior to the Closing, Legacy Markforged repurchased shares of common stock from certain of its stockholders, for a total value of \$45.0 million, referred to as the “Employee Transactions”. Total net proceeds upon Closing, net of the Employee Transactions and transaction costs paid at Closing of \$27.1 million, were \$288.8 million.

Risks and Uncertainties

COVID-19 has had an impact on the Company’s results, since the second quarter of 2020, and the Company is unable to predict the ultimate impact that the virus may have on the business, future results of operations, financial position or cash flows. Further, the COVID-19 impact on the Company is largely dependent on future developments and subsequent government responses. The Company identified potential risks to the business to include certain accounting estimates around its supply chain, accounts receivable, inventory and related reserves, and long-lived assets. As of and for the year ended December 31, 2021, these risks were assessed and had no material impact on the realizability of accounts receivables, inventories, long-lived assets or the related estimates used in the Company’s consolidated financial statements. There may be changes to those estimates in future periods, and actual results could differ from those estimates.

The Company has funded its operations to date primarily through the sale of convertible preferred stock, the proceeds from the Merger, including the sale of common stock, and the sale of its products. Management believes that existing cash will be sufficient to fund operating and capital expenditure requirements through at least one year after the date these consolidated financial statements are issued. The accompanying consolidated financial statements have been prepared on a basis which assumes that the Company will continue as a going concern and contemplates the realization of assets and satisfaction of liabilities and commitments in the normal course of business.

Note 2. Merger and Reverse Recapitalization

Immediately prior to the Closing the following transactions occurred (prior to the Exchange Ratio discussed below):

- all 17,918,211 shares of Legacy Markforged’s outstanding Series Seed convertible preferred stock were converted into an equivalent number of shares of Legacy Markforged common stock on a one-to-one basis;
- all 28,725,920 shares of Legacy Markforged’s outstanding Series A convertible preferred stock were converted into an equivalent number of shares of Legacy Markforged common stock on a one-to-one basis;

- all 34,391,480 shares of Legacy Markforged’s outstanding Series B convertible preferred stock were converted into an equivalent number of shares of Legacy Markforged common stock on a one-to-one basis;
- all 14,468,290 shares of Legacy Markforged’s outstanding Series C convertible preferred stock were converted into an equivalent number of shares of Legacy Markforged common stock on a one-to-one basis; and
- all 17,305,052 shares of Legacy Markforged’s outstanding Series D convertible preferred stock were converted into an equivalent number of shares of Legacy Markforged common stock on a one-to-one basis.

At the Closing, eligible Legacy Markforged equity holders received or had the right to receive shares of the Company’s Common Stock, par value \$0.0001 (“Common Stock”) at a deemed value of \$10.00 per share after giving effect to the exchange ratio of approximately 0.9522514 as defined in the Merger Agreement (the “Exchange Ratio”). Accordingly, immediately following the consummation of the Merger, Legacy Markforged common stock (after giving effect to the conversion of convertible preferred stock to Legacy Markforged common stock and the impact of the Employee Transactions) exchanged into 143,795,504 shares of Common Stock, 18,434,577 shares were reserved for the issuance of Common Stock upon the potential future exercise of Legacy Markforged stock options that were exchanged into Markforged stock options, and 24,065,423 shares of Common Stock were reserved for the potential future issuance of stock options and restricted stock units and 16,066,667 shares of Common Stock and restricted stock units were reserved for the potential future issuance upon achievement of certain earnout conditions described in the Merger Agreement.

In connection with the execution of the Merger Agreement, AONE entered into separate subscription agreements (each a “Subscription Agreement”) with a number of investors (each a “New PIPE Investor”), pursuant to which the New PIPE Investors agreed to purchase, and AONE agreed to sell to the New PIPE Investors, an aggregate of 21,000,000 shares (“PIPE Shares”), of the Common Stock for a purchase price of \$10.00 per share and an aggregate purchase price of \$210.0 million, in a private placement pursuant to the subscription agreements (the “PIPE Financing”). The PIPE Financing closed simultaneously with the consummation of the Merger.

In connection with the Closing, and under the terms of the Sponsor Support Agreement entered into in connection with the execution of the Merger Agreement, 2,610,000 shares of the 5,220,000 shares of Common Stock held by the Sponsor after giving effect to the Domestication became subject to vesting conditions based on the achievement of certain market-based share price thresholds. These shares will be forfeited if certain price thresholds are not reached by the end of the five year period following the Closing. The Sponsor Earnout Shares will immediately vest in the event of a change of control or a liquidation of Markforged during the five year period following the Closing. As the Earnout Triggering Events have not yet been achieved, these issued and outstanding Sponsor Earnout Shares are treated as contingently recallable.

The number of shares of Common Stock issued immediately following the consummation of the Merger was as follows:

	Shares
Common stock of one, outstanding prior to Merger ⁽¹⁾	26,875,000
Less redemption of one Class A shares subject to possible redemption	(6,418,667)
Common stock of one	20,456,333
Shares issued in PIPE	21,000,000
Merger and PIPE financing shares ⁽²⁾	41,456,333
Legacy Markforged shares ⁽³⁾	143,795,504
Total shares of common stock immediately after Merger	<u>185,251,837</u>

(1)Includes AONE Class A shareholders 15,081,333, and AONE Class B shareholders 5,375,000

(2)This includes 2,610,000 contingently forfeitable Sponsor Shares pending the occurrence of the Sponsor Earnout Triggering Event

(3)The number of Legacy Markforged shares was determined from the 151,005,831 shares of Legacy Markforged common stock outstanding immediately prior to the closing of the Merger converted at the Exchange Ratio. All fractional shares were rounded down.

The Merger is accounted for as a reverse recapitalization under accounting principles generally accepted in the United States (“GAAP”). This determination is primarily based on Legacy Markforged stockholders comprising a relative majority of the voting power of Markforged and having the ability to nominate the members of the Board, Legacy Markforged’s operations prior to the acquisition comprising the only ongoing operations of Markforged, and Legacy Markforged’s senior management comprising a majority of the senior management of Markforged. Under this method of accounting, AONE is treated as the “acquired” company for financial reporting purposes. Accordingly, for accounting purposes, the financial statements of Markforged represent a continuation of the financial statements of Legacy Markforged with the Merger being treated as the equivalent of Markforged issuing stock for the net assets of AONE, accompanied by a recapitalization. The net assets of AONE are stated at historical costs, with no goodwill or other intangible assets recorded. Operations prior to the Merger are presented as those of Markforged. All periods prior to the Merger have

been retrospectively adjusted using the Exchange Ratio for the equivalent number of shares outstanding immediately after the Merger to effect the reverse recapitalization. Additionally, upon the consummation of the Merger, the Company issued 41,456,333 shares of Common Stock for the previously issued AONE common stock and PIPE Shares that were outstanding at the Closing Date.

In connection with the Merger, the Company raised \$360.9 million of proceeds including the contribution of \$215.1 million of cash held in AONE's trust account from its initial public offering, net of redemptions of AONE public stockholders of \$64.2 million, and \$210.0 million of cash in connection with the PIPE financing. The Company incurred \$34.5 million of transaction costs, consisting of banking, legal, and other professional fees, of which \$18.5 million were incurred by AONE and paid from AONE's trust account at closing and \$16.0 million incurred by Legacy Markforged. Of the total transaction costs, \$2.0 million was recognized as an expense in the consolidated statements of operations as part of general and administrative expenses and the balance was a reduction to additional paid-in capital.

Note 3. Summary of Significant Accounting Policies

The consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. The Company's fiscal year end is December 31 and, unless otherwise stated, all years and dates refer to the fiscal year.

Basis of Presentation

The consolidated financial statements of the Company have been prepared in accordance with US GAAP. All significant intercompany accounts and transactions have been eliminated in consolidation.

Out-of-period Adjustments

In the fourth quarter of 2021, the Company recorded immaterial out-of-period adjustments primarily related to an error in the recognition of stock-based compensation expense of certain RSUs recorded in the second and third quarters of 2021. This resulted in a net \$1.6 million increase to stock-based compensation and additional paid in capital for the quarter ended December 31, 2021 with no net impact on the year ended December 31, 2021. Management has determined that this misstatement was not material to any of its previously issued financial statements.

Reporting Currency

The Company's reporting currency is the U.S. Dollar, while the functional currencies of its foreign subsidiaries are their respective local currencies. The effect of foreign currency translation was immaterial for all periods presented.

Use of Estimates

The preparation of consolidated financial statements in conformity with US GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Management's significant estimates include allowance for doubtful accounts, reserve for excess and obsolete inventory, fair value of contingent earnout liability, fair value of earnout share awards, fair value of the private placement warrant liability and assumptions in revenue recognition. Actual results could differ from those estimates.

Treasury Stock

Treasury stock is accounted for using the cost method, with the purchase price of the common stock separately recorded as a deduction from stockholders' equity (deficit). We account for the retirement of treasury stock by deducting its par value from common stock and reflecting any excess of cost over par value as a deduction from additional paid-in capital in the consolidated balance sheets.

Revenue Recognition

The Company recognizes revenue in accordance with Accounting Standards Codification ("ASC") Topic 606, *Revenue from Contracts with Customers* ("ASC Topic 606").

Under ASC Topic 606, revenue is recognized when a customer obtains control of promised goods or services in an amount that reflects the consideration which the entity expects to be entitled to in exchange for those goods or services. To determine revenue

recognition for arrangements that an entity determines are within the scope of the new revenue recognition accounting standard, the Company performs the following five steps:

- identifies the contract with a customer;
- identifies the performance obligations in the contract;
- determines the transaction price;
- allocates the transaction price to the performance obligations in the contract; and
- recognizes revenue when (or as) the entity satisfies a performance obligation.

Our customer contracts include multiple products and services. We are required to perform allocations of the contract value to the products and services deemed to be distinct performance obligations by US GAAP in order to recognize revenue at the appropriate time. These allocations are based on a relative standalone selling price methodology, which requires us to determine the standalone selling price for each performance obligation. We utilize selling prices from standalone sales of the product or service when available. However, certain products are not sold on a standalone basis or do not have a sufficient history of standalone sales and we are required to estimate the standalone selling price for the purposes of our allocation. We utilize market information, historical selling practices, and other available information to produce as accurate an estimate as possible.

Cash and Cash Equivalents

The Company considers all highly liquid investments with original maturities of 90 days or less to be cash equivalents. Cash equivalents consists of money market funds and credit card payments in-transit as of December 31, 2021 and 2020.

Accounts Receivable and Allowance for Doubtful Accounts

Trade accounts receivable are recorded at the invoiced amount and do not bear interest. An allowance for doubtful accounts is provided for those accounts receivable considered to be uncollectible based on management's assessment of the collectability of the accounts receivable which considers historical write-off experience and any specific risks identified in customer collection matters.

The following presents the changes in the balance of the Company's allowance for doubtful accounts:

(in thousands)	Year Ended December 31,			
	2021			2020
Balance at beginning of period	\$	1,070	\$	1,038
Additions		709		834
Write – offs		(312)		(257)
Recoveries		(446)		(545)
Balance at end of period	\$	<u>1,021</u>	\$	<u>1,070</u>

Fair Value of Financial Instruments

The Company is required to provide information according to the fair value hierarchy based on the observability of the inputs used in the valuation techniques. The fair value hierarchy ranks the quality and reliability of the information used to determine fair values. Financial assets and liabilities carried at fair value will be classified and disclosed in one of the following three categories:

Level 1 Quoted prices in active markets for identical assets or liabilities.

Level 2 Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities

Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The following table presents information about the Company's assets that are measured at fair value as of December 31, 2021 and 2020, and indicates the fair value hierarchy of the valuation:

(in thousands)	Fair Value Measurements			Total
	Level 1	Level 2	Level 3	
December 31, 2021				
Money market funds included in cash and cash equivalents	\$ 286,890	\$ —	\$ —	\$ 286,890
Contingent earnout liability	—	—	59,722	59,722
Private placement warrant liability	—	—	2,646	2,646
December 31, 2020				
Money market funds included in cash and cash equivalents	\$ 56,907	\$ —	\$ —	\$ 56,907
SVB warrant liability	—	—	545	545

The Company remeasures its Common Stock Warrants (as defined below) and Private Placement Warrants (as defined below) at fair value at each reporting period using Level 3 inputs via the Black-Scholes option-pricing model and Binomial Lattice Model, respectively. The valuation of the earnout shares is based on a Monte Carlo simulation. The significant assumptions used in preparing the above models are disclosed in Note 12 Stock Warrants and Note 11 Earnout. All Silicon Valley Bank ("SVB") warrants were exercised in June 2021. There were no transfers between levels during the periods presented.

(in thousands)	Contingent Earnout Liability	Private Placement Warrant Liability	SVB Warrant Liability
Fair Value as of January 1, 2020	\$ —	\$ —	\$ 370
Change in fair value	—	—	175
Fair Value as of December 31, 2020	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 545</u>
Fair Value as of January 1, 2021	\$ —	\$ —	\$ 545
Recognition of liability acquired as part of the Merger	123,129	5,702	—
Change in fair value	(63,407)	(3,056)	1,248
Exercise of common stock warrants	—	—	(1,793)
Fair Value as of December 31, 2021	<u>\$ 59,722</u>	<u>\$ 2,646</u>	<u>\$ —</u>

As of December 31, 2020, the fair value of the Company's debt using Level 2 inputs was approximately \$4.7 million calculated using a discounted cash flow method. All debt was paid off in January 2021 as disclosed in Note 8 Borrowings.

Concentration of Credit Risk

Financial instruments which potentially expose the Company to concentrations of credit risk consist primarily of cash and cash equivalents held on deposit at one financial institution and accounts receivable. The Company does not require collateral from customers for amounts owed. At December 31, 2021, one customer represented greater than 10% of the accounts receivable balance. There were no customers representing greater than 10% of the accounts receivable balance as of December 31, 2020. For the years ended December 31, 2021 and 2020, no one customer represented more than 10% of total revenue. Historically, the Company has not experienced any significant credit loss related to any individual customer.

Property and Equipment

Property and equipment are recorded at cost and are depreciated over their estimated useful lives using the straight-line method. Upon retirement or sale, the cost of assets disposed of and the related accumulated depreciation are removed from the accounts and any resulting gain or loss is included in the determination of net income or loss. Repairs and maintenance costs are expensed as incurred.

The cost of property and equipment is depreciated based upon the following asset lives:

<u>Asset Classification</u>	<u>Estimated Useful Life</u>
Machinery and equipment	5 years
Leasehold improvements	Shorter of estimated useful life or remaining lease term
Computer equipment	3 years
Computer software	3 years
Furniture and fixtures	3 years

Impairment of Long-Lived Assets

The Company evaluates whether events or circumstances have occurred that indicate that the estimated remaining useful life of its long-lived assets may warrant reassessment or that the carrying value of these assets may not be recoverable. When a triggering event is identified, management assesses the recoverability of the asset group, which is the lowest level where identifiable cash flows are largely independent, by comparing the expected undiscounted cash flows of the asset group to the carrying value. When the carrying value is not recoverable and an impairment is determined to exist, the asset group is written down to fair value. The Company did not identify any triggering events or record any impairment during the years ended December 31, 2021 and 2020.

Inventory

Inventory is stated at lower of cost and net realizable value. Cost is based on a standard costing system which approximates the cost on a first in, first out method. The Company regularly reviews inventory for excess and obsolescence and records a provision to write down inventory to its net realizable value when carrying value is in excess of this value. The costs include materials, labor, and manufacturing overhead that relate to the acquisition of raw materials and production into finished goods. The net realizable value considers our intent and ability to utilize the inventory prior to perishing as well as the estimated selling price and costs of completion and sale. We regularly review our inventory on hand, product development plans, and sales forecasts to identify carrying values in excess of net realizable value.

Cost of Revenue

Cost of revenue is primarily comprised of cost of product and software subscriptions, maintenance services, personnel-related costs, third party logistics, warranty and maintenance fulfillment costs, and overhead. For the production of consumables, the Company utilizes its internal manufacturing facilities and personnel, while for the production of the Company's additive manufacturing hardware, third party manufacturers are utilized.

For internally manufactured products, the cost of revenue includes raw material, labor conversion costs, and overhead related to the manufacturing operations, inclusive of associated depreciation. Cost of revenue for maintenance services is comprised of costs associated with the Company's customer success teams' provision of remote and on-site support services to customers in addition to the cost of replacement parts.

The Company's cost of revenue also includes indirect costs of providing products and services to its customers. These indirect costs consist primarily of reserves for excess and obsolete inventory and stock-based compensation.

Research and Development

The Company expenses all research and development costs as incurred. These costs consist mainly of employee compensation and other personnel-related costs, product prototypes, facility costs, as well as engineering services.

Sales and Marketing

Sales and marketing costs are expensed as incurred and are primarily comprised of personnel-related costs for the Company's sales and marketing departments, costs related to sales commissions, trades shows, facilities costs, as well as advertising and other demand generating services. Sales and marketing expenses includes advertising costs of \$6.0 million and \$3.0 million during 2021 and 2020, respectively.

Shipping and Handling Costs

The Company recognizes shipping and handling costs in cost of revenue within the consolidated statements of operations and comprehensive income (loss). When shipping and handling services are provided subsequent to the point in time control is transferred, the Company accounts for the shipping and handling services as a fulfillment activity and accrues the related costs.

Stock-Based Compensation

The Company recognizes expense for stock-based compensation awards based on the estimated fair value of the award on the date of grant, which is amortized on a straight-line basis over the employee's or director's requisite service period for service based awards, generally the vesting period of the award. Awards containing market and/or performance conditions are recognized using the graded vesting method, which is an accelerated expense attribution method.

The Company uses the Black-Scholes pricing model to estimate the fair value of options on the date of grant. The use of a valuation model requires management to make certain assumptions with respect to selected model inputs. The Company grants stock options and restricted stock units at exercise prices determined equal to the fair value of common stock on the date of the grant, as determined by the Board of Directors. The fair value of the Company's common stock at each measurement date prior to the merger was based on a number of factors, including the results of third-party valuations, the Company's historical financial performance, and observable arms-length sales of the Company's capital stock including convertible preferred stock, and the prospects of a liquidity event, among other inputs. The computation of expected option life is based on an average of the vesting term and the maximum contractual life of the Company's stock options, as the Company does not have sufficient history to use an alternative method to the simplified method to calculate an expected life for employees. The Company estimates an expected forfeiture rate for stock options, which is factored into the determination of stock-based compensation expense. The volatility assumption is based on the historical and implied volatility of the Company's peer group with similar business models. The risk-free interest rate is based on U.S. Treasury zero-coupon issues with a remaining term equal to the expected life assumed at the date of grant. The dividend yield percentage is zero because the Company does not currently pay dividends nor does the Company intend to do so in the future.

These estimates involve inherent uncertainties and the use of different assumptions may have resulted in stock-based compensation expense that was different from the amounts recorded.

Warranty Reserves

Substantially all of the Company's hardware products are covered by a standard assurance warranty of one year. In the event of a failure of a product covered by this warranty, the Company may repair or replace the product, at its option. The Company's warranty reserve reflects estimated material and labor costs for potential or actual product issues for which the Company expects to incur an obligation. The Company periodically assesses the appropriateness of the warranty reserve and adjusts the amount as necessary. If the data used to calculate the appropriateness of the warranty reserve are not indicative of future requirements, additional or reduced warranty reserves may be necessary.

Warranty reserves are included within accrued expenses on the consolidated balance sheets. The following table presents changes in the balance of the Company's warranty reserve:

(in thousands)	Year Ended December 31,			
	2021		2020	
Balance at beginning of period	\$	564	\$	1,260
Additions to warranty reserve		529		821
Claims fulfilled		(435)		(882)
Change in estimate related to pre-existing warranties		—		(635)
Balance at end of period	\$	<u>658</u>	\$	<u>564</u>

Warranty reserve is recorded through cost of revenue in the consolidated statements of operations and comprehensive income (loss).

Common Stock

The holders of the common stock are entitled to one vote for each share held at all meetings of stockholders (and written actions in lieu of meetings).

Dividends may be declared and paid on common stock from funds lawfully available as and when determined by the Board of Directors and subject to any preferential dividend rights of any then outstanding preferred stock. Through the year ended December 31, 2021, no dividends had been declared.

Warrants

Warrants to purchase the Company's common stock issued in conjunction with the Company's former term loan facility debt were recorded as a liability and classified as other liabilities on the consolidated balance sheet as of December 31, 2020. The change in the fair value is recognized in other expense in the consolidated statements of operations and comprehensive income (loss).

Warrants to purchase the Company's Series D convertible preferred stock issued in conjunction with a customer contract were recorded as additional Series D convertible preferred stock and classified as mezzanine equity on the consolidated balance sheet as of December 31, 2020.

Profit (Loss) Per Share

Basic profit (loss) per common share is calculated by dividing net profit (loss) attributable to common stockholders, less any participating dividends, by the weighted average number of common shares outstanding during the applicable period. Diluted profit (loss) per share include shares issuable upon exercise of outstanding stock options and stock-based awards where the conversion of such instruments would be dilutive. See Note 15 for further information.

Income Taxes

The Company files U.S. federal and state tax returns where applicable. The non-U.S. subsidiaries file income tax returns in their respective jurisdictions. The Company accounts for income taxes under the asset and liability method, which recognizes deferred tax assets or liabilities for the expected future tax consequences based on the differences between the financial statement and income tax bases of assets and liabilities using the enacted marginal tax rate, in effect when the differences are expected to reverse. Valuation allowances are provided, if based on the weight of available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized. Management judgment is required in determining the Company's provision for income taxes, the Company's deferred tax assets and liabilities, and any valuation allowance recorded against those net deferred tax assets.

The Company follows the authoritative guidance on accounting for and disclosure of uncertainty in tax positions which requires the Company to determine whether a tax position of the Company is more likely than not to be sustained upon examination, including resolution of any related appeals of litigation processes, based on the technical merits of the position. For tax positions meeting the more-likely-than-not threshold, the tax amount recognized in the financial statements is reduced to the largest benefit that has a greater than fifty percent likelihood of being realized upon the ultimate settlement with the relevant taxing authority.

Loss Contingencies

Liabilities for loss contingencies arising from claims, assessments, litigation, fines, and penalties and other sources are recorded when it is probable that a liability has been incurred and the amount can be reasonably estimated. Legal costs for loss contingencies are expensed as incurred.

Segment Information

The Company determines its chief operating decision maker ("CODM") based on the person responsible for making resource allocation decisions. Operating segments are components of the business for which the CODM regularly reviews discrete financial information. The Company manages its operations as a single segment for the purposes of assessing performance and making operating decisions.

Common Stock Warrant Liabilities

The Company assumed 5,374,984 publicly-traded warrants ("Public Warrants") and 3,150,000 private placement warrants originally issued by AONE ("Private Placement Warrants" and, together with the Public Warrants, the "Common Stock Warrants") upon the Merger, all of which were issued in connection with AONE's initial public offering and subsequent over-allotment and entitle the holder to purchase one share of the Common Stock at an exercise price of \$11.50 per share. The Common Stock Warrants became exercisable the later of 30 days after the Company completed the Merger or 12 months from the closing of AONE's initial public offering, but can be terminated on the earlier of 5 years after the Merger, liquidation of the Company, or the Redemption Date as determined by the Company. During the year ended December 31, 2021, no Public Warrants or Private Placement Warrants were

exercised. The Public Warrants are publicly traded and are exercisable for cash unless certain conditions occur which would permit a cashless exercise, such as the failure to have an effective registration statement related to the shares issuable upon exercise or redemption by the Company under certain conditions. The Private Placement Warrants are not redeemable for cash so long as they are held by the initial purchasers or their permitted transferees but may be redeemable for common stock if certain other conditions are met. If the Private Placement Warrants are held by someone other than the initial purchasers or their permitted transferees, the Private Placement Warrants are redeemable by the Company and exercisable by such holders on the same basis as the Public Warrants.

The Company evaluated the Public Warrants and Private Placement Warrants and concluded that the Private Placement Warrants do not meet the criteria to be classified within stockholders' equity. The agreement governing the Common Stock Warrants includes a provision that, if applied, could result in a different settlement value for the Private Placement Warrants depending on their holder. Because the holder of an instrument is not an input into the pricing of a fixed-for-fixed option on the Company's ordinary shares, the Private Placement Warrants are not considered to be "indexed to the Company's own stock." As the Private Placement Warrants meet the definition of a derivative, the Company recorded these warrants as liabilities on the consolidated balance sheet at fair value, with subsequent changes in their respective fair values recognized in the consolidated statements of operations and comprehensive income (loss) at each reporting date as part of change in fair value of derivative liabilities, as described in Note 12. The provisions referenced above are not applicable to the Public Warrants which do not have differing settlement provisions based on the warrant holder. The Public Warrants are not precluded from being considered indexed to the Company's stock and were recognized at fair value in stockholders' equity on the closing of the Merger.

Contingent Earnout Liability

In connection with the Reverse Recapitalization and pursuant to the Merger Agreement, A-Star, the sponsor of AONE (the "Sponsor") surrendered 2,610,000 shares ("Sponsor Earnout Shares") and holders of Legacy Markforged equity interests as of Closing ("Eligible Markforged Equityholders") are entitled to receive as additional merger consideration 14,666,667 shares of the Company's Common Stock ("Markforged Earnout Shares") upon the Company achieving certain Earnout Triggering Events (as described in the Merger Agreement and Note 11). The contingent obligations to issue Markforged Earnout Shares in respect of Legacy Markforged common stock and release from lock-up Sponsor Earnout Shares are accounted for as liability classified instruments in accordance with Accounting Standards Codification Topic 815-40, as the Earnout Triggering Events that determine the number of Sponsor and Markforged Earnout Shares required to be released or issued, as the case may be, include events that are not solely indexed to the fair value of common stock of Markforged. The liability was recognized at the reverse recapitalization date and is subsequently remeasured at each reporting date with changes in fair value recorded in the consolidated statements of operations.

Markforged Earnout Shares issuable to employees with vested Legacy Markforged equity awards and Earnout RSUs (as described in the Merger Agreement) issuable to employees with unvested Legacy Markforged equity awards are considered a separate unit of account from the Markforged Earnout Shares issuable in respect of Legacy Markforged common stock and are accounted for as equity classified stock compensation. The Earnout Shares issuable to employees with vested Legacy Markforged equity awards are not subject to a continued service requirement, thus there is no requisite service period and the value of these shares was recognized as a one-time stock compensation expense for the grant date fair value. Earnout RSUs are contingent upon an employee completing a service vesting condition equivalent to the remaining requisite service period of the employee's unvested Legacy Markforged equity award as of Closing. Expense related to Earnout RSUs is recognized using graded vesting over the requisite service period for the Earnout RSUs.

The estimated fair values of the Sponsor Earnout Shares, Markforged Earnout Shares, and Earnout RSUs were determined using a Monte Carlo simulation to model a distribution of potential outcomes on a monthly basis over the five-year Earnout Period as defined in Note 11. The preliminary estimated fair values of Sponsor Earnout Shares, Markforged Earnout Shares, and Earnout RSUs were determined using the most reliable information available, including the current Company Common Stock price, expected volatility, risk-free rate, expected term and dividend rate.

The contingent earnout liability is categorized as a Level 3 fair value measurement (see Fair Value of Financial Instruments accounting policy as described above) because the Company estimated projections during the Earnout Period utilizing unobservable inputs. Contingent earnout payments involve certain assumptions requiring significant judgment and actual results can differ from assumed and estimated amounts.

Recently Adopted Accounting Pronouncements

The Company is provided the option to adopt new or revised accounting guidance as an "emerging growth company" under the Jumpstart Our Business Startups Act of 2012 ("the JOBS Act") either (1) within the same periods as those otherwise applicable to public business entities, or (2) within the same time periods as private companies, including early adoption when permissible. With the

exception of standards the Company elected to early adopt, when permissible, the Company has elected to adopt new or revised accounting guidance within the same time period as private companies.

In June 2018, the FASB issued ASU No. 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Non employee Share-Based Payment Accounting* (“ASU 2018-07”), which substantially aligns the measurement and classification guidance for share based payments to non employees with the guidance for share based payments to employees. The ASU also clarifies that any share based payment issued to a customer should be evaluated by ASC Topic 606 and the consideration payable to a customer guidance. The new ASU was adopted using a modified retrospective transition approach. The ASU is effective for the Company beginning January 1, 2020 for annual periods and January 1, 2021 for interim periods. The adoption of this standard on January 1, 2020 did not have a material effect on the Company’s consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework — Changes to the Disclosure Requirements for Fair Value Measurement* (“ASU 2018-13”), which modifies the disclosure requirements on fair value measurements in ASC 820, Fair Value Measurement. After the adoption of this update, an entity will no longer be required to disclose the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy; the policy for timing of transfers between levels; the valuation processes for Level 3 fair value measurements. ASU 2018-13 is effective in fiscal years beginning after December 15, 2019. The amendments on changes in unrealized gains and losses are applied prospectively for only the most recent period presented in the initial fiscal year of adoption. The adoption of this standard on January 1, 2020 did not have an impact on the consolidated financial statements of the Company.

In November 2019, the FASB issued ASU 2019-08, *Compensation Stock Compensation (Topic 718) and Revenue from Contracts with Customers (Topic 606): Codification Improvements — Share-Based Consideration Payable to a Customer* (“ASU 2019-08”), which requires that share based consideration payable to a customer is measured under stock compensation guidance. Under ASU 2019-08, awards issued to customers are measured and classified following the guidance in Topic 718 while the presentation of the fair value of the award is determined following the guidance in ASC 606. ASU 2019-08 is effective in fiscal years beginning after December 15, 2019. The new ASU was adopted using a modified retrospective transition approach. The adoption of this standard on January 1, 2020 did not have an impact on the consolidated financial statements.

In August 2018, the FASB issued ASU 2018-15, *Intangibles — Goodwill and Other — Internal-Use Software (Subtopic 350-40)* (“ASU 2018-15”), which aligns the requirements for capitalizing implementation costs incurred where the entity is the customer in a hosting arrangement that is a service contract with those of developing or obtaining internal-use software. These changes become effective for the Company for the fiscal year beginning on January 1, 2021 and interim periods beginning on January 1, 2022, with early adoption permitted. The adoption of this standard on January 1, 2021 did not have a material effect on the Company’s consolidated financial statements.

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740) — Simplifying the Accounting for Income Taxes* (“ASU 2019-12”), which simplifies the accounting for income taxes by eliminating some exceptions to the general approach in Accounting Standards Codification 740, *Income Taxes*. It also clarifies certain aspects of the existing guidance to promote more consistent application. As a result of the ASU, accounting for changes in tax law and year-to-date losses in interim periods will be simplified. These changes became effective for the Company for the fiscal year beginning after December 15, 2020 and interim periods within those fiscal years. The adoption of ASU 2019-12 did not have a material impact on the consolidated financial statements.

In October 2021, the FASB issued ASU No. 2021-08, *Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers* (“ASU 2021-08”). The guidance improves the accounting for acquired revenue contracts with customers in a business combination by addressing diversity in practice and certain inconsistencies in application. Under current GAAP, an acquirer generally recognizes contract assets acquired and liabilities assumed in a business combination at fair value on the acquisition date. The amendments in this update require that an acquirer recognize and measure contract assets and contract liabilities acquired in a business combination in accordance with Topic 606 as if it had originated the contracts. The guidance is effective for annual reporting periods beginning after December 15, 2022, including interim periods therein. Early adoption is permitted, including in an interim period for which the financial statements have not been issued. If early adopting in an interim period, the Company is required to apply the amendments to all prior business combinations that have occurred since the beginning of the fiscal year that includes the interim period of application. The Company adopted ASU 2021-08 in October 2021 and the adoption did not have a material impact on the Company’s consolidated financial statements.

Recent Accounting Pronouncements Not Yet Adopted

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments — Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* (“ASU 2016-13”), which requires immediate recognition of expected credit losses for financial assets

carried at amortized cost, including trade and other receivables, loans and commitments, held-to-maturity debt securities and other financial assets, held at the reporting date to be measured based on historical experience, current conditions and reasonable supportable forecasts. The new credit loss model does not have a minimum threshold for recognition of impairment losses and entities will need to measure expected credit losses on assets that have a low risk of loss. These changes become effective for the Company on January 1, 2023. The Company is currently evaluating the impact that the adoption of ASU 2016-13 will have on its consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)* (“ASU 2016-02”), which improves transparency and comparability among companies by recognizing lease assets and lease liabilities on the balance sheet and by disclosing key information about leasing arrangements. ASU 2016-02 requires lessees to recognize assets and liabilities on the balance sheet for all leases with terms longer than twelve months. The new standard also requires lessees to apply a dual approach, classifying leases as either finance or operating leases. This classification will determine whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease. These changes become effective for the Company for the fiscal year beginning on January 1, 2022 and interim periods beginning on January 1, 2023, with early adoption permitted. The Company previously disclosed that it would adopt ASU 2016-02 for its 2021 fiscal year; the Company has reevaluated the planned adoption date and has determined it will adopt ASU 2016-02 for its 2022 fiscal year. Although the Company is currently evaluating the method of adoption of this guidance and the impact that the adoption of ASU 2016-02 will have on its consolidated financial statements, it expects changes to its balance sheet due to the recognition of right-of-use assets and lease liabilities related to its leases. In August 2018, the FASB issued ASU 2018-11, *Targeted Improvements to ASC 842*, which includes an option to not restate comparative periods in transition and elect to use the effective date of ASC 842, Leases, as the date of initial application of transition. The Company has elected this option and consequently, financial information will not be updated and the disclosures required under the new standard will not be provided for dates and periods before January 1, 2022.

The new standard provides a number of optional practical expedients in transition. The Company expects to elect the "package of practical expedients", which permits the Company not to reassess under the new standard our prior conclusions about lease identification, lease classification and initial direct costs. The new standard also provides practical expedients for an entity's ongoing accounting. The Company expects to elect the short-term lease recognition exemption for all leases that qualify. This means, for those assets that qualify, the Company will not recognize ROU assets or lease liabilities, and this includes not recognizing ROU assets or lease liabilities for existing short-term leases of those assets in transition.

Based on its current lease portfolio, the Company estimates that the adoption of this ASU will result in an addition of approximately \$10.0 - \$15.0 million in ROU assets and liabilities being reflected on its Consolidated Balance Sheet as of January 1, 2022.

Note 4. Revenue

The Company derives revenue from the sale of 3D printers, consumable materials, and hardware maintenance agreements, through its global channel of third-party value-added reseller partners (“VARs”). Typically, the VAR is the Company's customer. Customers are invoiced at the time of shipment or at the beginning of the maintenance term and payment is typically due within 60 days. Contracts primarily contain fixed consideration although certain VAR contracts include performance rebates that may be earned based on sales targets which are accounted for as variable consideration and a reduction of revenue. The Company's variable consideration is primarily based on performance metrics measured over the fiscal year, thus uncertainties related to variable consideration are resolved as of December 31, 2021 and 2020.

Revenue associated with the Company's products are generally recognized when the customer obtains control of the Company's product, which occurs at a point in time, and may be upon shipment or upon delivery based on the contractual shipping terms of a contract. Revenue associated with hardware maintenance arrangements is recognized ratably over the term of the arrangements. For its premium cloud software subscription offering, the Company recognizes revenue ratably over time beginning on the date the customer is capable of accessing the software under “Services” in the revenue disaggregation table.

Significant Judgements

The Company enters into certain contracts that have multiple performance obligations. These performance obligations may include 3D printers, consumables, premium cloud software subscriptions, and hardware maintenance. Contracts with more than one performance obligation require the Company to allocate the transaction price to each performance obligation. As the Company's contracts predominantly contain fixed consideration, the allocation of transaction price is based on a relative standalone selling price method. Certain products are not sold on a standalone basis or do not have a sufficient history of standalone sales and we are required to estimate the standalone selling price for the purposes of our allocation. We utilize market information, historical selling practices, and other available information to produce as accurate an estimate as possible.

Contract Balances

Timing of revenue recognition may differ from the timing of invoicing to customers. The Company has a right to bill when products are shipped, which is often the point in time revenue is recognized. As a result, the Company will have accounts receivable for billings and also deferred revenue for the portion of billings in advance of service in its hardware maintenance agreements.

The Company recognized \$5.9 million of revenue in 2021 from deferred revenue as of December 31, 2020. The Company recognized \$2.1 million of revenue in 2020 from deferred revenue as of December 31, 2019.

Deferred revenue is expected to be recognized when the Company provides hardware maintenance services or contractual performance obligations for which the customer has already provided payment with \$6.3 million recognized in 2022, \$2.4 million recognized in 2023, \$1.1 million recognized in 2024, and \$0.2 million thereafter.

Contract Costs

When costs to obtain a contract are incremental and the amortization period is greater than one year, the cost is capitalized and amortized over the period that aligns with the transfer of related goods and services. The amortization period does not extend beyond the initial contract term because there is not a sufficient history of renewals. When the costs to obtain a contract are capitalized for a contract that includes multiple performance obligations, the amortization pattern is consistent with the pattern of revenue recognition for the performance obligations.

The Company expenses sales commissions when incurred when the amortization period is one year or less. These costs are recorded within sales and marketing in the consolidated statement of operations and comprehensive income (loss).

Disaggregation of Revenue

The following table disaggregates the Company's revenue based on the nature of the products and services:

(in thousands)	Year Ended December 31,	
	2021	2020
Hardware	\$ 64,974	\$ 52,119
Consumables	19,567	15,498
Services	6,680	4,234
Total Revenue	<u>\$ 91,221</u>	<u>\$ 71,851</u>

Note 5 Property and Equipment, net

Property and equipment consist of the following:

(in thousands)	December 31,	December 31,
	2021	2020
Machinery and equipment	\$ 6,091	\$ 4,761
Leasehold improvements	2,262	2,190
Computer equipment	1,764	1,109
Furniture and fixtures	367	345
Computer software	250	246
Construction in process	1,741	36
Property and equipment, gross	12,475	8,687
Less: Accumulated depreciation	(6,126)	(4,406)
Property and equipment, net	<u>\$ 6,349</u>	<u>\$ 4,281</u>

Depreciation expense for property and equipment was \$1.7 million and \$1.8 million for the years ended December 31, 2021 and 2020, respectively. Disposal of property and equipment amounted to zero and \$0.1 million for the years ended December 31, 2021 and 2020, respectively.

Note 6. Inventory

Inventory consists of the following:

(in thousands)	December 31, 2021	December 31, 2020
Raw material	\$ 853	1,669
Work in process	77	79
Finished goods	9,447	4,805
Total inventory	<u>\$ 10,377</u>	<u>\$ 6,553</u>

The Company maintained reserves for obsolete inventory of \$1.0 million and \$0.8 million as of December 31, 2021 and 2020, respectively. As of December 31, 2021, obsolete inventory impairment related to finished goods is \$0.8 million and \$0.2 million is related to raw materials. As of December 31, 2020, all obsolete inventory impairment related to raw materials. The impairment of obsolete inventories is recorded within cost of revenue in the consolidated statements of operations and comprehensive income (loss).

Note 7. Accrued Expenses

The following table summarizes the Company's components of accrued expenses:

(in thousands)	December 31, 2021	December 31, 2020
Warranty reserve	\$ 658	\$ 564
Compensation and benefits	4,360	3,100
VAR commissions	265	520
Professional services	1,725	2,907
Marketing and advertising	122	780
Other	281	297
Total accrued expenses	<u>\$ 7,411</u>	<u>\$ 8,168</u>

Note 8. BorrowingsPPP Loan

On April 10, 2020, the Company was granted a loan (the "Loan") from a lending institution in the aggregate amount of \$5.0 million, pursuant to the Paycheck Protection Program (the "PPP") under Division A, Title I of the Coronavirus Aid, Relief, and Economic Security Act ("CARES Act"), which was enacted March 27, 2020.

The Loan, which was in the form of a note dated April 21, 2020, was due to mature on April 21, 2022 and had an interest rate of 1% per annum, payable monthly commencing on November 22, 2020. The note was prepayable by the borrower at any time prior to maturity with no prepayment penalties. The Company paid off the loan in full in January 2021.

Note 9. Convertible Preferred Stock, Common Stock and Stockholders' Equity (Deficit)

Immediately prior to the closing of the Merger, the convertible preferred stock was converted into Legacy Markforged common stock and recapitalized into Common Stock. There was no convertible preferred stock outstanding as of December 31, 2021. The following table summarizes details of convertible preferred stock authorized, issued and outstanding as of December 31, 2020. The Company has retroactively adjusted the shares issued and outstanding prior to July 14, 2021 to give effect to the Exchange Ratio to determine the number of shares of common stock into which they were converted:

(in thousands, except for share counts)	Shares Authorized	Shares Issued and Outstanding	December 31, 2020 Issuance Price Per Share	Net Carrying Value	Liquidation Preference
Series Seed	18,233,848	17,062,642	\$ 0.0649	\$ 1,107	\$ 1,107
Series A	28,725,920	27,354,298	0.3107	8,437	8,500
Series B	34,391,480	32,749,335	0.4635	15,096	15,180
Series C	14,468,290	13,777,449	2.1775	29,881	30,000
Series D	17,599,646	16,649,077	4.9906	82,976	83,089
Total convertible preferred stock	<u>113,419,184</u>	<u>107,592,801</u>		<u>\$ 137,497</u>	<u>\$ 137,876</u>

Repurchases

During the year ended December 31, 2021, immediately prior to the effective time of the Merger, the Company repurchased 4,499,998 shares of Legacy Markforged common stock from three employees for \$10.00 per share. The value of the repurchase was recorded as a reduction of additional paid-in capital.

During the year ended December 31, 2020, the Company repurchased common stock from an employee. Concurrent to the repurchase, the Company was contractually obligated to repurchase an additional 250,471 shares of common stock from this employee for \$4.52 per share in 2021, subject to certain conditions. This obligation was waived by the parties in April 2021.

Management determined the fair value of Legacy Markforged common stock prior to the merger using the methodology described in the Summary of Significant Accounting Policies, adjusting for changes in inputs based on material information known at the time of a repurchase transaction such as estimated timing to exit events and respective probabilities of such events occurring.

Common Stock Reserved for Future Issuance

The Company has reserved the following shares of common stock for future issuance:

	December 31, 2021	December 31, 2020
Common stock options outstanding and unvested RSU	20,267,035	18,493,013
Shares available for issuance under the 2021 plan	21,502,768	—
Shares available for issuance under the 2013 plan	—	4,427,323
Convertible preferred stock outstanding	—	107,592,801
Warrants to purchase Series D convertible preferred stock	—	110,211
Common stock warrants outstanding	8,525,000	180,928
Shares available for issuance as Earnout RSU	1,400,000	—
Employee stock purchase plan	4,700,000	—
Total shares of authorized common stock reserved for future issuance	<u>56,394,803</u>	<u>130,804,276</u>

Note 10. Equity Based Awards

On July 13, 2021, the Company's stockholders approved the Markforged Holding Corporation 2021 Stock Option and Incentive Plan ("2021 Plan") and the Markforged Holding Corporation 2021 Employee Stock Purchase Plan ("2021 ESPP"). As of December 31, 2021, 21,502,768 and 4,700,000 shares of common stock were available for issuance under the 2021 Plan and 2021 ESPP, respectively.

Under the 2021 Plan, the Company can grant stock options, stock appreciation rights, restricted stock awards, restricted stock units ("RSUs"), unrestricted stock awards, cash-based awards, and dividend equivalent rights. The 2021 Plan provides that an additional number of shares of common stock will automatically be added to the shares of common stock authorized for issuance under the 2021 Plan on January 1 of each year. The number of shares of common stock added each year will be equal to (i) 5% of the number of shares of common stock issued and outstanding as of December 31 of the immediately preceding year or (ii) such lesser amount as determined by the Company's Board of Directors. The awards generally vest 25 percent after 12 months, followed by ratable vesting over 36 months. The options granted generally expire 10 years from the date of grant. The grant date fair value of options and RSUs is recognized as expense on a straight-line basis over the requisite service period, which is generally the vesting period.

The 2021 ESPP allows eligible employees to authorize payroll deductions between 1% and 15% of their base salary or wages, up to \$25,000 annually, to be applied toward the purchase of shares of the Company's common stock occurring at offering periods determined by the Company. At each offering period, the eligible employees will have the option to acquire common stock at a discount of up to 15% of the lesser of the Company's common stock price on (i) the first trading day of the offering period or (ii) the last day of the offering period. The offering periods under the 2021 ESPP are not to exceed 27 months between periods. On January 1 of each subsequent year under the plan, the number of shares available for issuance under the plan will be increased by the lesser of (i) 4,700,000 shares of common stock, (ii) one percent of the number of shares of common stock issued and outstanding as of December 31 of the immediately preceding year, or (iii) number of shares of common stock determined by the Company. During the

year ended December 31, 2021, the Company did not recognize stock compensation expense related to the 2021 ESPP as there were no grants under the 2021 ESPP.

Legacy Markforged's 2013 Stock Plan (the "2013 Plan") was terminated at the Closing and all outstanding awards became outstanding under the 2021 Plan. No further awards will be granted under the 2013 Plan. Option activity under the plan for the year ended December 31, 2021 is as follows:

	Number of Shares	Weighted- Average Exercise Price (Per Share)	Weighted- Average Remaining Contractual Life (in years)
Outstanding at December 31, 2020	18,663,466	\$ 1.81	8.71
Granted	—	—	
Exercised	(2,020,709)	0.98	
Forfeited	(713,278)	1.93	
Outstanding at December 31, 2021	<u>15,929,479</u>	\$ 1.91	7.89
Options exercisable at December 31, 2021	7,208,521	\$ 1.66	7.28

The aggregate intrinsic value of stock options outstanding at December 31, 2021 was \$55.2 million. As of December 31, 2021, the Company had 15,441,424 shares vested and expected to vest.

Additional information regarding the exercise of stock options is as follows:

(in thousands, except weighted average)	Year Ended December 31,	
	2021	2020
Weighted-average grant date fair value of options granted	\$ —	\$ 1.28
Intrinsic value of options exercised	17,614	4,455
Cash received from options exercised	1,967	1,131

In the year ended December 31, 2021 the Company did not grant any options to purchase shares of Common Stock. In the year ended December 31, 2020, the Company granted options to purchase 9,890,563 shares of common stock with an aggregate fair value of \$12.7 million, calculated via the Black-Scholes option pricing model (see Note 3) using the following assumptions:

	Year Ended December 31, 2020
Expected option term (in years)	5.86
Expected volatility%	53.1 %
Risk-free interest rate%	0.56 %
Expected dividend yield%	— %
Fair value of common stock (per share)	\$ 2.36

Restricted Stock Units

During the year ended December 31, 2021, the Company awarded RSUs to newly hired and continuing employees. The fair value per share of these awards was determined based on the fair market value of our stock on the date of the grant and is being recognized as stock-based compensation expense over the requisite service period. Awards containing market and/or performance conditions are recognized using the graded vesting method, which is an accelerated expense attribution method. We have not issued any awards with market and/or performance conditions since the Merger. The RSUs that vested during the year ended December 31, 2021 had a fair value of \$1.1 million. The following table summarizes the RSU activity for the year ended December 31, 2021:

	Number of Shares	Weighted- Average Grant Date Fair Value (Per Share)
Outstanding at December 31, 2020	—	\$ —
Granted ⁽¹⁾	4,543,074	9.20
Vested	(106,800)	9.90
Forfeited	(98,718)	9.11
Unvested at December 31, 2021	<u>4,337,556</u>	<u>\$ 9.32</u>

(1)Includes 80,000 shares awarded to non-employee directors that have not vested as of December 31, 2021.

Stock-Based Compensation Expense

The Company recorded compensation expense related to options and RSUs of \$11.9 million and \$2.6 million for the years ended December 31, 2021 and 2020. Total unrecognized stock-based compensation expense for the RSUs outstanding was \$33.7 million at December 31, 2021, which is expected to be recognized over a weighted-average period of 3.6 years. Total unrecognized stock-based compensation expense for the options outstanding was \$8.8 million at December 31, 2021, which is expected to be recognized over a weighted-average period of 2.4 years.

Markforged Earnout Shares issuable to holders of Legacy Markforged equity interests as of the Merger closing date (“Eligible Markforged Equityholders”) with respect to a Legacy Markforged equity award are accounted for as equity classified stock compensation. Markforged Earnout Shares issuable with respect to a vested Legacy Markforged equity award do not have a requisite service period. To the extent that an Eligible Markforged Equityholder is entitled to receive Markforged Earnout RSUs with respect to an unvested Legacy Markforged equity award, the Earnout RSUs are subject to a service-based vesting condition with a vesting period equivalent to the remaining service period of the holder’s Legacy Markforged equity award as of Closing.

During the year ended December 31, 2021, the Company recognized stock-based compensation expense related to the Markforged Earnout of \$7.0 million. The unrecognized compensation expense related to the Markforged Earnout is \$7.3 million and recognized over a remaining period of no more than 3.5 years, dependent on when vesting conditions are met.

The stock-based compensation expense for stock-based awards and earnout shares was recognized in the following captions within the consolidated statements of operations and comprehensive income (loss):

(in thousands)	Year Ended December 31,	
	2021	2020
Cost of revenue	\$ 515	\$ 589
Sales and marketing	2,395	578
Research and development	4,614	693
General and administrative	11,406	709
Total stock-based compensation expense	<u>\$ 18,930</u>	<u>\$ 2,569</u>

Note 11. Earnout

During the five year period after the Closing (“Earnout Period”), Eligible Markforged Equityholders are entitled to receive up to 14,666,667 Markforged Earnout Shares upon the occurrence of certain triggering events. During the Earnout Period, the Sponsor’s 2,610,000 surrendered shares of common stock will be released from lock-up upon certain triggering events.

On the date when the volume-weighted average trading sale price (“VWAP”) of one share of the Common Stock quoted on the NYSE is greater than or equal to \$12.50 for any twenty trading days within any thirty consecutive trading day period within the Earnout Period (“Triggering Event I”), the Eligible Markforged Equityholders will receive 8,000,000 Markforged Earnout Shares distributed on a pro-rata basis and 50% of the Sponsor’s surrendered shares will be released from lock-up to the Sponsor.

On the date when the VWAP of one share of the Company’s common stock quoted on the NYSE is greater than or equal to \$15.00 for any twenty trading days within any thirty consecutive trading day period within the Earnout Period (“Triggering Event II” and together with Triggering Event I, each a “Triggering Event”), the Eligible Markforged Equityholders will receive the remaining 6,666,667 Markforged Earnout Shares distributed on a pro-rata basis and the remaining 50% of the Sponsor’s surrendered shares will be released from lock-up to the Sponsor.

There are two units of account within the Markforged Earnout Shares depending on whether the Eligible Markforged Equityholder is entitled to receive Markforged Earnout Shares with respect to a Legacy Markforged equity award, in which case the Markforged Earnout Shares are accounted for as equity classified stock compensation, or with respect to Legacy Markforged common stock, in which case the Markforged Earnout Shares are accounted for as a liability classified instrument in accordance with Accounting Standards Codification Topic 815-40. Markforged Earnout Shares issuable with respect to an unvested Legacy Markforged equity award are issued in the form of Earnout RSUs and are subject to forfeiture if the holder does not complete the required service period. Forfeited Markforged Earnout Shares are distributed to the remaining Eligible Markforged Equityholders on a pro-rata basis and are fungible between the two units of account. The following table summarizes the number of Earnout Shares allocated to each unit of account as of December 31, 2021:

	Triggering Event I Earnout Shares	Triggering Event II Earnout Shares
Contingent earnout liability	7,144,325	5,953,595
Stock compensation	855,675	713,072
Total Earnout Shares	8,000,000	6,666,667

As of the Closing, the estimated value of the Markforged Earnout Shares and surrendered Sponsor shares was \$8.04 per share issuable upon Triggering Event I and \$7.66 per share issuable upon Triggering Event II. The estimated value of the Markforged Earnout Shares and surrendered Sponsor shares as of December 31, 2021 is \$3.95 per share issuable upon Triggering Event I and \$3.63 per share issuable upon Triggering Event II. The valuation of the Markforged Earnout Shares and surrendered Sponsor shares is based on a Monte Carlo simulation to model a distribution of potential outcomes on a monthly basis over the Earnout period using the most reliable information available. The following table describes the assumptions used in the valuation:

	December 31, 2021		July 14, 2021	
Current stock price	\$	5.37	\$	8.56
Expected volatility		70.00 %		70.00 %
Risk-free interest rate		1.19 %		0.85 %
Dividend rate		— %		— %
Expected term (years)		4.54		5.00

Neither of the Earnout Triggering Events have occurred as of December 31, 2021 and therefore none were distributed.

Note 12. Stock Warrants

Legacy Markforged Common Stock Warrants

As part of a loan agreement entered into with a lending institution during 2015, Legacy Markforged issued warrants to the lender granting the right to purchase 180,928 shares of the Legacy Markforged common stock at an exercise price of \$0.06 per share. The loan agreement was terminated prior to January 1, 2018. The warrants were due to expire on February 17, 2025.

The warrants were classified as a derivative liability within other liabilities prior to exercise in the consolidated balance sheets and subsequent adjustments to fair value are shown in other expense in the consolidated statements of operations and comprehensive income (loss).

In June 2021, the lender exercised the warrant on a cashless basis and Legacy Markforged issued 179,572 shares of common stock. The fair value is measured at each reporting date using the Black-Scholes model using the following inputs. The inputs below correspond to June 10, 2021, the date of exercise:

	June 10, 2021	December 31, 2020
Expected (remaining) option term (in years)	3.69	4.13
Expected volatility%	65.0 %	55.4 %
Risk-free interest rate%	0.45 %	0.36 %
Expected dividend yield%	— %	— %
Fair value of common stock (per share)	\$ 9.51	\$ 2.93

Prior to the Merger, management considered contemporaneous third-party valuations in its determination of the fair value of common stock. The fair value of common stock increased significantly in large part due to the change in the probability of special purpose acquisition company (SPAC) exit. For the June 10, 2021 valuation, the Company assigned a 95% probability of a SPAC exit and a 5% probability of staying a private company.

Preferred Stock Warrants

As part of a development agreement executed with a customer in 2019, Legacy Markforged agreed to issue warrants to the customer to purchase Series D convertible preferred stock that would vest upon the achievement of certain payment milestones. The warrants granted the customer the right to purchase up to 280,528 shares of the Company's Series D convertible preferred stock at an exercise price of \$0.0001 per share. As the customer remitted payment for goods purchased from the company under the development agreement, a pro-rata share of warrants vested. The warrants were set to expire on September 24, 2029, but were completely vested and exercised as of the Closing.

The Company accounted for the warrants issued to the customer as consideration payable to the customer and a reduction of revenue with a corresponding adjustment to convertible preferred stock. The Company accounted for the warrants that vested as a reduction to deferred revenue and a corresponding adjustment to convertible preferred stock. The value of the warrants was measured based on the grant date fair value. The grant date was considered to have occurred at the execution date of the development agreement.

In accordance with the development agreement, 110,212 and 140,260 warrants vested during the years ended December 31, 2021 and 2020, respectively. As a result, the Company recorded \$0.6 million and \$0.7 million related to the warrants in the years ended December 31, 2021 and 2020, respectively. As of December 31, 2021, there were no outstanding but unvested warrants remaining under the terms of the development agreement.

Private Placement Warrants and Public Warrants

The Private Placement Warrants were initially recognized as a liability on July 14, 2021 at a fair value of \$5.7 million. The Private Placement Warrants were remeasured to a fair value of \$2.6 million as of December 31, 2021. The Company recorded a loss of \$3.1 million for the year ended December 31, 2021, which is included in change in fair value of warrant liabilities on the consolidated statements of operations and comprehensive income (loss).

The Private Placement Warrants were valued using the following assumptions under the Binomial Lattice Model

	December 31, 2021	July 14, 2021
Market price of public stock	\$ 5.37	\$ 8.56
Exercise price	\$ 11.50	\$ 11.50
Expected term (years)	4.53	5.01
Volatility	56.0 %	39.1 %
Risk-free interest rate	1.19 %	0.85 %
Dividend rate	0.0 %	0.0 %

The Public Warrants were recognized in stockholder's equity at a fair value of \$9.7 million on July 14, 2021.

Note 13. Income Taxes

The components of the Company's profit (loss) before income taxes are as follows:

(in thousands)	Year Ended December 31,	
	2021	2020
Profit (loss) before income taxes:		
Domestic	\$ 3,685	\$ (18,269)
Foreign	226	395
Total	<u>\$ 3,911</u>	<u>\$ (17,874)</u>

The components of the income tax provision are as follows:

(in thousands)	Year Ended December 31,	
	2021	2020
Current Provision		
Federal	\$ —	\$ —
State	1	5
Foreign	55	106
Total current provision	56	111
Deferred Provision		
Federal	—	—
State	—	—
Foreign	—	—
Total deferred provision	—	—
Total income tax expense	<u>\$ 56</u>	<u>\$ 111</u>

The overall effective tax rate differs from the statutory federal tax rate as follows:

	Year Ended December 31, % of Pretax Profit (Loss)	
	2021	2020
Statutory US federal rate	21.00 %	21.00 %
State income taxes, net of federal benefit	(51.05)	1.85
Stock-based compensation	26.08	(1.06)
Nondeductible expenses	1.44	(0.61)
Global intangible low-taxed income	1.17	(0.46)
Fair market value change in warrants and earn out liabilities	(337.50)	—
Transaction costs	(25.85)	—
Officer's compensation (162(m))	26.36	—
Research and development credits	(11.95)	3.48
Valuation allowance	356.34	(25.18)
Change in statutory tax rate	(3.26)	(0.20)
Other rate items	(1.39)	0.24
Effective tax rate	<u>1.39 %</u>	<u>(0.94) %</u>

Significant components of the Company's net deferred tax assets are as follows:

(in thousands)	December 31,	
	2021	2020
Deferred tax assets		
Amortization	174	23
Deferred revenue	577	318
Deferred expenses	446	280
Reserves	647	560
Accrued expenses	369	453
Stock compensation	2,138	372
Uniform capitalization	74	45
Net operating losses	27,846	16,266
Research and development credits	3,717	3,232
Gross deferred tax assets	\$ 35,988	\$ 21,546
Less: Valuation allowance	(36,009)	(21,507)
Deferred tax liabilities		
Depreciation	21	(39)
Unrealized foreign currency loss	—	(3)
Net deferred tax assets	<u>—</u>	<u>—</u>

The Company historically incurred operating losses and maintains a full valuation allowance against its net deferred tax assets. There is no tax provision or tax benefit attributable to the net loss which differs from the amount computed by applying the US federal income tax rates of 21% to the pretax loss, primarily due to changes in valuation allowance, generation of research and development tax credits, and state taxes.

As of December 31, 2021, the Company had federal net operating loss carryforwards of \$15.0 million that are subject to expire at various dates between 2033 and 2037, and net operating losses of \$99.5 million, that have no expiration date and can be carried forward indefinitely but limited in their usage to 80% of annual taxable income. As of December 31, 2021, the Company has state tax net operating loss carryforwards of approximately \$61.6 million, that are subject to expire at various dates between 2033 and 2041. At December 31, 2021, the Company had federal and state research and development tax credit carryforwards of \$2.5 million and \$1.6 million, respectively, available to reduce future income taxes payable which begin to expire in 2030.

Utilization of the net operating loss and research and development credit carryforwards may be subject to a substantial annual limitation under Section 382 of the Internal Revenue Code of 1986, and similar state provisions, due to ownership change limitations that have occurred previously or that could occur in the future. These ownership changes may limit the amount of net operating loss and research and development credit carryforwards that can be utilized annually to offset future taxable income and tax, respectively. As of December 31, 2021, the Company has not completed a 382 study to assess whether a change of ownership has occurred since its formation.

The Company has not conducted a study of its research and development credit carryforwards. This study may result in an adjustment to research and development credit carryforwards; however, until a study is completed and any adjustment is known, no amounts are being presented as an uncertain tax position. A full valuation allowance has been provided against the Company's research and development credits and, if an adjustment is required, this adjustment would be offset by an adjustment to the valuation allowance. Thus, there would be no impact to the balance sheets or statements of operations if an adjustment were required.

Uncertain tax positions represent tax positions for which reserves have been established. The Company's policy is to record interest and penalties related to uncertain tax positions as part of income tax expense. Reserves for uncertain tax positions as of December 31, 2021 are not material and would not impact the effective tax rate if recognized as a result of the valuation allowance maintained against the Company's net deferred tax assets.

The Company files tax returns as prescribed by the tax laws of the jurisdictions in which it operates. In the normal course of business the Company is subject to examination by federal, state and foreign jurisdictions, where applicable. There are currently no pending income tax examinations. The Company is open to future tax examination under statute from 2016 to the present; however, carryforward attributes that were generated prior to January 1, 2016 may still be adjusted upon examination by federal, state or local tax authorities to the extent utilized in an open tax year or in future periods.

As of December 31, 2021, the Company has not provided for deferred income taxes on undistributed earnings of its foreign subsidiaries since these earnings are deemed to be indefinitely reinvested. Upon distribution of those earnings in the form of dividends or otherwise, the Company could be subject to income taxes as well as withholding taxes. The amount of taxes attributable to the undistributed earnings is immaterial.

The Company has evaluated the positive and negative evidence bearing upon the realizability of its deferred tax assets, which are primarily comprised of net operating loss carryforwards and capitalized research and development costs. Management has determined that it is more likely than not that the Company will not recognize the benefits of federal and state deferred tax assets and, as a result, a full valuation allowance of \$36.0 million has been established at December 31, 2021.

The following table presents the changes in the balance of the Company's deferred income tax asset valuation allowance:

(in thousands)	Year Ended December 31,	
	2021	2020
Balance at beginning of year	\$ 21,466	\$ 17,001
Additions charged to expense	14,543	4,465
Balance at end of year	<u>\$ 36,009</u>	<u>\$ 21,466</u>

Note 14. Commitments and Contingencies

Operating Leases

The Company leases two locations in Watertown, Massachusetts and one location in Billerica, Massachusetts for office and manufacturing, under noncancellable operating lease agreements. These leases provide for escalating monthly payments and are set to expire in January 2024, July 2028, and May 2029. Rent expense under the Company's lease agreements was \$2.5 million and \$2.2 million for the years ended December 31, 2021 and 2020, respectively.

On December 17, 2021, the Company entered into a property lease in Waltham, Massachusetts to be used as its new global headquarters. The Company's interest in and obligations under the lease shall be effective as of April 2022 and will continue through September 2031.

Future minimum lease payments under these agreements are as follows:

(in thousands)	Amount
2022	\$ 5,499
2023	8,314
2024	7,507
2025	7,594
2026	7,775
After 2027	31,412
Total future minimum lease payments	<u>\$ 68,101</u>

Minimum Commitment Arrangements

The Company may enter into non-binding purchase agreements with suppliers to acquire inventory and other materials during the normal course of business. The Company did not have any minimum commitment arrangements.

Legal Proceedings

From time to time, the Company may face legal claims or actions in the normal course of business. At each reporting date, the Company evaluates whether a potential loss amount or a potential range of loss is probable and reasonably estimable under the

provisions of the authoritative guidance that address accounting for contingencies. The Company expenses as incurred the costs related to its legal proceedings.

In July 2021, Continuous Composites Inc. (“Continuous Composites”), a company based out of Idaho, brought a claim in the United States District Court for the District of Delaware against the Company regarding patent infringement. While the Company takes any claims of infringement seriously, Markforged believes that Continuous Composites’ claims are baseless and without merit. The Company intends to mount a vigorous defense against Continuous Composites in court. However, the Company can provide no assurance as to the outcome of any such disputes, and any such actions may result in judgments against Markforged for significant damages. The Company does not believe that a loss is probable and did not record a loss contingency for the year ended December 31, 2021.

Note 15. Net Profit (Loss) Per Share

The Company computes basic net profit (loss) per share using net profit (loss) attributable to the Company’s common stockholders and the weighted-average number of common shares outstanding during each period. Diluted earnings per share include shares issuable upon exercise of outstanding stock options and stock-based awards where the conversion of such instruments would be dilutive.

(in thousands, except per share amounts)	Year Ended December 31,	
	2021	2020
<u>Numerator:</u>		
Net profit (loss) and comprehensive income (loss)	\$ 3,855	\$ (17,985)
Deemed dividend - redemption of common stock	—	(826)
Net profit (loss) attributable to common stockholders - Basic and Diluted	<u>\$ 3,855</u>	<u>\$ (18,811)</u>
<u>Denominator:</u>		
Weighted average shares outstanding - Basic	108,088,115	38,336,659
Add: Weighted average unvested options outstanding	5,875,309	—
Weighted average shares outstanding - Diluted	<u>113,963,424</u>	<u>38,336,659</u>
<u>Net profit (loss) per common share:</u>		
Basic	\$ 0.04	\$ (0.49)
Diluted	\$ 0.03	\$ (0.49)

For the year ended December 31, 2020, the Company was in a net loss position, thus the effect of potentially dilutive securities, including non-vested stock options, restricted stock awards, warrants, and convertible preferred stock, was excluded from the denominator for the calculation of diluted net loss per share because the inclusion of such securities would be antidilutive. The following dilutive securities are excluded from the denominator:

	Year Ended December 31,	
	2021	2020
Convertible preferred stock	—	107,592,801
Unvested RSUs	4,337,556	—
Unvested awards	—	14,016,486
Warrants	8,525,000	180,928
Contingently issuable earnout shares	14,666,667	—
Total	<u>27,529,223</u>	<u>121,790,215</u>

Note 16. Segment Information

In the operation of the business, the Chief Executive Officer, who is the Company's chief operating decision maker, reviews the business as one segment. The Company currently sells its product in the Americas, Europe, Middle East and Africa ("EMEA"), and Asia Pacific ("APAC") markets. The Company measures revenue based on the physical location of where the customer who is receiving the promised goods or service is located. Disaggregated revenue data for those markets is as follows:

(in thousands)	Year Ended December 31,	
	2021	2020
Americas	\$ 48,516	\$ 40,837
EMEA	25,592	19,214
APAC	17,113	11,800
Total	<u>\$ 91,221</u>	<u>\$ 71,851</u>

Revenue generated from customers within the Company's country of domicile, the United States, amounted to \$46.7 million and \$35.1 million for the years ended December 31, 2021 and 2020, respectively. The Company's long-lived assets are substantially located in the United States, where the Company's primary operations are located.

**DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE
SECURITIES EXCHANGE ACT OF 1934**

The following description of the capital stock of Markforged Holding Corporation (the "Company", "we," "us," and "our") is a summary of certain provisions of the securities that are registered under Section 12 of the Securities and Exchange Act of 1934, as amended, and does not purport to be complete. It is subject to and qualified in its entirety by reference to our Certificate of Incorporation and our Bylaws, each of which is incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.3 is a part, and by the provisions of applicable law, each of which are incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.3 is a part, and by applicable law. We urge you to read the applicable provisions of Delaware law and our Certificate of Incorporation and Bylaws carefully and in their entirety for additional information.

General

Our authorized capital stock consists of One Hundred Fifty Million (1,000,000,000) shares of common stock, par value \$0.0001 per share and One Hundred Million (100,000,000) shares of undesignated preferred stock, par value \$0.0001 per share.

Common Stock

Holders of our Common Stock are entitled to one vote for each share held of record on all matters submitted to a vote of stockholders, including the election or removal of directors. The holders of our Corporation Common Stock do not have cumulative voting rights in the election of directors. Holders of our common stock are entitled to receive ratably any dividends declared by our board of directors out of funds legally available for that purpose, subject to any preferential dividend rights of any outstanding preferred stock. Our common stock has no preemptive rights, conversion rights or other subscription rights or redemption or sinking fund provisions. In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in all assets remaining after payment of all debts and other liabilities and any liquidation preference of any outstanding preferred stock.

Warrants***Public Shareholders' Warrants***

Each whole warrant entitles the registered holder to purchase one share of our Common Stock at a price of \$11.50 per share, subject to adjustment as discussed below, provided in each case that we have an effective registration statement under the Securities Act covering the shares of our Common Stock issuable upon exercise of the warrants and a current prospectus relating to them is available (or we permit holders to exercise their warrants on a cashless basis under the circumstances specified in the warrant agreement) and such shares are registered, qualified or exempt from registration under the securities, or blue sky, laws of the state of residence of the holder. Pursuant to the Warrant Agreement, a warrant holder may exercise its warrants only for a whole number of shares. This means only a whole warrant may be exercised at a given time by a warrant holder. No fractional warrants will be issued upon separation of the units and only whole warrants will trade. The warrants will expire on July 14, 2026, at 5:00 p.m., New York City time, or earlier upon redemption or liquidation.

The Company will not be obligated to deliver any shares of our Common Stock pursuant to the exercise of a warrant and will have no obligation to settle such warrant exercise unless a registration statement under the Securities Act with respect to the shares underlying the warrants is then effective and a prospectus relating thereto is current, subject to the Company satisfying its obligations described below with respect to registration, or a valid exemption from registration is available. No warrant will be exercisable and the Company will not be obligated to issue shares

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of our Common Stock upon exercise of a warrant unless the shares issuable upon such warrant exercise have been registered, qualified or deemed to be exempt under the securities laws of the state of residence of the registered holder of the warrants. In the event that the conditions in the two immediately preceding sentences are not satisfied with respect to a warrant, the holder of such warrant will not be entitled to exercise such warrant and such warrant may have no value and expire worthless. In no event will the Company be required to net cash settle any warrant. In the event that a registration statement is not effective for the exercised warrants, the purchaser of a unit containing such warrant will have paid the full purchase price for the unit solely for the share of our Common Stock underlying such unit. The Company registered shares of our Common Stock issuable upon exercise of the warrants on the registration statement filed on the Form S-1 filed with the U.S. Securities and Exchange Commission on August 13, 2021. Pursuant to the Warrant Agreement, the Company has agreed to use its commercially reasonable efforts to maintain the effectiveness of such registration statement and a current prospectus relating to those shares of our Common Stock until the warrants expire or are redeemed, as specified in the warrant agreement; provided that if such shares are at the time of any exercise of a warrant not listed on a national securities exchange such that they satisfy the definition of a “covered security” under Section 18(b)(1) of the Securities Act, the Company may, at its option, require holders of public warrants who exercise their warrants to do so on a “cashless basis” in accordance with Section 3(a)(9) of the Securities Act and, in the event the Company so elects, it will not be required to file or maintain in effect a registration statement.

Redemptions for warrants for cash when the price per share of our Common Stock equals or exceeds \$18.00. Once the warrants become exercisable, we may call the public warrants for redemption:

- in whole and not in part;
- at a price of \$0.01 per warrant;
- upon not less than 30 days’ prior written notice of redemption to each warrant holder; and
- if, and only if, the closing price of the shares of our Common Stock equals or exceeds \$18.00 per share (as adjusted for share sub-divisions, share capitalizations, reorganizations, recapitalizations and the like) for any 20 trading days within a 30-trading day period ending on the third trading day prior to the date on which notice of the redemption is given to the warrant holders.

We will not redeem the warrants as described above unless a registration statement under the Securities Act covering the issuance of shares of our Common Stock issuable upon exercise of the warrants is then effective and a current prospectus relating to those shares is available throughout the 30-day redemption period, except if the warrants may be exercised on a cashless basis and such cashless exercise is exempt from registration under the Securities Act. If and when the warrants become redeemable by us, we may exercise our redemption right even if we are unable to register or qualify the underlying securities for sale under all applicable state securities laws. As a result, we may redeem the warrants as set forth above even if the holders are otherwise unable to exercise the warrants.

We have established the last of the redemption criterion discussed above to prevent a redemption call unless there is at the time of the call a significant premium to the warrant exercise price. If the foregoing conditions are satisfied and we issue a notice of redemption of the warrants, each warrant holder will be entitled to exercise his, her or its warrant prior to the scheduled redemption date. However, the price of a share of our Common Stock may fall below the \$18.00 redemption trigger price (as adjusted for share sub-divisions, share capitalizations, reorganizations, recapitalizations and the like) as well as the \$11.50 (for whole shares) warrant exercise price after the redemption notice is issued.

Redemption of warrants for shares of our Common Stock when the price per share equals or exceeds \$10.00. Commencing ninety days after the warrants become exercisable, we may redeem the outstanding warrants:

- in whole and not in part;

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- at \$0.10 per warrant upon a minimum of 30 days' prior written notice of redemption *provided* that during such 30 day period holders will be able to exercise their warrants on a cashless basis prior to redemption and receive that number of shares determined by reference to the table below, based on the redemption date and the "fair market value" of a share of our Common Stock (as defined below) except as otherwise described below provided, further, that if the warrants are not exercised on a cashless basis or otherwise during such 30 day period, we shall redeem such warrants for \$0.10 per share;
- if, and only if, the closing price of shares of our Common Stock equals or exceeds \$10.00 per public share (as adjusted for share subdivisions, share dividends, reorganizations, reclassifications, recapitalizations and the like) on the trading day before we send the notice of redemption to the warrant holders;
- if, and only if, the private placement warrants are also concurrently called for redemption on the same terms as the outstanding public warrants, as described above; and
- if, and only if, there is an effective registration statement covering the issuance of the shares of our Common Stock issuable upon exercise of the warrants and a current prospectus relating thereto available throughout the 30-day period after written notice of redemption is given.

Redemption Date (period to expiration of warrants)	Fair Market Value of Class A Ordinary Shares								
	≤ 10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	≥ 18.00
57 months	0.257	0.277	0.294	0.310	0.324	0.337	0.348	0.358	0.365
54 months	0.252	0.272	0.291	0.307	0.322	0.335	0.347	0.357	0.365
51 months	0.246	0.268	0.287	0.304	0.320	0.333	0.346	0.357	0.365
48 months	0.241	0.263	0.283	0.301	0.317	0.332	0.344	0.356	0.365
45 months	0.235	0.258	0.279	0.298	0.315	0.330	0.343	0.356	0.365
42 months	0.228	0.252	0.274	0.294	0.312	0.328	0.342	0.355	0.364
39 months	0.221	0.246	0.269	0.290	0.309	0.325	0.340	0.354	0.364
36 months	0.213	0.239	0.263	0.285	0.305	0.323	0.339	0.353	0.364
33 months	0.205	0.232	0.257	0.280	0.301	0.320	0.337	0.352	0.364
30 months	0.196	0.224	0.250	0.274	0.297	0.316	0.335	0.351	0.364
27 months	0.185	0.214	0.242	0.268	0.291	0.313	0.332	0.350	0.364
24 months	0.173	0.204	0.233	0.260	0.285	0.308	0.329	0.348	0.364
21 months	0.161	0.193	0.223	0.252	0.279	0.304	0.326	0.347	0.364
18 months	0.146	0.179	0.211	0.242	0.271	0.298	0.322	0.345	0.363
15 months	0.130	0.164	0.197	0.230	0.262	0.291	0.317	0.342	0.363
12 months	0.111	0.146	0.181	0.216	0.250	0.282	0.312	0.339	0.363
9 months	0.090	0.125	0.162	0.199	0.237	0.272	0.305	0.336	0.362
6 months	0.065	0.099	0.137	0.178	0.219	0.259	0.296	0.331	0.362
3 months	0.034	0.065	0.104	0.150	0.197	0.243	0.286	0.326	0.361
0 months	-	-	0.042	0.115	0.179	0.233	0.281	0.323	0.361

Beginning on the date the notice of redemption is given until the warrants are redeemed or exercised, holders may elect to exercise their warrants on a cashless basis. The numbers in the table below represent the number of shares of our Common Stock that a warrant holder will receive upon a cashless exercise in connection with a redemption by us pursuant to this redemption feature, based on the “fair market value” of our shares of our Common Stock on the corresponding redemption date (assuming holders elect to exercise their warrants and such warrants are not redeemed for \$0.10 per warrant), determined based on volume weighted average price of such shares as reported during the 10 trading days ending on the third trading day prior to the date on which the notice of redemption is sent to the holders of warrants, and the number of months that the corresponding redemption date precedes the expiration date of the warrants, each as set forth in the table below.

The share prices set forth in the column headings of the table below will be adjusted as of any date on which the number of shares issuable upon exercise of a warrant is adjusted as set forth in the first three paragraphs under the heading “- *Anti-dilution Adjustments*” below. The adjusted share prices in the column headings will equal the share prices immediately prior to such adjustment, multiplied by a fraction, the numerator of which is the number of shares deliverable upon exercise of a warrant immediately prior to such adjustment and the denominator of which is the number of shares deliverable upon exercise of a warrant as so adjusted. The number of shares in the table below shall be adjusted in the same manner and at the same time as the number of shares issuable upon exercise of a warrant.

The exact fair market value and redemption date may not be set forth in the table above, in which case, if the fair market value is between two values in the table or the redemption date is between two redemption dates in the table, the number of shares of our Common Stock to be issued for each warrant exercised will be determined by a straight-line interpolation between the number of shares set forth for the higher and lower fair market values and the earlier and later redemption dates, as applicable, based on a 365 or 366-day year, as applicable. For example, if the volume-weighted average price of shares of our Common Stock as reported during the 10 trading days ending on the third trading day prior to the date on which the notice of redemption is sent to the holders of the warrants is \$11.00 per share, and at such time there are 57 months until the expiration of the warrants, holders may choose to, in connection with this redemption feature, exercise their warrants for 0.277 shares of our Common Stock for each whole warrant. For an example where the exact fair market value and redemption date are not as set forth in the table above, if the volume-weighted average price of shares of our Common Stock as reported during the 10 trading days ending on the third trading day prior to the date on which the notice of redemption is sent to the holders of the warrants is \$13.50 per share, and at such time there are 38 months until the expiration of the warrants, holders may choose to, in connection with this redemption feature, exercise their warrants for 0.298 shares of our Common Stock for each whole warrant. Finally, as reflected in the table above, if the warrants are out of the money and about to expire, they cannot be exercised on a cashless basis in connection with a redemption by us pursuant to this redemption feature, since they will not be exercisable for any shares of our Common Stock.

This redemption feature is structured to allow for all of the outstanding warrants to be redeemed when shares of our Common Stock are trading at or above \$10.00, which may be at a time when the trading price of such shares is below the exercise price of the warrants. We have established this redemption feature to provide us with the flexibility to redeem the warrants without the warrants having to reach the \$18.00 per share threshold set forth above. Holders choosing to exercise their warrants in connection with a redemption pursuant to this feature will, in effect, receive a number of shares for their warrants based on an option pricing model with a fixed volatility input as of the date of this proxy statement/prospectus. This redemption right provides us with an additional mechanism by which to redeem all of the outstanding warrants, and therefore have certainty as to our capital structure as the warrants would no longer be outstanding and would have been exercised or redeemed. We will be required to pay the applicable redemption price to warrant holders if we choose to exercise this redemption right and it will allow us to quickly proceed with a redemption of the warrants if we determine it is in our best interest to do so. As such, we would redeem the warrants in this manner when we believe it is in our best interest to update our capital structure to remove the warrants and pay the redemption price to the warrant holders.

As stated above, we can redeem the warrants when our Common Stock is trading at a price starting at \$10.00 per share, which is below the exercise price of \$11.50, because it will provide certainty with respect to our capital structure and cash position while providing warrant holders with the opportunity to exercise their warrants on a cashless basis for the applicable number of shares. If we choose to redeem the warrants when the our Common Stock is trading at a price below the exercise price of the warrants, this could result in the warrant holders receiving fewer shares than they would have received if they had chosen to wait to exercise their warrants if and when such our Common Stock was trading at a price higher than the exercise price of \$11.50.

No fractional shares will be issued upon exercise. If, upon exercise, a holder would be entitled to receive a fractional interest in a share, we will round down to the nearest whole number of the shares of our Common Stock to be issued to the holder. If, at the time of redemption, the warrants are exercisable for a security other than shares of our Common Stock pursuant to the Warrant Agreement, the warrants may be exercised for such security. At such time as the warrants become exercisable for a security other than the our Common Stock, we (or the surviving company) will use its commercially reasonable efforts to register under the Securities Act the security issuable upon the exercise of the warrants.

Redemption procedures and cashless exercise. If we call the warrants for redemption when the price per share of our Common Stock equals or exceeds \$18.00 as described above, we will have the option to require any holder that wishes to exercise his, her or its warrant to do so on a "cashless basis." In determining whether to require all holders to exercise their warrants on a "cashless basis," we will consider, among other factors, our cash position, the number of warrants that are outstanding and the dilutive effect on our shareholders of issuing the maximum number of shares issuable upon the exercise of our warrants. If this option is elected, all holders of warrants would pay the exercise price by surrendering their warrants for that number of shares of our Common Stock equal to the quotient obtained by dividing (x) the product of the number of Class A ordinary shares underlying the warrants, multiplied by the excess of the "fair market value" (defined below) over the exercise price of the warrants by (y) the fair market value. The "fair market value" will mean the average closing price of our Common Stock for the 10 trading days ending on the third trading day prior to the date on which the notice of redemption is sent to the holders of warrants. In such event, the notice of redemption will contain the information necessary to calculate the number of shares to be received upon exercise of the warrants, including the "fair market value" in such case. Requiring a cashless exercise in this manner will reduce the number of shares to be issued and thereby lessen the dilutive effect of a warrant redemption. If the warrants are called for redemption and cashless exercise is not elected, the Sponsor and its permitted transferees would still be entitled to exercise their private placement warrants for cash or on a cashless basis using the same formula described above that other warrant holders would have been required to use had all warrant holders been required to exercise their warrants on a cashless basis, as described in more detail below.

A holder of a warrant may notify us in writing in the event it elects to be subject to a requirement that such holder will not have the right to exercise such warrant, to the extent that after giving effect to such exercise, such person (together with such person's affiliates), to the warrant agent's actual knowledge, would beneficially own in excess of 4.9% or 9.8% (as specified by the holder) of our Common Stock issued and outstanding immediately after giving effect to such exercise.

Anti-dilution Adjustments. If the number of outstanding shares of our Common Stock is increased by a capitalization or share dividend payable in such shares, or by a sub-divisions of common stock or other similar event, then, on the effective date of such capitalization or share dividend, sub-divisions or similar event, the number of shares issuable on exercise of each warrant will be increased in proportion to such increase in the outstanding shares of our Common Stock. A rights offering made to all or substantially all holders of ordinary shares entitling holders to purchase shares of our Common Stock at a price less than the "historical fair market value" (as defined below) will be deemed a share dividend of a number of shares equal to the product of (i) the number of shares of our Common Stock actually sold in such rights offering (or issuable under any other equity securities sold in such rights offering that are convertible into or exercisable for shares of our Common Stock) and (ii) one minus the quotient of (x) the price per share of our Common Stock paid in such rights offering and (y) the historical fair market value. For these

purposes, (i) if the rights offering is for securities convertible into or exercisable for shares of our Common Stock, in determining the price payable for such shares, there will be taken into account any consideration received for such rights, as well as any additional amount payable upon exercise or conversion and (ii) "historical fair market value" means the volume-weighted average price of our Common Stock as reported during the 10 trading day period ending on the trading day prior to the first date on which the such shares trade on the applicable exchange or in the applicable market, regular way, without the right to receive such rights.

In addition, if we, at any time while the warrants are outstanding and unexpired, pay a dividend or make a distribution in cash, securities or other assets to all or substantially all the holders of shares of our Common Stock on account of such shares (or other securities into which the warrants are convertible), other than (a) as described above or (b) any cash dividends or cash distributions which, when combined on a per share basis with all other cash dividends and cash distributions paid on our Common Stock during the 365-day period ending on the date of declaration of such dividend or distribution does not exceed \$0.50 (as adjusted to appropriately reflect any other adjustments and excluding cash dividends or cash distributions that resulted in an adjustment to the exercise price or to the number of shares of our Common Stock issuable on exercise of each warrant) but only with respect to the amount of the aggregate cash dividends or cash distributions equal to or less than \$0.50 per share.

If the number of outstanding shares of our Common Stock is decreased by a consolidation, combination, reverse share sub-division or reclassification of such shares or other similar event, then, on the effective date of such consolidation, combination, reverse share sub-division, reclassification or similar event, the number of shares of our Common Stock issuable on exercise of each warrant will be decreased in proportion to such decrease in outstanding shares.

Whenever the number of shares of our Common Stock purchasable upon the exercise of the warrants is adjusted, as described above, the warrant exercise price will be adjusted by multiplying the warrant exercise price immediately prior to such adjustment by a fraction (x) the numerator of which will be the number of shares of our Common Stock purchasable upon the exercise of the warrants immediately prior to such adjustment and (y) the denominator of which will be the number of shares so purchasable immediately thereafter.

In case of any reclassification or reorganization of the outstanding shares of our Common Stock (other than those described above or that solely affects the par value of such shares), or in the case of any merger or consolidation of us with or into another corporation (other than a consolidation or merger in which we are the continuing corporation and that does not result in any reclassification or reorganization of our issued and outstanding shares of our Common Stock), or in the case of any sale or conveyance to another corporation or entity of the assets or other property of us as an entirety or substantially as an entirety in connection with which we are dissolved, the holders of the warrants will thereafter have the right to purchase and receive, upon the basis and upon the terms and conditions specified in the warrants and in lieu of the shares immediately theretofore purchasable and receivable upon the exercise of the rights represented thereby, the kind and amount of shares or other securities or property (including cash) receivable upon such reclassification, reorganization, merger or consolidation, or upon a dissolution following any such sale or transfer, that the holder of the warrants would have received if such holder had exercised their warrants immediately prior to such event. If less than 70% of the consideration receivable by the holders of shares of our Common Stock in such a transaction is payable in the form of shares in the successor entity that is listed for trading on a national securities exchange or is quoted in an established over-the-counter market, or is to be so listed for trading or quoted immediately following such event, and if the registered holder of the warrant properly exercises the warrant within thirty days following public disclosure of such transaction, the warrant exercise price will be reduced as specified in the warrant agreement based on the Black-Scholes value (as defined in the Warrant Agreement) of the warrant. The purpose of such exercise price reduction is to provide additional value to holders of the warrants when an extraordinary transaction occurs during the exercise period of the warrants pursuant to which the holders of the warrants otherwise do not receive the full potential value of the warrants.

The warrants have been issued in registered form under a Warrant Agreement between Continental Stock Transfer & Trust Company, as warrant agent, and us. The Warrant Agreement provides that the terms of the warrants may be amended without the consent of any holder to cure any ambiguity or correct any defective provision or correct any mistake, including to conform the provisions of the warrant agreement to the description of the terms of the warrants and the Warrant Agreement set forth in this proxy statement/prospectus, but requires the approval by the holders of at least 50% of the then outstanding public warrants to make any change that adversely affects the interests of the registered holders. Refer to the Warrant Agreement, a copy of which is filed as an exhibit to the registration statement of which this proxy statement/prospectus is a part, for a complete description of the terms and conditions applicable to the warrants.

The warrant holders do not have the rights or privileges of holders of ordinary shares and any voting rights until they exercise their warrants and receive shares of our Common Stock. After the issuance of shares of our Common Stock upon exercise of the warrants, each holder will be entitled to one vote for each share held of record on all matters to be voted on by stockholders.

We have agreed that, subject to applicable law, any action, proceeding or claim against us arising out of or relating in any way to the Warrant Agreement will be brought and enforced in the courts of the State of New York or the United States District Court for the Southern District of New York, and AONE irrevocably submits to such jurisdiction, which jurisdiction will be the exclusive forum for any such action, proceeding or claim. This provision applies to claims under the Securities Act but does not apply to claims under the Exchange Act or any claim for which the federal district courts of the United States of America are the sole and exclusive forum.

Private Placement Warrants

The private placement warrants (including the our Common Stock issuable upon exercise of the private placement warrants) are not redeemable by us (except as described above under “- *Public Shareholders’ Warrants - Redemption of warrants when the price per share of our Common Stock equals or exceeds \$10.00*”) so long as they are held by the Sponsor or its permitted transferees. The Sponsor, or its permitted transferees, has the option to exercise the private placement warrants on a cashless basis and have certain registration rights described herein. If the private placement warrants are held by holders other than the Sponsor or its permitted transferees, the private placement warrants will be redeemable by us in all redemption scenarios and exercisable by the holders on the same basis as the public warrants.

Except as described under “- *Public Shareholders’ Warrants - Redemption of warrants when the price per share of our Common Stock equals or exceeds \$10.00*”, if holders of the private placement warrants elect to exercise them on a cashless basis, they would pay the exercise price by surrendering his, her or its warrants for that number of shares of our Common Stock equal to the quotient obtained by dividing (x) the product of the number of shares of our Common Stock underlying the warrants, multiplied by the excess of the “historical fair market value” (defined below) less the exercise price of the warrants by (y) the historical fair market value. For these purposes, the “historical fair market value” shall mean the average last reported sale price of our Common Stock for the 10 trading days ending on the third trading day prior to the date on which the notice of warrant exercise is sent to the Warrant Agent.

Preferred Stock

Our board of directors has the authority, without further action by our stockholders, to issue up to 100,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting, or the designation of, such series, any or all of which may be greater than the rights of common stock. The issuance of our preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon our liquidation. In addition, the issuance of preferred stock could have the

effect of delaying, deferring or preventing a change in control of our company or other corporate action. No shares of preferred stock are outstanding, and we have no present plan to issue any shares of preferred stock.

Dividends

The DGCL permits a corporation to declare and pay dividends out of “surplus” or, if there is no “surplus”, out of its net profits for the fiscal year in which the dividend is declared and/or the preceding fiscal year. “Surplus” is defined as the excess of the net assets of the corporation over the amount determined to be the capital of the corporation by the board of directors. The capital of the corporation is typically calculated to be (and cannot be less than) the aggregate par value of all issued shares of capital stock. Net assets equals the fair value of the total assets minus total liabilities. The DGCL also provides that dividends may not be paid out of net profits if, after the payment of the dividend, capital is less than the capital represented by the outstanding stock of all classes having a preference upon the distribution of assets.

Declaration and payment of any dividend is subject to the discretion of our board of directors. The time and amount of dividends is dependent upon our financial condition, operations, cash requirements and availability, debt repayment obligations, capital expenditure needs and restrictions in our debt instruments, industry trends, the provisions of Delaware law affecting the payment of distributions to stockholders and any other factors our board of directors may consider relevant. We have no current plans to pay dividends on its common stock. Any decision to declare and pay dividends in the future will be made at the sole discretion of our board of directors and will depend on, among other things, our results of operations, cash requirements, financial condition, contractual restrictions and other factors that our board of directors may deem relevant. Because we are a holding company and have no direct operations, we will only be able to pay dividends from funds we receive from our subsidiaries. In addition, our ability to pay dividends may be limited by the agreements governing indebtedness that we or our subsidiaries incur in the future.

Annual Stockholder Meetings

Our bylaws provide that annual stockholder meetings will be held at a date, time and place, if any, as exclusively selected by our board of directors. To the extent permitted under applicable law, we may conduct meetings by remote communications, including by webcast.

Anti-Takeover Effects of the Certificate of Incorporation and Bylaws and Certain Provisions of Delaware Law

The Certificate of Incorporation and the Bylaws contain and the DGCL contains provisions, which are summarized in the following paragraphs, that are intended to enhance the likelihood of continuity and stability in the composition of our board of directors. These provisions are intended to avoid costly takeover battles, reduce our vulnerability to a hostile change of control and enhance the ability of our board of directors to maximize stockholder value in connection with any unsolicited offer to acquire us. However, these provisions may have an anti-takeover effect and may delay, deter or prevent a merger or acquisition of Markforged Holding Corporation by means of a tender offer, a proxy contest or other takeover attempt that a stockholder might consider in its best interest, including those attempts that might result in a premium over the prevailing market price for the shares of our Common Stock held by stockholders.

Delaware Law

We are governed by the provisions of Section 203 of the DGCL. In general, Section 203 prohibits a public Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. A “business combination” includes mergers, asset sales or other transactions resulting in a financial benefit to the stockholder. An “interested stockholder” is a person who, together

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with affiliates and associates, owns 15% or more of the corporation's outstanding voting stock. These provisions may have the effect of delaying, deferring or preventing a change in our control.

Authorized but Unissued Capital Stock

Delaware law does not require stockholder approval for any issuance of authorized shares, however the listing requirements of the NYSE apply if and so long as the our Common Stock remains listed on the NYSE. Additional shares that may be used in the future may be issued for a variety of corporate purposes, including future public offerings, to raise additional capital or to facilitate acquisitions.

Our board of directors may generally issue preferred shares on terms calculated to discourage, delay or prevent a change of control of Markforged Holding Corporation or the removal of our management. Moreover, our authorized but unissued shares of preferred stock will be available for future issuances without stockholder approval and could be utilized for a variety of corporate purposes, including future offerings to raise additional capital, to facilitate acquisitions and employee benefit plans.

One of the effects of the existence of unissued and unreserved common stock or preferred stock may be to enable our board of directors to issue shares to persons friendly to current management, which issuance could render more difficult or discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, and thereby protect the continuity of our management and possibly deprive our stockholders of opportunities to sell their shares of our Common Stock at prices higher than prevailing market prices.

Classified Board of Directors

The Certificate of Incorporation provides that our board of directors will be divided into three classes of directors, with each director serving a three-year term. As a result, approximately one-third of our board of directors will be elected each year. The classification of directors has the effect of making it more difficult for stockholders to change the composition of our board of directors.

Removal of Directors; Vacancies

Under the DGCL, unless otherwise provided in our charter, a director serving on a classified board may be removed by the stockholders only for cause. The Certificate of Incorporation provides that directors may be removed for cause only by the affirmative vote of the holders of not less than two-thirds (2/3) of the outstanding shares of capital stock then entitled to vote at an election of directors, voting together as a single class, subject to the rights, if any, of any series of preferred stock to elect directors and to remove any director whom the holders of any such series have the right to elect. Further, at least forty-five (45) days prior to any annual or special meeting of stockholders at which it is proposed that any director be removed from office, written notice of such proposed removal and the alleged grounds thereof must be sent to the director whose removal will be considered at the meeting. In addition, the number of directors constituting the board of directors is permitted to be set only by a resolution adopted by a majority vote of our entire board of directors and only the board of directors, and not stockholders, may fill vacancies on the board of directors. These provisions prevent a stockholder from increasing the size of our board of directors and then gaining control of the board of directors by filling the resulting vacancies with its own nominees. This has the effect of making it more difficult to change the composition of our board of directors and promote continuity of management.

No Cumulative Voting

Under Delaware law, the right to vote cumulatively does not exist unless the charter specifically authorizes cumulative voting. The Certificate of Incorporation does not authorize cumulative voting.

Special Stockholder Meetings

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Except as otherwise required by statute and subject to the rights, if any, of the holders of any series of preferred stock then outstanding, special meetings of our stockholders may be called only by the board of directors acting pursuant to a resolution approved by the affirmative vote of a majority of the directors then in office, and special meetings of stockholders may not be called by any other person or persons. Only those matters set forth in the notice of the special meeting may be considered or acted upon at a special meeting of our stockholders. These provisions might delay the ability of our stockholders to force consideration of a proposal or for stockholders controlling a majority of our capital stock to take any action, including the removal of directors.

Requirements for Advance Notification of Director Nominations and Stockholder Proposals

The Bylaws establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors. In order for any matter to be “properly brought” by a stockholder before a meeting, a stockholder will have to comply with advance notice requirements and provide us with certain information. Generally, to be timely, a stockholder’s notice relating to the nomination of a director to our board of directors or other business at an annual meeting must be received at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary date of the immediately preceding annual meeting of stockholders. Our bylaws also specify requirements as to the form and content of a stockholder’s notice. Stockholders may not bring nominations for the election of a director or other business before a special meeting of stockholders, unless such special meeting is to be held in lieu of an annual meeting of stockholders, in which case, the foregoing requirements for “timely notice” will apply. These provisions may also defer, delay or discourage a potential acquirer from conducting a solicitation of proxies to elect the acquirer’s own slate of directors or otherwise attempting to influence or obtain control of us.

Consent of Stockholders in Lieu of Meeting

Any action required or permitted to be taken by our stockholders at any annual or special meeting of stockholders must be effected at a duly called meeting of stockholders, and may not be taken or effected by a written consent of stockholders in lieu thereof.

Dissenters’ Rights of Appraisal and Payment

Under the DGCL, with certain exceptions, our stockholders will have appraisal rights in connection with a merger or consolidation of Markforged Holding Corporation. Pursuant to the DGCL, stockholders who properly request and perfect appraisal rights in connection with such merger or consolidation will have the right to receive payment of the fair value of their shares as determined by the Delaware Court of Chancery.

Stockholders’ Derivative Actions

Under the DGCL, any of our stockholders may bring an action in our name to procure a judgment in our favor, also known as a derivative action, provided that the stockholder bringing the action is a holder of our shares at the time of the transaction to which the action relates or such stockholder’s stock thereafter devolved by operation of law.

Exclusive Forum Selection

Our bylaws provide that, unless we consent in writing to an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for any state law claim for (1) any derivative action or proceeding brought on our behalf, (2) any action asserting a claim of breach of or based on a fiduciary duty owed by any of our current or former directors, officers, or employees to us or our stockholders, (3) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our bylaws (including the interpretation, validity or enforceability thereof) or (4) any action asserting a claim that is governed by the internal affairs doctrine, in each case subject to the Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein, or the Delaware Forum Provision. The Delaware Forum

Provision will not apply to any causes of action arising under the Securities Act or the Exchange Act. our bylaws further provide that, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the sole and exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. In addition, our bylaws provide that any person or entity purchasing or otherwise acquiring any interest in shares of our common stock is deemed to have notice of and consented to the foregoing provisions; provided, however, that stockholders cannot and will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder. This exclusive forum provision does not apply to suits brought to enforce any liability or duty created by the Exchange Act. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation and bylaws has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable.

Amendment of Bylaws

Our bylaws may be amended or repealed by a majority vote of our board of directors or by the holders of at least two thirds (2/3) of the voting power of all of the then-outstanding shares entitled to vote generally in the election of directors, voting together as a single class.

Limitations on Liability and Indemnification of Officers and Directors

The DGCL authorizes corporations to limit or eliminate the personal liability of directors to corporations and their stockholders for monetary damages for breaches of directors' fiduciary duties, subject to certain exceptions. our certificate of incorporation includes a provision that eliminates the personal liability of directors for monetary damages for any breach of fiduciary duty as a director, except to the extent such exemption from liability or limitation thereof is not permitted under the DGCL. The effect of these provisions is to eliminate our rights and our stockholders' rights, through stockholders' derivative suits on our behalf, to recover monetary damages from a director for breach of fiduciary duty as a director, including breaches resulting from grossly negligent behavior. However, exculpation does not apply to any director if the director has acted in bad faith, knowingly or intentionally violated the law, authorized illegal dividends or redemptions or derived an improper benefit from his or her actions as a director. Our bylaws provide that we must indemnify and advance expenses to our directors and officers to the fullest extent authorized by the DGCL. We are also expressly authorized to carry directors' and officers' liability insurance providing indemnification for our directors, officers and certain employees for some liabilities. We believe that these indemnification and advancement provisions and insurance are useful to attract and retain qualified directors and executive officers.

The limitation of liability, advancement and indemnification provisions in our certificate of incorporation and bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duty. These provisions also may have the effect of reducing the likelihood of derivative litigation against directors and officers, even though such an action, if successful, might otherwise benefit us and our stockholders. In addition, your investment may be adversely affected to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions.

There is currently no pending material litigation or proceeding involving any of Markforged's or AONE's directors, officers or employees for which indemnification is sought.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock will be Continental Stock Transfer & Trust Company. The transfer agent and registrar's address is 1 State Street 30th Floor, New York, New York 10004.

Listing

Our Common Stock and warrants are listed on the NYSE under the symbols "MKFG" and "MKFG WS", respectively.

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January 10, 2022

David Benhaim

Re: Transition Agreement

Dear David:

This letter confirms the details relating to your voluntary transition from your employment with MarkForged, Inc. (the "Company"). The Company and its Board of Directors (the "Board") sincerely appreciates your significant contributions to the Company and wishes to make this transition as smooth as possible. To that end, the agreement below (the "Agreement") proposes an arrangement whereby you would continue your employment relationship with the Company as Senior Advisor, Technology through July 8, 2022 (the "Anticipated Separation Date") and continue to receive your regular base salary and benefits (subject to eligibility requirements) and continue to vest in your outstanding, unvested equity awards through such date, all subject to the Conditions set forth in Section 1 of the Agreement.

The actual last day of your employment, whether it is the Anticipated Separation Date or an earlier date, is referred to herein as the "Separation Date." The time period between the date of this letter and the Separation Date is referred to herein as the "Transition Period."

Regardless of whether you enter into the Agreement below, the following bulleted terms and obligations apply with respect to the ending of your employment:

- You and the Company are parties to the letter agreement by and between the Company and you, dated as of October 18, 2020 (the "Employment Agreement"). You have voluntarily resigned from your employment and, as such, the ending of your employment is not a Qualifying Termination under the Employment Agreement.
 - The Company shall pay you your base salary through the Separation Date.
 - Your eligibility to participate in the Company's group health plans ceases on the last day of the month when the Separation Date occurs, in accordance with the terms and conditions of those plans. You may elect to continue your existing benefits under such plans in accordance with and subject to the law known as COBRA. You will be provided with information regarding COBRA under separate cover following the Separation Date. Any COBRA continuation coverage will be at your own cost. Your eligibility to participate in the Company's other employee benefit plans and programs ceases on the Separation Date in accordance with the terms and conditions of each of those benefit plans and programs.
 - The Company will reimburse you for any outstanding, reasonable business expenses that you have incurred or do incur on the Company's behalf through the Separation Date,
-

after the Company's timely receipt of appropriate documentation pursuant to the Company's business expense reimbursement policy.

- Any stock option(s) or any other equity awards (the "Equity Awards") granted to you by the Company shall continue to be governed by the terms of the applicable stock option grant notice, stock option agreement or other equity award agreement, and the underlying equity incentive plan (collectively, the "Equity Documents"), including, without limitation, the time limits on exercise of any vested stock options you may have. In accordance with the Equity Documents, you will cease vesting in any Equity Awards on the Separation Date, all unvested options you hold will expire and be null and void as of the Separation Date and you shall have ninety days following the Separation Date to exercise your vested options.

- The Registration Rights Agreement, dated July 14, 2021, the Lock-Up Agreement dated July 14, 2021, the Stock Repurchase Agreement dated July 14, 2021 the Stock Repurchase Agreement dated October 20, 2020, the Second Stock Repurchase Agreement dated December 17, 2014, the Stock Repurchase Agreement dated May 7, 2014, and the Second Amended and Restated Founder Stock Restriction Agreement dated as of May 7, 2014 remain in full force and effect (the "Preserved Agreements").

- You are subject to continuing obligations under your Confidentiality and Intellectual Property Assignment Agreement dated June 26, 2013 (the "Confidentiality Agreement") and the Non-Competition and Non-Solicitation Agreement dated November 1, 2013 (the "Non-Competition and Non-Solicitation Agreement"), including, without limitation, your obligation not to use or disclose the Company's confidential information and to abide by your non-competition and non-solicitation covenants. You also continue to be subject to the Company's Insider Trading Policy and applicable securities laws.

Agreement

In addition to the above-described terms, you agree to advise the Company during the Transition Period and receive the associated compensation, benefits and vesting as described below if you enter into and comply with the Agreement and satisfy the Conditions.

The remainder of this letter sets forth the terms of the Agreement. With those understandings, you and the Company agree as follows:

1. Conditions

To receive the benefits set forth in this Agreement, you must (i) enter into and comply with this Agreement; (ii) not either (A) be terminated by the Company for Cause (as defined in the Employment Agreement), or (B) resign your advisory role prior to the Anticipated Separation Date; and (iii) provide services and work cooperatively with the Company's leadership team on a reasonable as requested basis during the Transition Period (the "Conditions").

2. Transition Period; Ending of Employment

(a) The Company will announce your transition on January 12, 2022 via a company-wide email that will acknowledge your significant contributions, explain that you are moving into the Senior Advisor, Technology role effective immediately and that, following a transition period, you will exit MarkForged on July 8, 2022 to pursue new personal and professional adventures. Employees will be instructed to direct any questions to certain named persons at the Company. You agree that your communications about your departure will be consistent with the company-wide email. You will have the ability to review the content of the company-wide email before it is distributed.

(b) If you satisfy the Conditions, your employment with the Company, along with the compensation, benefits and vesting described in Section 2(c) below, will continue until July 8, 2022, at which time it will end. Effective on the Effective Date of this Agreement (as defined below), you will no longer serve as Chief Technology Officer of the Company and instead shall serve as a Senior Advisor, Technology for the remainder of the Transition Period. During the Transition Period, you agree to work cooperatively and professionally with the executive leadership team and the technology team on a reasonable as-needed basis to transition your duties and, if requested by the Company's Chief Executive Officer, to provide the Company with timely advice related to the Company's technology. For the avoidance of doubt, all of the Conditions can be satisfied by you remotely. Your access to the Company's information systems and confidential information will be provided on an as needed only basis.

(c) During the Transition Period, you will continue to be paid at your current base salary rate, remain eligible to participate in the Company's group employee benefit plans (subject to the terms and conditions of such benefit plans) and continue to vest in your outstanding, unvested Equity Awards, consistent with the terms of the applicable Equity Documents, you will not be entitled to any other compensation. You acknowledge and agree that the advisory role contemplated herein during the Transition Period (subject to the Conditions) and your receipt of the associated compensation, benefits and vesting set forth above constitutes sufficient consideration to support this Agreement.

(d) You acknowledge and agree that this Agreement supersedes the Employment Agreement and that, in any event, Good Reason (as defined in the Employment Agreement) shall not apply during the Transition Period. You further acknowledge and agree that the ending of your employment is not a Qualifying Termination under the Employment Agreement and that you are not eligible for any severance benefits thereunder or otherwise. You represent that as of the Company's most recent payroll payment of salary or wages to you, you were fully paid for all salary or wages then due to you, and you acknowledge that you are not eligible for any other compensation from the Company, except as otherwise specified in this Agreement. Subject to satisfying the Conditions and you remaining employed by the Company on the date 2021 bonuses are paid, you will be eligible for a 2021 bonus as determined by the Company consistent with its bonus practices for other employees.

(e) For the avoidance of doubt, if you do not satisfy the Conditions, your employment end immediately and you will not be eligible for the Transition Period and the associated compensation, benefits and vesting.

3. Mutual Releases of Claims

In consideration for, among other terms, the opportunity to continue your at-will employment during the Transition Period and to receive the associated compensation, benefits and vesting set forth herein, to which you acknowledge you would otherwise not be entitled, you voluntarily release and forever discharge the Company, its affiliated and related entities, its and their respective predecessors, successors and assigns, its and their respective employee benefit plans and fiduciaries of such plans, and the current and former officers, directors, board observers, shareholders, employees, attorneys, accountants and agents of each of the foregoing in their official and personal capacities (collectively referred to as the “**Releasees**”) generally from all claims, demands, debts, damages and liabilities of every name and nature, known or unknown (“**Claims**”) that, as of the date when you sign this Agreement, you have, ever had, now claim to have or ever claimed to have had against any or all of the Releasees. This release includes, without limitation, all Claims:

- relating to your employment by and separation from employment with the Company;
- of wrongful discharge or violation of public policy;
- of breach of contract;
- of defamation or other torts;
- of retaliation or discrimination under federal, state or local law (including, without limitation, Claims of discrimination or retaliation under the Americans with Disabilities Act, Title VII of the Civil Rights Act of 1964, the Massachusetts Fair Employment Practices Act and the Florida Civil Rights Act);
- under any other federal or state statute (including, without limitation, Claims under the Fair Labor Standards Act or the Family and Medical Leave Act);
- for wages, bonuses, incentive compensation, stock, stock options, vacation pay or any other compensation or benefits, either under the Massachusetts Wage Act, M.G.L. c. 149, §§148- 150C, or otherwise; and
- for damages or other remedies of any sort, including, without limitation, compensatory damages, punitive damages, injunctive relief and attorney’s fees;

provided, however, that this release shall not affect any rights you may have under the Company’s Section 401(k) plan, under this Agreement or to indemnification pursuant to the Company’s governance documents, any indemnification agreement between you and the Company (the “Indemnification Agreement”) or any directors’ and officers’ insurance liability policy, nor release any Claims that cannot be released as a matter of law.

You agree not to accept damages of any nature, other equitable or legal remedies for your own benefit or attorney’s fees or costs from any of the Releasees with respect to any Claim released by this Agreement. As a material inducement to the Company to enter into this Agreement, you represent that you have not assigned any Claim to any third party.

In consideration for your release of claims and your willingness to serve as a Senior Advisor and assist the Company through this transition, the Company hereby releases and forever discharges you and your legal representatives, from all claims, liabilities, obligations, and/or causes of action of every kind, nature, and character, known or unknown, suspected and unsuspected,

disclosed and undisclosed that the Company may now have, or has ever had, against you, up to and including the execution date of this Agreement, provided that nothing in this release limits, releases or waives: (i) any of the Company's rights under this Agreement or any of the Preserved Agreements (including for breach), (ii) any rights that cannot be waived under applicable law, or (iii) any act(s) constituting willful and malicious behavior, fraud, misappropriation, embezzlement or that otherwise constitute a crime.

4. Continuing Obligations

You acknowledge that you remain subject to your obligations under the Confidentiality Agreement and the Non-Competition and Non-Solicitation Agreement. You agree that after the Separation Date, you shall not represent that you are employed by or in any other service relationship with the Company, including without limitation on social media profiles and pages, such as LinkedIn.

The Confidentiality Agreement and the Non-Competition and Non-Solicitation Agreement, together with your obligations under the Company's Insider Trading Policy and as set forth in Sections 4, 5, 6 and 8 of this Agreement, are referred to as the "Continuing Obligations." Effective upon execution of this Agreement, the Company acknowledges that you are no longer (i) an "officer" under Section 16a-1(f) of the Securities Exchange Act of 1934, as amended of MarkForged Holding Corporation ("MHC") nor (ii) an "Affiliate" (as defined in Rule 405 under the Securities Act of 1933, as amended) of MHC.

5. Return of Property

You acknowledge and agree that you are required to return all Confidential Information (as defined in the Confidentiality Agreement) to the Company upon the earlier of the request of the Company or the Separation Date. For the avoidance of doubt, this Section 5 is in addition to, and not in lieu of, your obligations to the Company pursuant to the Confidentiality Agreement. By signing below, you acknowledge and agree that you will return to the Company on the earlier of the Separation Date or a request by the Company, without altering, copying, deleting or purging any files or documents that may contain Company information, all "Company Property," which shall include, without limitation, all Company property and equipment in your possession, custody or control, including, without limitation, all files, notes, memoranda, reports, records, data, sketches, drawings, notebooks, layouts, charts, quotations and proposals, specification sheets, blueprints, models, prototypes, or other written, photographic or other tangible material containing the Company's confidential information, and other materials of any nature pertaining to the Company's confidential information and to your work, including, without limitation, any Company laptop or other computer equipment, keys and access cards and credit cards. After returning all such Company Property to the Company, you must delete and finally purge any duplicates of files or documents that may contain Company information from any non-Company computer or other device that remains your property after the Separation Date. In the event that you discover that you continue to retain any such property, you must return it to the Company immediately.

6.Non-Disparagement

Subject to Section 7, you agree not to make any disparaging statements (whether written, oral, through social or electronic media or otherwise) concerning the Company or any of its affiliates; its or their products or services; or any of its or their current or former officers, directors, shareholders, employees or agents. For its part, the Company agrees that its current Chief Executive Officer shall not make any disparaging statements (whether written, oral, through social or electronic media or otherwise) concerning you, *provided* that nothing herein shall apply to truthful testimony in litigation or in connection with an internal or external investigation nor shall it limit the Chief Executive's Officer's ability to communicate in good faith about the business of the Company.

7.Protected Disclosures and Other Protected Actions

Nothing contained in this Agreement limits your ability to communicate or complain to any federal, state or local governmental agency or commission (a "Government Agency") nor does anything contained in this Agreement apply to truthful testimony in litigation. If you file any charge or complaint with any Government Agency and if the Government Agency pursues any claim on your behalf, or if any other third party pursues any claim on your behalf, you waive any right to monetary or other individualized relief (either individually or as part of any collective or class action); *provided* that nothing in this Agreement limits any right you may have to receive a whistleblower award or bounty for information provided to the Securities and Exchange Commission.

8.Cooperation

Consistent with the terms of your Employment Agreement, you agree to cooperate with the Company in (i) connection with the transition of your duties, (ii) the defense or prosecution of any claims or actions now in existence or which may be brought in the future against or on behalf of the Company which relate to events or occurrences that transpired while you were employed by the Company, provided that the Board will make reasonable good faith efforts to limit your future involvement in litigation matters to the extent it is able to do so consistent with its fiduciary duties to the Company; (iii) the investigation, whether internal or external, of any matters about which the Company believes you may have knowledge or information; or (iv) any other matters that the Board reasonably determines you have knowledge or information about based on your employment with the Company.

9.Withholding; Tax Effect

All payments made by the Company to you under this Agreement shall be net of any tax or other amounts required to be withheld by the Company under applicable law. Nothing in this Agreement shall be construed to require the Company to make any payments to compensate you for any adverse tax effect associated with any payments or benefits or for any deduction or withholding from any payment or benefit.

10. Other Provisions

(a)Breach of Agreement. If you breach any of your obligations under this Agreement (including, without limitation, the Continuing Obligations), then in addition to any other legal or equitable remedies it may have for such breach, the Company shall have the right to terminate your advisory role and your employment relationship for Cause (but if curable, only if you do not cure said breach within thirty (30) days of receiving written notice from the Company detailing same). Any such termination shall not affect your Continuing Obligations. In addition, you agree that it would be difficult to measure any harm caused to the Company that might result from any breach by you of any of the Continuing Obligations, and that money damages would be an inadequate remedy for any such breach. Accordingly, you agree that if you breach, or propose to breach, any portion of the Continuing Obligations, the Company shall be entitled, in addition to all other remedies it may have, to an injunction or other appropriate equitable relief to restrain any such breach, without showing or proving any actual damage to the Company and without the necessity of posting a bond. Likewise, the Company agrees that if it breaches this Agreement and, if curable, it does not cure said violation within thirty (30) days of receiving written notice from you detailing same, in addition to all other remedies available to you at law, you shall be entitled to an injunction or other appropriate equitable relief to restrain any such breach, without showing or proving any actual damage you and without the necessity of posting a bond.

(b)Absence of Reliance; Non-Admission. In signing this Agreement, you are not relying upon any promises or representations made by anyone at or on behalf of the Company. You understand that by entering into this Agreement, the Company is not admitting in any way that it violated any legal obligation that it owed to you.

(c)Enforceability. If any portion or provision of this Agreement (including, without limitation, any portion or provision of any section of this Agreement) shall to any extent be declared illegal or unenforceable by a court of competent jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, shall not be affected thereby, and each portion and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

(d)Waiver; Amendment. No waiver of any provision of this Agreement shall be effective unless made in writing and signed by the waiving party. The failure of a party to require the performance of any term or obligation of this Agreement, or the waiver by a party of any breach of this Agreement, shall not prevent any subsequent enforcement of such term or obligation or be deemed a waiver of any subsequent breach. This Agreement may not be modified or amended except in a writing signed by both you and a duly authorized officer of the Company.

(e)Interpretation. In the event of any dispute, this Agreement is intended by the parties to be construed as a whole, to be interpreted in accordance with its fair meaning, and not to be construed strictly for or against either you or the Company or the “drafter” of all or any portion of this Agreement.

(f)Governing Law. This is a Massachusetts contract and shall be construed under and be governed in all respects by the laws of the Commonwealth of Massachusetts, without giving effect to the conflict of laws principles thereof. With respect to any disputes concerning federal law, such disputes shall be determined in accordance with the law as it would be interpreted and applied by the United States Court of Appeals for the First Circuit.

(g)Jurisdiction. You and the Company hereby consent to the jurisdiction of the state and federal courts of the Commonwealth of Massachusetts. Accordingly, with respect to any such court action, you (a) submit to the exclusive personal jurisdiction of such courts; (b) consent to service of process; and (c) waive any other requirement (whether imposed by statute, rule of court, or otherwise) with respect to personal jurisdiction or service of process

(h)Entire Agreement. This Agreement constitutes the entire agreement between you and the Company and supersedes any previous agreements or understandings between you and the Company, including, without limitation, the Employment Agreement and any prior offer letters between you and the Company (including, without limitation, the initial offer letter that you signed with the Company upon commencing employment, the first addendum to the offer letter dated as of August 9, 2017 and the second addendum to the offer letter dated as of November 1, 2019), except that the Preserved Agreements, the Equity Documents (including, without limitation, the Restricted Stock Award Notice under the MarkForged, Inc. 2013 Stock Option and Grant Plan dated December 4, 2013 and the Restricted Stock Agreement under the MarkForged, Inc. 2013 Stock Option and Grant Plan between you and the Company), the Confidentiality Agreement, the Non-Competition and Non-Solicitation Agreement and the Indemnification Agreement remain in full force and effect in accordance with their terms.

(i)Effective Date. You acknowledge and agree that the Company advises you to consult with an attorney before signing this Agreement, and that you have in fact consulted with an attorney. To accept this Agreement, you must return a signed, unmodified original or PDF copy of this Agreement so that it is received by the undersigned no later than January 12, 2022 at 1:00 PM EST. This Agreement shall become effective on the date that it is fully executed by both parties (the "Effective Date").

(j)Successors and Assigns. Neither you nor the Company may make any assignment of this Agreement or any interest in it, by operation of law or otherwise, without the prior written consent of the other; provided, however, that the Company may assign its rights and obligations under this Agreement without your consent to any affiliate or to any person or entity with whom the Company shall hereafter effect a reorganization or consolidation, into which the Company merges or to whom it transfers all or substantially all of its properties or assets. This Agreement shall inure to the benefit of and be binding upon you and the Company, and each of your and the Company's respective successors, executors, administrators, heirs and permitted assigns.

(k)Counterparts. This Agreement may be executed in separate counterparts. When both counterparts are signed, they shall be treated together as one and the same document. Electronic and pdf signatures shall be deemed to have the same legal effect as originals.

[signature page follows]

Please indicate your agreement to the terms of this Agreement by signing and returning it within the time period set forth above. We wish you the very best in the future.

Very truly yours,
MARKFORGED, INC.

/s/ Stephen Karp
Stephen Karp
General Counsel
Markforged, Inc.

This is a legal document. Your signature will commit you to its terms. By signing below, you acknowledge that you have carefully read and fully understand all of the provisions of this Agreement and that you are knowingly and voluntarily entering into this Agreement.

/s/ David Benhaim
David Benhaim

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statement on Form S-8 (No. 333-259665) of Markforged Holding Corporation of our report dated March 31, 2022 relating to the financial statements, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
March 31, 2022

CERTIFICATION

I, Shai Terem, certify that:

1. I have reviewed this Annual Report on Form 10-K of Markforged Holding Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 31, 2022

By: /s/ Shai Terem
Shai Terem
Chief Executive Officer
(Principal Executive Officer)

CERTIFICATION

I, Mark Schwartz, certify that:

1. I have reviewed this Annual Report on Form 10-K of Markforged Holding Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 31, 2022

By: /s/ Mark Schwartz

Mark Schwartz
Chief Financial Officer
(Principal Financial and Accounting Officer)

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report on Form 10-K of Markforged Holding Corporation, Inc. (the "Company") for the period ended December 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Shai Terem, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

- (1)The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- (2)The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 31, 2022

By: /s/Shai Terem
Shai Terem
Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report on Form 10-K of Markforged Holding Corporation, Inc. (the "Company") for the period ended December 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Mark Schwartz, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

- (1)The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- (2)The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 31, 2022

By: /s/Mark Schwartz
Mark Schwartz
Chief Financial Officer
(Principal Financial and Accounting Officer)
