UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2022
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	**98-1545859**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
480 Pleasant Street Watertown, MA	**02472**
(Address of principal executive offices)	**(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**

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

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

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

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court. Yes ☒ No ☐

As of November 8, 2022, the registrant had 194,136,883 shares of common stock, $0.0001 par value per share, outstanding.

Table of Contents

		Page
PART I.	FINANCIAL INFORMATION	1
Item 1.	Condensed Consolidated Financial Statements	1
	Unaudited Condensed Consolidated Balance Sheets	1
	Unaudited Condensed Consolidated Statements of Operations	2
	Unaudited Condensed Consolidated Statements of Other Comprehensive Income (Loss)	3
	Unaudited Statement of Changes in Convertible Preferred Stock and Stockholders' Equity (Deficit)	4
	Unaudited Condensed Consolidated Statements of Cash Flows	6
	Unaudited Notes to Condensed Consolidated Financial Statements	7
Item 2.	Management's Discussion and Analysis of Financial Condition and Results of Operations	29
Item 3.	Quantitative and Qualitative Disclosures About Market Risk	41
Item 4.	Controls and Procedures	41
PART II.	OTHER INFORMATION	44
Item 1.	Legal Proceedings	44
Item 1A.	Risk Factors	44
Item 2.	Unregistered Sales of Equity Securities and Use of Proceeds	77
Item 3.	Defaults Upon Senior Securities	77
Item 4.	Mine Safety Disclosures	77
Item 5.	Other Information	77
Item 6.	Exhibits	78
Signatures		79

Risk Factors Summary

The risk factors detailed in Item 1A entitled "Risk Factors" in this Quarterly Report on Form 10-Q 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 future 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 continued impact of 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.
- 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 Quarterly Report on Form 10-Q 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 of Markforged Holding Corporation (“Markforged,” the “Company,” “we,” “us”). 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 Quarterly Report on Form 10-Q, 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 Quarterly Report on Form 10-Q include, for example, statements about:

- the benefits of the Merger, and other recent acquisitions and our ability to realize such benefits;
- our financial performance;
- the effect of uncertainties related to the COVID-19 pandemic, or other future health pandemics and any related economic downturns 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;
- the effect of and our ability to respond to general economic, political and business conditions, including recent increases in interest rates, rising inflation, foreign exchange fluctuations and risk of recession;
- 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 control 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 Quarterly Report on Form 10-Q 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.

PART I—FINANCIAL INFORMATION

Item 1. Financial Statements.

MARKFORGED HOLDING CORPORATION

CONDENSED CONSOLIDATED BALANCE SHEETS
As of September 30, 2022 and December 31, 2021
(In thousands, except share data and par value amounts) (Unaudited)

	September 30, 2022	December 31, 2021
Assets		
Current assets		
Cash and cash equivalents	$ 181,805	$ 288,603
Accounts receivable, net	30,135	26,777
Inventory	24,561	10,377
Prepaid expenses	3,647	3,921
Other current assets	2,918	511
Total current assets	243,066	330,189
Property and equipment, net	13,409	6,349
Intangible assets, net	15,377	—
Goodwill	31,249	—
Right-of-use assets	45,615	—
Other assets	3,150	776
Total assets	$ 351,866	$ 337,314
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	$ 10,792	$ 11,403
Accrued expenses	9,878	7,411
Deferred revenue	6,781	6,288
Lease liabilities	7,778	—
Other current liabilities	21	310
Total current liabilities	35,250	25,412
Long-term deferred revenue	4,535	3,742
Deferred rent	—	1,623
Contingent earnout liability	8,740	59,722
Long-term lease liabilities	40,333	—
Other liabilities	4,944	2,646
Total liabilities	93,802	93,145
Commitments and contingencies (Note 17)		
Stockholders' equity		
Common stock, $0.0001 par value; 1,000,000,000 shares authorized at September 30, 2022 and December 31, 2021; 193,643,855 and 185,993,058 shares issued and outstanding at September 30, 2022 and December 31, 2021, respectively	19	19
Additional paid-in capital	350,022	319,859
Accumulated deficit	(90,365)	(75,709)
Accumulated other comprehensive loss	(1,612)	—
Total stockholders' equity	258,064	244,169
Total liabilities and stockholders' equity	$ 351,866	$ 337,314

See notes to the unaudited condensed consolidated financial statements.

MARKFORGED HOLDING CORPORATION

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
For the three and nine months ended September 30, 2022 and 2021
(In thousands, except share data and per share data) (Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Revenue	$ 25,208	$ 24,045	$ 71,294	$ 64,584
Cost of revenue	12,959	10,330	34,514	26,729
Gross profit	12,249	13,715	36,780	37,855
Operating expenses				
Sales and marketing	11,783	10,399	35,104	25,711
Research and development	10,421	9,761	31,375	21,487
General and administrative	12,873	15,935	38,094	32,770
Total operating expenses	35,077	36,095	104,573	79,968
Loss from operations	(22,828)	(22,380)	(67,793)	(42,113)
Change in fair value of derivative liabilities	(448)	1,418	1,221	170
Change in fair value of contingent earnout liability	(656)	42,710	50,982	42,710
Other expense, net	(39)	(48)	(429)	(168)
Interest expense	(2)	(6)	(11)	(15)
Interest income	1,006	6	1,380	9
(Loss) profit before income taxes	(22,967)	21,700	(14,650)	593
Income tax expense (benefit)	3	(3)	6	(1)
Net (loss) profit	$ (22,970)	$ 21,703	$ (14,656)	$ 594
Weighted average shares outstanding - basic	189,766,945	162,942,990	188,225,543	81,373,265
Weighted average shares outstanding - diluted	189,766,945	167,091,320	188,225,543	85,407,166
Net (loss) profit per share - basic	$ (0.12)	$ 0.13	$ (0.08)	$ 0.01
Net (loss) profit per share - diluted	(0.12)	0.13	(0.08)	0.01

See notes to the unaudited condensed consolidated financial statements.

MARKFORGED HOLDING CORPORATION

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
For the three and nine months ended September 30, 2022 and 2021
(In thousands, except share data and per share data) (Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	**2021**	**2022**	**2021**
Net income (loss)	$ (22,970)	$ 21,703	$ (14,656)	$ 594
Other comprehensive loss, net of taxes:				
Foreign currency translation adjustment	(1,612)	—	(1,612)	—
Total comprehensive income (loss), net of taxes of $0	$ (24,582)	$ 21,703	$ (16,268)	$ 594

See notes to the unaudited condensed consolidated financial statements.

MARKFORGED HOLDING CORPORATION

CONDENSED CONSOLIDATED STATEMENT OF CHANGES IN CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)
For the three and nine months ended September 30, 2022 and 2021
(In thousands, except share data) (Unaudited)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Treasury Stock		Accumulated Deficit	Accumulated Other Comprehensive Loss	Total
	Shares	Amount	Shares	Amount		Shares	Amount			
December 31, 2021	**—**	**$ —**	**185,993,058**	**$ 19**	**$ 319,859**	**—**	**$ —**	**$ (75,709)**	**$ —**	**$ 244,169**
Exercise of common stock options	—	—	942,836	—	580	—	—	—	—	580
Stock vested under compensation plan less shares withheld to cover taxes	—	—	182,066	—	—	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	4,285	—	—	—	—	4,285
Earnout stock-based compensation expense	—	—	—	—	1,137	—	—	—	—	1,137
Net income and comprehensive income	—	—	—	—	—	—	—	4,239	—	4,239
March 31, 2022	**—**	**$ —**	**187,117,960**	**$ 19**	**$ 325,861**	**—**	**$ —**	**$ (71,470)**	**$ —**	**$ 254,410**
Exercise of common stock options	—	—	443,712	—	916	—	—	—	—	916
Stock vested under compensation plan less shares withheld to cover taxes	—	—	319,165	—	(315)	—	—	—	—	(315)
Stock-based compensation expense	—	—	—	—	4,005	—	—	—	—	4,005
Earnout stock-based compensation expense	—	—	—	—	907	—	—	—	—	907
Issuance of Common Stock in connection with acquisitions	—	—	602,097	—	2,354	—	—	—	—	2,354
Net income and comprehensive income	—	—	—	—	—	—	—	4,075	—	4,075
June 30, 2022	**—**	**$ —**	**188,482,934**	**$ 19**	**$ 333,728**	**—**	**$ —**	**$ (67,395)**	**$ —**	**$ 266,352**
Exercise of common stock options	—	—	322,270	—	585	—	—	—	—	585
Stock vested under compensation plan less shares withheld to cover taxes	—	—	426,162	—	(167)	—	—	—	—	(167)
Stock-based compensation expense	—	—	—	—	4,773	—	—	—	—	4,773
Issuance of Common Stock in connection with acquisitions	—	—	4,100,000	—	9,840	—	—	—	—	9,840
Earnout stock-based compensation expense	—	—	—	—	513	—	—	—	—	513
Issuance of Common Stock in connection with acquisition earnout achievement	—	—	312,489	—	750	—	—	—	—	750
Net income (loss)	—	—	—	—	—	—	—	(22,970)	—	(22,970)
Other comprehensive income (loss)	—	—	—	—	—	—	—	—	(1,612)	(1,612)
September 30, 2022	**—**	**$ —**	**193,643,855**	**$ 19**	**$ 350,022**	**—**	**$ —**	**$ (90,365)**	**$ (1,612)**	**$ 258,064**

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Treasury Stock		Accumulated Deficit	Accumulated Other Comprehensive Loss	Total
	Shares	Amount	Shares	Amount		Shares	Amount			
December 31, 2020	**107,592,801**	**$ 137,497**	**39,510,108**	**$ 4**	**$ 5,538**	**483,479**	**$ (1,450)**	**$ (79,564)**	**$ —**	**$ 62,025**
Exercise of common stock options	—	—	714,170	—	356	—	—	—	—	356
Stock-based compensation expense	—	—	—	—	1,194	—	—	—	—	1,194

Exercise of Series D warrants	20,037	100	—	—	—	—	—	—	—	100
Net loss and comprehensive loss	—	—	—	—	—	—	—	(10,019)	—	(10,019)
March 31, 2021	**107,612,838**	**$ 137,597**	**40,224,278**	**$ 4**	**$ 7,088**	**483,479**	**$ (1,450)**	**$ (89,583)**	**$ —**	**$ 53,656**
Exercise of common stock options	—	—	102,237	—	62	—	—	—	—	$ 62
Stock-based compensation expense	—	—	—	—	1,777	—	—	—	—	1,777
Exercise of Series D warrants	71,139	355	—	—	—	—	—	—	—	355
Exercise of common stock warrants, net of shares withheld for exercise	—	—	179,572	—	1,793	—	—	—	—	1,793
Net profit (loss) and comprehensive income (loss)	—	—	—	—	—	—	—	(11,090)	—	(11,090)
June 30, 2021	**107,683,977**	**$ 137,952**	**40,506,087**	**$ 4**	**$ 10,720**	**483,479**	**$ (1,450)**	**$ (100,673)**	**$ —**	**$ 46,553**
Exercise of common stock options	—	—	1,016,004	—	1,309	—	—	—	—	1,309
Stock-based compensation expense	—	—	—	—	2,803	—	—	—	—	2,803
Exercise of Series D warrants	19,036	95	—	—	—	—	—	—	—	95
Conversion of convertible preferred stock into common stock upon reverse recapitalization	(107,703,013)	(138,047)	107,703,013	11	138,036	—	—	—	—	—
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)
Issuance of common stock upon the reverse recapitalization, net of transaction costs	—	—	20,456,333	2	113,176	—	—	—	—	113,178
Issuance of common stock related to PIPE Investment	—	—	21,000,000	2	209,998	—	—	—	—	210,000
Recognition of derivative liability related to earnout	—	—	—	—	(123,129)	—	—	—	—	(123,129)
Earnout stock-based compensation expense					5,621					5,621
Net profit (loss) and comprehensive income (loss)	—	—	—	—	—	—	—	21,703	—	21,703
September 30, 2021	**—**	**$ —**	**185,697,959**	**$ 19**	**$ 312,084**	**—**	**$ —**	**$ (78,970)**	**$ —**	**$ 233,133**

The shares of the Company's common and convertible preferred stock, prior to the Merger (as defined in Note 1) have been retroactively restated to reflect the exchange ratio of approximately 0.9522514 established in the Merger as described in Note 2.

See notes to the unaudited condensed consolidated financial statements.

MARKFORGED HOLDING CORPORATION

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
For the nine months ended September 30, 2022 and 2021
(In thousands, except share data) (Unaudited)

	For the Nine Months Ended September 30, 2022	2021
Operating Activities:		
Net (loss) profit	$ (14,656)	$ 594
Adjustments to reconcile net profit (loss) to cash used in operating activities		
Depreciation, amortization, and non-cash lease interest	6,308	1,269
Provision for doubtful accounts	299	205
Reserve for excess and obsolete inventory	374	152
Change in fair value of warrant liabilities	(1,221)	(170)
Change in fair value of contingent earnout liability	(50,982)	(42,710)
Stock-based compensation expense	15,620	11,395
Transaction costs expensed	—	1,996
Changes in operating assets and liabilities, net of effects of businesses acquired	—	
Accounts receivable	(3,137)	(7,676)
Inventory	(12,178)	(4,869)
Prepaid expenses	339	(3,901)
Other current assets	(2,202)	861
Other assets	(939)	(185)
Accounts payable and accrued expenses	242	4,317
Other current liabilities	(114)	(7)
Deferred rent	—	352
Deferred revenue	909	(418)
Other long term liabilities	—	—
Other non-current lease liabilities	(3,979)	—
Net cash used in operating activities	(65,317)	(38,795)
Investing Activities:		
Purchases of property and equipment	(5,995)	(2,323)
Cash paid for acquisitions, net of cash acquired	(35,634)	—
Net cash used in investing activities	(41,629)	(2,323)
Financing Activities:		
Repayment of debt obligations	—	(5,022)
Proceeds from Merger	—	132,926
Proceeds from PIPE investment	—	210,000
Repurchase of common stock	—	(45,000)
Payment of transaction costs for the Merger	—	(16,043)
Proceeds from exercise of Series D warrants	—	550
Proceeds from exercise of common stock options	2,081	1,727
Taxes paid related to net share settlement of equity awards	(482)	—
Net cash provided by financing activities	1,599	279,138
Effect of exchange rate changes on cash	(21)	
Net change in cash, cash equivalents, and restricted cash	(105,368)	238,020
Cash, cash equivalents, and restricted cash		
Beginning of year	288,603	58,715
End of period	$ 183,235	$ 296,735
Supplemental disclosures of cash flow information		
Cash and cash equivalents	$ 181,805	$ 296,735
Restricted cash in other non-current assets	1,430	—
Total cash, cash equivalents and restricted cash shown in the condensed consolidated statements of cash flows	$ 183,235	$ 296,735
Non cash financing and investing activities		
Purchase of property and equipment in accounts payable and accrued expenses	$ 2,733	$ 152
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	—	1,796
Conversion of convertible preferred stock into common stock upon reverse recapitalization	—	138,047
Common stock issued for acquisitions	12,944	—
Additions to right of use assets and liabilities	36,451	—

See notes to the unaudited condensed consolidated financial statements.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

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

We continue to monitor, analyze, and respond to evolving developments regarding the ongoing COVID-19 pandemic and the subsequent economic downturn, which has had an impact on the Company’s results since the second quarter of 2020. The Company is unable to predict the ultimate impact that these factors will have on the business, future results of operations, financial position or cash flows. The potential risks to the Company arising out of the impact of the COVID-19 pandemic, including certain accounting estimates around its supply chain, accounts receivable, inventory and related reserves, intangible assets, goodwill, and long-lived assets, were assessed and had no material impact as of and for the three and nine months ended September 30, 2022. 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 condensed consolidated financial statements are issued. The accompanying condensed 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	185,251,837

(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 condensed 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 unaudited condensed 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 accompanying unaudited condensed consolidated financial statements of the Company are prepared in conformity with accounting principles generally accepted in the United States of America ("US GAAP") and pursuant to the rules and regulations of the United States Securities and Exchange Commission ("SEC"), the instructions to Form 10-Q and the provisions of Regulation S-X pertaining to interim financial statements. Certain information and footnote disclosures normally included in financial statements prepared in accordance with US GAAP have been condensed or omitted pursuant to the rules and regulations of the SEC. The condensed consolidated financial statements include the Company's accounts and those of its subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation. In the opinion of the Company's management, the financial information for the interim periods presented reflects all adjustments, which are of a normal and recurring nature, necessary for a fair statement of the Company's financial position, results of operations, and cash flows. The results reported in these condensed consolidated financial statements are not necessarily indicative of results that may be expected for the entire year. These financial statements should be read in conjunction with the Company's audited consolidated financial statements and notes thereto included in the Company's annual report on Form 10-K for the year ended December 31, 2021, filed with the SEC on March 31, 2022.

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.

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, assumptions in revenue recognition, and valuation of intangibles and goodwill. The Company evaluates its estimates based on historical experience, current conditions, and various other assumptions that it believes are reasonable under the circumstances.

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.

Restricted Cash

Restricted cash represents cash and cash equivalents that are restricted to withdrawal or use as of the reporting date. Restricted cash as of September 30, 2022 relates to deposits to secure letters of credit. The deposits are related to contracts that have a remaining term greater than twelve months, thus this cash is included in other noncurrent assets.

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)	Three Months Ended September 30, 2022	Three Months Ended September 30, 2021	Nine Months Ended September 30, 2022	Nine Months Ended September 30, 2021
Balance at beginning of period	$ 1,158	$ 1,165	$ 1,021	$ 1,070
Additions	555	226	947	604
Write – offs	—	(248)	(7)	(312)
Recoveries	(400)	(180)	(648)	(399)
Balance at end of period	$ 1,313	$ 963	$ 1,313	$ 963

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 and liabilities that are measured at fair value as of September 30, 2022 and December 31, 2021 and indicates the fair value hierarchy of the valuation:

(in thousands)	Fair Value Measurements Level 1	Level 2	Level 3	Total
September 30, 2022				
Money market funds included in cash and cash equivalents	$ 180,501	$ —	$ —	$ 180,501
Contingent earnout liability	—	—	8,740	8,740
Private placement warrant liability	—	—	945	945
Teton acquisition contingent earnout liability	—	—	602	602
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

The Company remeasures its SVB 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 14 Stock Warrants and Note 13 Earnout. The Teton Software Simulation ("Teton") contingent earnout is related to development and business milestone metrics estimated using a scenario-based approach discussed in Note 4. The Teton development milestone was met in the quarter ended September 30, 2022 and settled, with the exception of $0.02 thousand settled in the fourth quarter of 2022. 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	Teton Acquisition Contingent Earnout Liability	Total Other Liabilities
Fair Value as of December 31, 2020	$ —	$ —	$ 545	$ —	$ 545
Recognition of liability acquired as part of the Merger	123,129	5,702	—	—	128,831
Change in fair value	(42,710)	(1,418)	1,251	—	(42,877)
Exercise of common stock warrants	—	—	(1,796)	—	(1,796)
Fair Value as of September 30, 2021	$ 80,419	$ 4,284	$ —	$ —	$ 84,703
Fair Value as of December 31, 2021	$ 59,722	$ 2,646	$ —	$ —	$ 62,368
Recognition of liability acquired as part of acquisitions	$ —	$ —	$ —	$ 1,602	$ 1,602
Change in fair value	(50,982)	(1,701)	—	480	(52,203)
Settlement of liability acquired as part of acquisitions	—	—	—	(1,480)	(1,480)
Fair Value as of September 30, 2022	$ 8,740	$ 945	$ —	$ 602	$ 10,287

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 September 30, 2022, one customer represented 11% of the accounts receivable balance and at December 31, 2021 one customer represented greater than 10% of the accounts receivable balance. For the nine months ended September 30, 2022, one customer represented 10% of total revenue. No one customer represented 10% or more of revenue for the three months ended September 30, 2022. For the three months ended September 30, 2021, one customer represented 14% of the total revenue, and for the nine months ended September 30, 2021 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.

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 three and nine months ended September 30, 2022 and 2021.

Sales and Marketing

Advertising costs, a component of sales and marketing expenses, were $1.1 million and $3.4 million during the three and nine months ended September 30, 2022, respectively, compared to $1.9 million and $5.0 million for the three and nine months ended September 30, 2021, respectively.

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 condensed consolidated balance sheets. The following table presents changes in the balance of the Company's warranty reserve:

(in thousands)	Three Months Ended September 30, 2022	Three Months Ended September 30, 2021	Nine Months Ended September 30, 2022	Nine Months Ended September 30, 2021
Balance at beginning of period	$ 790	$ 568	$ 658	$ 564
Additions to warranty reserve	245	155	672	395
Claims fulfilled	(313)	(130)	(608)	(366)
Balance at end of period	$ 722	$ 593	$ 722	$ 593

Warranty reserve is recorded through cost of revenue in the condensed consolidated statements of operations.

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.

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 overallotment 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 three and nine months ended September 30, 2022, 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 condensed consolidated statements of operations at each reporting date as part of change in fair value of derivative liabilities, as described in Note 14. 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 eligible Markforged equity holders were 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 13). The contingent obligations to issue Markforged Earnout Shares in respect of 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 condensed consolidated statements of operations.

Markforged Earnout Shares issuable to employees with vested equity awards and Earnout RSUs (as described in the Merger Agreement) issuable to employees with unvested equity awards are considered a separate unit of account from the Markforged Earnout Shares issuable in respect of Markforged common stock and are accounted for as equity classified stock compensation. The 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 the Company acquires employee services by offering to issue its shares, the amount of which is based in part on the Company's share price. 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 by using a Monte Carlo simulation valuation model using a distribution of potential outcomes on a monthly basis over the five-year Earnout Period as defined in Note 13. 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.

Teton Software Simulation Contingent Earnout

Contingent consideration represents potential future payments that the Company may be required to pay in the event negotiated milestones are met in connection with a business acquisition. Contingent consideration is recorded as a liability at the date of acquisition at fair value. The fair value of contingent consideration related to the development milestone and business milestone metrics is estimated using a scenario-based approach, which is a special case of the income approach that uses several possible future scenarios. Under this approach, the value of the milestone payment is calculated as the probability-weighted payment across all scenarios. Significant increases or decreases in any of the probabilities of success or changes in expected timelines for achievement of any of the milestones could result in a significantly higher or lower fair value of the contingent consideration liability. The fair value of the contingent consideration at each reporting date is updated by reflecting the changes in fair value in the Company's consolidated statements of operations. See Note 4 for additional information.

Leases

Prior to January 1, 2022, the Company accounted for leases in accordance with FASB Accounting Standards Codification ("ASC") ASC 840, Leases. At lease inception, the Company determined if an arrangement was an operating or capital lease. For operating leases, the Company recognized rent expense, inclusive of rent escalations, on a straight-line basis over the lease term.

Effective on January 1, 2022, the Company accounts for leases in accordance with ASC Topic 842, Leases ("ASC 842"). In accordance with ASC 842, the Company determines whether an arrangement is or contains a lease at inception. A contract is or contains a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. The Company classifies leases at the lease commencement date, when control of the underlying asset is transferred from the lessor to the lessee, as operating or finance leases and records a right-of-use ("ROU") asset and a lease liability on the consolidated balance sheet for all leases with an initial lease term of greater than 12 months. The Company has elected to not recognize leases with a lease term of 12 months or less on the balance sheet and will recognize lease payments for such short-term leases as an expense on a straight-line basis over the lease term.

The Company enters into contracts that contain both lease and non-lease components. Non-lease components may include maintenance, utilities, and other operating costs. For leases of real estate, the Company combines the lease and associated non-lease components in its lease arrangements as a single lease component. Variable costs, such as utilities or maintenance costs, are not included in the measurement of right-of-use assets and lease liabilities, but rather are expensed when the event determining the amount of variable consideration to be paid occurs.

Finance and operating lease assets and liabilities are recognized at the lease commencement date based on the present value of the lease payments over the lease term using the discount rate implicit in the lease if readily determinable. If the rate implicit is not readily determinable, the Company utilizes its incremental borrowing rate based upon the available information at the lease commencement date. ROU assets are further adjusted for initial direct costs, prepaid rent, or incentives received. Operating lease payments are expensed using the straight-line method as an operating expense over the lease term. The Company's lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Finance lease assets are amortized to depreciation expense using the straight-line method over the shorter of the useful life of the related asset or the lease term. Finance lease payments are bifurcated into (i) a portion that is recorded as interest expense and (ii) a portion that reduces the finance liability associated with the lease. The Company did not have any finance leases as of the date of adoption or during the nine months ended September 30, 2022.

Business Combinations

The Company allocates the purchase price of acquired companies to the tangible and intangible assets acquired and liabilities assumed based on their estimated fair values. The Company generally values the identifiable intangible assets acquired using a discounted cash flow model. The significant estimates used in valuing certain of the intangible assets, include, but are not limited to future expected cash flows of the asset, discount rates to determine the present value of the future cash flows and expected technology life cycles. Intangible assets are amortized over their estimated useful life; the period over which the Company anticipates generating economic benefit from the asset. Fair value adjustments subsequent to the acquisition date, that are not measurement period adjustments, are recognized in earnings.

Goodwill

Goodwill represents the future economic benefits arising from other assets acquired in a business combination that is not individually identified and separately recorded. The excess of the purchase price over the estimated fair value of net assets of businesses acquired in a business combination is recognized as goodwill. Goodwill is not amortized but is tested for impairment at least annually, or as circumstances indicate that the carrying value of the asset may not be recoverable through future operations. To assess if goodwill is impaired, the Company will perform a qualitative assessment to determine whether further impairment testing is necessary. The Company will then compare the carrying amount of the reporting unit to the fair value of the reporting unit. An excess carrying value over fair value would indicate that goodwill is impaired. The Company will perform an impairment assessment in the fourth quarter of 2022.

Intangible Assets

Intangible assets consist of identifiable intangible assets acquired, specifically, developed technology, customer relationships, and trade names. The Company evaluates definite-lived intangible assets for impairment when events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable through future operations. If indicators of impairment are present, the Company then compares the estimated undiscounted cash flows that the specific asset is expected to generate to its carrying value. If such assets are impaired, the impairment recognized is measured as the amount by which the carrying amount of the asset exceeds its fair value. To date, there have been no impairments of intangible assets. Intangible assets are amortized over their useful life.

Capitalized Software

The Company capitalizes qualifying internal-use software development costs, primarily related to its cloud platform. The costs consist of personnel costs that are incurred during the application development stage. Capitalization of costs begins when two criteria are met: (1) the preliminary project stage is completed, and (2) it is probable that the software will be completed and used for its intended function. Capitalization ceases when the software is substantially complete and ready for its intended use, including the completion of all significant testing. Costs related to preliminary project activities and post-implementation operating activities are expensed as incurred. The capitalized costs are amortized on a straight-line basis over the estimated useful life of the asset, which is typically 3 years.

Foreign Currency Translation

The assets and liabilities of our subsidiary, Digital Metal AB ("Digital Metal"), are translated from the local and functional currency (Swedish Krona) to U.S. dollars at exchange rates in effect at the end of the quarter, and the consolidated statements of operations are translated at the average exchange rate each month.

Transactions in foreign currencies are recorded at the approximate rate of exchange at the transaction date. All such differences are recorded in Other expense, net in the consolidated statements of operations. Assets and liabilities resulting from these transactions are translated at the rate of exchange in effect at the balance sheet date. Differences are recorded in other comprehensive income.

Comprehensive Income (Loss)

The Company follows the requirements of ASC 220, *Income Statement - Reporting Comprehensive Income,* for the reporting and presentation of comprehensive income (loss) and its components. The guidance requires unrealized gains or losses on the Company's foreign currency translation adjustments to be included in other comprehensive income (loss).

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 February 2016, the FASB issued ASU No. 2016-02, *Leases*, as subsequently amended (collectively, "ASC 842"), which sets out the principles for the recognition, measurement, presentation and disclosure of leases for both parties to a contract (i.e., lessees and lessors), and replaces the existing guidance in ASC 840, Leases.

The new standard requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. This classification will determine the recognition pattern of lease expense over the term of the lease. In addition, a lessee is required to record (i) a right-of-use asset and a lease liability on its balance sheet for all leases with accounting lease terms of more than 12 months regardless of whether it is an operating or financing lease and (ii) lease expense in its consolidated statement of operations for operating leases and amortization and interest expense in its consolidated statement of operations for financing leases. Leases with a term of 12 months or less may be accounted for similar to existing guidance for operating leases under ASC 840. In July 2018, the FASB issued ASU No. 2018-11, Leases (Topic 842), which added an optional transition method that allows companies to adopt the standard as of the beginning of the year of adoption as opposed to the earliest comparative period presented. This guidance is effective for the Company for fiscal years beginning after December 15, 2021, and interim periods within fiscal years beginning after December 15, 2022. Early application is permitted.

The Company adopted ASC 842 during the quarter ended March 31, 2022, with an effective date of January 1, 2022, using the modified retrospective transition approach which uses the effective date as the date of initial application. As a result, prior periods are presented in accordance with the previous guidance in ASC 840. The Company has elected to apply the package of practical expedients requiring no reassessment of whether any expired or existing contracts are or contain leases, the lease classification of any expired or existing leases, or the capitalization of initial direct costs for any existing leases.

Upon its adoption of ASC 842 on January 1, 2022, the Company recognized operating lease right-of-use assets and related operating lease liabilities, which increased the Company's total assets and total liabilities by $12.2 million and $14.0 million, respectively. The adoption of ASC 842 did not have a material impact on the Company's condensed consolidated statements of operations and condensed consolidated statements of comprehensive income (loss) or statement of cash flows and did not impact retained earnings.

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 condensed consolidated financial statements.

Note 4. Acquisitions

Teton Simulation Software ("Teton")

On April 4, 2022, the Company acquired Teton Simulation Software ("Teton") through a statutory merger in exchange for total consideration of $6.6 million, payable in a combination of cash and equity shares. Teton is a software company whose SmartSlice™ technology automates validation and optimizes part performance for additive manufacturing application. The Company will integrate

Teton's technology with its printing software solution, Eiger™, as a subscription add-on that will offer manufacturing customers a streamlined workflow spanning part design, testing, optimization, validation and printing at the point of need, all on a single, cloud-based platform.

A portion of the acquisition consideration is contingent on achievement by Teton of certain business and development milestones, with a fair value of $1.6 million as of the date of acquisition. The Company will pay up to $1.5 million of business related contingent consideration based on stated sales metrics, which had a fair value of $0.6 million as of the date of acquisition. The fair value of this milestone remained unchanged as of September 30, 2022. The development earnout related to product technical milestones, which had a fair value of $1.0 million as of the date of acquisition. This milestone was met and $0.73 million of cash and 312,489 shares were disbursed in the third quarter of 2022. Of the development milestone payments due, $0.02 thousand remained accrued as of quarter end and was subsequently paid in the fourth quarter of 2022. Of the acquisition date cash and equity consideration indicated below, $0.25 million of the cash consideration and $0.25 million of the equity consideration has been "held-back." This amount will be released 12 months following the Closing Date, unless there is a claim for indemnification. The holdback cash and shares are held on Markforged's balance sheet within accrued expenses and equity, respectively.

The total purchase price was allocated to the identifiable assets acquired and liabilities assumed based on the Company's preliminary estimates of their fair values on the acquisition date. The fair values of intangible assets were based on valuations using an income approach, specifically the multi-period excess earnings method for developed technologies. The process for estimating the fair values of identifiable intangible assets requires the use of significant estimates and assumptions, including revenue growth rates, discount rates, technology obsolescence curves, and EBITDA margins. The excess of the purchase price over the fair values of tangible assets, identifiable intangible assets and assumed liabilities was recorded as goodwill. The Company's estimates and assumptions in determining the estimated fair values of certain assets and liabilities are subject to change within the measurement period (up to one year from the acquisition date) as a result of additional information obtained with regards to facts and circumstances that existed as of the acquisition date. Goodwill will not be deductible for tax purposes.

The acquisition date fair value of the consideration transferred is as follows (in thousands):

Fair value of consideration transferred:		
Cash consideration	$	2,635
Equity consideration		2,354
Development milestone earnout fair value		1,020
Business milestone earnout fair value		582
Total consideration transferred	$	6,591

The following table summarizes the preliminary allocation of the purchase price to the estimated fair values of assets acquired and liabilities assumed (in thousands):

Fair value of assets acquired:		**At April 4, 2022**
Cash and cash equivalents	$	383
Accounts receivable		5
Other assets		17
Intangible assets		2,220
Goodwill		4,475
Assets acquired:	$	7,100
Fair value of liabilities assumed:		
Customer payable - cancelled contracts	$	38
Accrued Expense for pre-acquisition expenses		231
Accrued Expense for grant repayment		240
Liabilities acquired:	$	509

The estimated useful life of the identifiable intangible asset acquired, developed technology, is 7 years.

Supplemental pro forma information and actual revenue and earnings since the acquisition date have not been provided as the acquisition did not have a material impact on the Company's Condensed Consolidated Statements of Operations.

Digital Metal AB ("Digital Metal")

On August 31, 2022 (the "Closing Date"), pursuant to a Sale and Purchase Agreement (the "Purchase Agreement") by and between Markforged and Höganäs Aktiebolag, a limited liability company incorporated under the laws of Sweden (the "Seller"), the Company completed its previously announced acquisition (the "Acquisition") of all of the outstanding share capital of Digital Metal AB, a limited liability company incorporated under the laws of Sweden ("Digital Metal"). At the closing, the Company issued

4,100,000 shares of common stock of the Company, and paid approximately $33.5 million in cash. The cash payment was comprised of $32.0 million related to the purchase price and $1.5 million to settle certain intercompany balances between the Seller and Digital Metal. The acquisition of Digital Metal, the creator of a precise and reliable binder jetting solution, extends Markforged's capabilities into high-throughput production of metal additive parts.

Digital Metal generated revenues of $0.1 million and net loss of $0.4 million during the period between the date of acquisition, August 31, 2022, and the end of the quarter, September 30, 2022. These amounts are reflected in the condensed consolidated statements of operations for the three and nine months ended September 30, 2022.

The total purchase price was allocated to the identifiable assets acquired and liabilities assumed based on the Company’s preliminary estimates of their fair values on the acquisition date. The fair values of intangible assets were based on valuations using an income approach, specifically the multi-period excess earnings method for acquired technologies, relief-from-royalty method for trade names, and the distributor method for customer relationships. The process for estimating the fair values of identifiable intangible assets requires the use of significant estimates and assumptions, including revenue growth rates, customer attrition rates, royalty rates, discount rates, technology obsolescence curves, and EBITDA margins. The excess of the purchase price over the fair values of tangible assets, identifiable intangible assets and assumed liabilities was recorded as goodwill for the acquisition. The Company’s estimates and assumptions in determining the estimated fair values of certain assets and liabilities are subject to change within the measurement period (up to one year from the acquisition date) as a result of additional information obtained with regards to facts and circumstances that existed as of the acquisition date. Goodwill will not be deductible for tax purposes.

The acquisition date fair value of the consideration transferred is as follows (in thousands):

Fair value of consideration transferred:		
Cash consideration	$	33,500
Equity consideration		9,840
Total consideration transferred	$	43,340

The following table summarizes the preliminary allocation of the purchase price to the estimated fair values of assets acquired and liabilities assumed (in thousands):

Fair value of assets acquired:		**At August 31, 2022**
Cash and cash equivalents	$	579
Accounts receivable, net		535
Inventory		2,470
Prepaid and other assets		265
Fixed assets		2,755
Right-of-use asset		205
Intangible assets		13,710
Goodwill		27,813
Assets acquired:	$	48,332
Fair value of liabilities assumed:		
Accounts payable and accrued expenses	$	873
Lease liability – short term		67
Deferred revenue		392
Deferred tax liability		3,528
Lease liability – long term		132
Liabilities acquired:	$	4,992

The estimated useful lives of the identifiable intangible assets acquired is as follows:

	Gross Value		**Estimated Useful Life**
Acquired technology	$	13,130	20 years
Customer relationships		500	9 years
Trade names		80	1 year

Pro Forma Information (Unaudited)

The following unaudited pro forma financial information is based on the historical financial statements of the Company and presents the Company's results as if the acquisition of Digital Metal had occurred on January 1, 2021:

	Three months ended September 30, (Unaudited)		Nine months ended September 30, (Unaudited)	
	2022	2021	2022	2021
Net revenues	$ 25,590	$ 24,900	$ 73,205	$ 67,946
Net profit (loss)	(25,695)	21,698	(17,381)	593

Although actual results could differ from the pro forma results, the Company believes the pro forma results provide a reasonable basis for presenting the significant effects of the transactions. However, the pro forma results are not necessarily indicative of the results that would have occurred if the transaction had occurred at the beginning of fiscal year 2021, including potential synergies, and therefore does not represent what the actual net revenues and net loss would have been had the companies been combined as of this date.

Note 5. Revenue

Contract Balances

For the three and nine months ended September 30, 2022, the Company recognized $2.0 million and $5.1 million of revenue, respectively, from the deferred revenue account balances as of June 30, 2022 and December 31, 2021. For the three and nine months ended September 30, 2021, the Company recognized $1.3 million and $4.2 million of revenue, respectively, from the deferred revenue account balance as of June 30, 2021 and December 31, 2020.

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 $2.4 million expected to be recognized in the remainder of 2022, $5.2 million expected to be recognized in 2023, $2.6 million expected to be recognized in 2024, and $1.1 million thereafter.

Disaggregation of Revenue

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2022	2021	2022	2021
Hardware	$ 17,571	$ 17,469	$ 48,098	$ 46,039
Consumables	5,568	4,899	16,913	14,295
Services	2,069	1,677	6,283	4,250
Total Revenue	$ 25,208	$ 24,045	$ 71,294	$ 64,584

Note 6. Property and Equipment, net

Property and equipment consist of the following:

(in thousands)	September 30, 2022	December 31, 2021
Machinery and equipment	$ 8,880	$ 6,091
Leasehold improvements	2,445	2,262
Computer equipment	3,069	1,764
Furniture and fixtures	415	367
Computer software	214	250
Construction in process	4,967	1,741
Property and equipment, gross	19,990	12,475
Less: Accumulated depreciation	(6,581)	(6,126)
Property and equipment, net	$ 13,409	$ 6,349

For the three and nine months ended September 30, 2022, depreciation expense for property and equipment was $0.7 million and $1.6 million, respectively, compared to $0.4 million and $1.3 million, respectively, for the three and nine months ended September 30, 2021.

Note 7. Inventory

Inventory consists of the following:

(in thousands)	September 30, 2022	December 31, 2021
Raw material	$ 3,865	$ 853
Work in process	230	77
Finished goods	20,466	9,447
Total inventory	$ 24,561	$ 10,377

The Company maintained reserves for obsolete inventory of $1.3 million and $1.0 million as of September 30, 2022 and December 31, 2021, respectively. As of September 30, 2022, obsolete inventory impairment related to finished goods is $1.1 million and $0.2 million is related to raw materials. 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. The impairment of obsolete inventories are recorded within cost of revenue in the condensed consolidated statements of operations.

Note 8. Goodwill and Intangible Assets

The following tables summarizes the Company’s goodwill and intangible assets, all of which are related to the acquisitions of Teton Simulation Software in April 2022 and Digital Metal AB in August 2022 (in thousands):

(in thousands)	Goodwill
December 31, 2021	$ —
Acquisition of Teton Simulation Software	4,475
Acquisition of Digital Metal	27,813
Foreign currency translation	(1,039)
September 30, 2022	$ 31,249

	Estimated Useful Life	Gross Carrying Value	Accumulated Amortization	Net Book Value
Acquired technology	7 - 20 years	$ 15,350	$ (30)	$ 15,320
Customer relationships	9 years	500	(4)	496
Trade names	1 year	80	(6)	74
Foreign currency translation		(512)	(1)	(513)
Intangible Assets, net		$ 15,418	$ (41)	$ 15,377

The Company recognized amortization expense of $25 thousand and $11 thousand to costs of goods sold and operating expense, respectively, during the three months ended September 30, 2022. The Company recognized amortization expense of $31 thousand and $11 thousand to costs of goods sold and operating expense, respectively, during the nine months ended September 30, 2022. Revenue is the basis for the economic pattern used to determine the amortization schedule of developed technology and customer relationships. Trade name intangible amortization is based on the term in which we anticipate continued use of the asset. The estimated future amortization expense for amortizable assets to be recognized is as follows as of September 30, 2022 (in thousands):

2022 (remaining three months)	$	97
2023		895
2024		1,347
2025		1,797
2026		1,948
Thereafter		9,293
Total	$	15,377

Note 9. Accrued Expenses

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

(in thousands)		September 30, 2022		December 31, 2021
Warranty reserve	$	722	$	658
Compensation, benefits, and expenses		4,028		4,360
VAR commissions		129		265
Professional services		3,186		1,725
Marketing and advertising		386		122
Teton acquisition holdback liability		250		—
Accrued taxes		325		149
Other		852		132
Total accrued expense	$	9,878	$	7,411

Note 10. Borrowings

PPP 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 scheduled to mature on April 21, 2022 and bore interest at a rate of 1% per annum, payable monthly commencing on November 22, 2020. The terms of the note permitted prepayment 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 11. Convertible Preferred Stock, Common Stock and Stockholders' Equity (Deficit)

As a result 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 September 30, 2022. 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:

	December 31, 2020							
(in thousands, except for share counts)	Shares Authorized	Shares Issued and Outstanding		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	113,419,184	107,592,801			$	137,497	$	137,876

Common Stock Reserved for Future Issuance

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

	September 30, 2022	December 31, 2021
Common stock options outstanding and unvested RSU	24,700,014	20,267,035
Shares available for issuance under the 2021 plan	23,746,924	21,502,768
Common stock warrants outstanding	8,525,000	8,525,000
Shares available for issuance as Earnout RSU	1,400,000	1,400,000
Employee stock purchase plan	6,559,930	4,700,000
Total shares of authorized common stock reserved for future issuance	64,931,868	56,394,803

Note 12. 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 September 30, 2022, 23,746,924 and 6,559,930 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 on the immediately preceding December 31 or (ii) such lesser amount as determined by the Company's Board of Directors.

The 2021 ESPP allows eligible employees to authorize payroll deductions between 1% and 15% of the 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 employee will have the option to acquire common stock at a discount of up to 15% of the lesser of the Company's common stock 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 nine months ended September 30, 2022 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 no further awards will be granted thereunder. The 2013 Plan was terminated at Closing and all outstanding awards became outstanding under the 2021 Plan. Option activity under the plan for the year to date period ending September 30, 2022 is as follows:

	Number of Shares	Weighted-Average Exercise Price (Per Share)	Weighted-Average Remaining Contractual Life (in years)
Outstanding at December 31, 2021	15,929,479	$ 1.81	8.71
Granted	—	—	
Exercised	(1,708,818)	1.22	
Forfeited	(1,834,604)	2.14	
Outstanding at September 30, 2022	12,386,057	$ 1.97	7.19
Options exercisable at September 30, 2022	8,023,339	$ 1.87	6.94

The aggregate intrinsic value of stock options outstanding at September 30, 2022 was $1.9 million. As of September 30, 2022, the Company had 12,106,386 options vested and expected to vest.

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

(in thousands, except weighted average)	Nine Months Ended September 30, 2022		2021
Intrinsic value of options exercised	$	3,238	$ 16,496

In the nine months ended September 30, 2022 and 2021, the Company did not grant any options to purchase shares of Common Stock.

Restricted Stock Units

During the nine months ended September 30, 2022, the Company awarded RSUs to newly hired employees 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. The following table summarizes the RSU activity for the nine months ended September 30, 2022:

	Number of Shares		Weighted-Average Grant Date Fair Value (Per Share)
Outstanding at December 31, 2021	4,337,556	$	9.12
Granted	9,644,783		2.48
Vested	(1,045,217)		8.81
Forfeited	(623,165)		6.65
Unvested at September 30, 2022	12,313,957	$	4.07

Stock-Based Compensation Expense

The Company recorded compensation expense related to options and RSUs of $13.1 million and $5.8 million for the nine months ended September 30, 2022 and 2021, respectively. Total unrecognized stock-based compensation expense for the RSUs outstanding was $40.2 million at September 30, 2022, which is expected to be recognized over a weighted-average period of 3.2 years. Total unrecognized stock-based compensation expense for the options outstanding was $4.5 million at September 30, 2022, which is expected to be recognized over a weighted-average period of 1.6 years.

(in thousands)	Three Months Ended September 30, 2022		2021		Nine Months Ended September 30, 2022		2021	
Stock options	$	784	$	1,048	$	2,727	$	3,430
Restricted stock units		3,989		1,755		10,336		2,344
Stock-based compensation expense for restricted stock units and options	$	4,773	$	2,803	$	13,063	$	5,774

During the three and nine months ended September 30, 2022, the Company recognized stock-based compensation expense related to the Markforged Earnout of $0.5 million and $2.6 million, respectively. During the three and nine months ended September 30, 2021, the Company recognized stock-based compensation expense related to the Markforged Earnout of $5.6 million.

The unrecognized compensation expense related to the Markforged Earnout is $3.9 million and will be recognized over a remaining period of no more than 2.8 years, dependent on when vesting conditions are met.

The stock-based compensation expense for stock-based awards and earnout shares were recognized in the following captions within the condensed consolidated statements of operations for the three and nine months ended September 30, 2022 and 2021:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	**2022**	**2021**	**2022**	**2021**
Cost of revenue	$ 130	$ 129	$ 347	$ 218
Sales and marketing	917	856	2,540	1,176
Research and development	1,326	2,043	4,317	2,768
General and administrative	2,913	5,396	8,416	7,233
Total stock-based compensation expense	$ 5,286	$ 8,424	$ 15,620	$ 11,395

Note 13. 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 (the "Earnout"). 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.

As discussed in Note 3. Summary of Significant Accounting Policies, 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, whether vested or unvested, or with respect to Legacy Markforged common stock. Earnout Shares issuable with respect to an unvested Legacy Markforged equity award as Earnout RSUs are subject to forfeiture if the holder does not complete the required service period. From the Closing through the date of a forfeiture of an unvested Legacy Markforged equity award, forfeited Earnout Shares are distributed to the remaining Eligible Markforged Equityholders on a pro-rata basis. The forfeited Earnout Shares 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 September 30, 2022:

	Triggering Event I Earnout Shares	Triggering Event II Earnout Shares
Derivative liability	7,258,093	6,048,406
Stock compensation	741,907	618,261
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 September 30, 2022 is $0.60 per share issuable upon Triggering Event I and $0.49 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 valuation model using 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:

	September 30, 2022	September 30, 2021	July 14, 2021
Current stock price	$ 1.98	$ 6.56	$ 8.56
Expected volatility	65.00 %	70.00 %	70.00 %
Risk-free interest rate	4.13 %	0.93 %	0.85 %
Dividend rate	— %	— %	— %
Expected term (years)	3.79	4.79	5.00

Neither of the Earnout Triggering Events have occurred as of September 30, 2022 and therefore no earnout shares were distributed.

Note 14. 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 condensed consolidated balance sheets and subsequent adjustments to fair value are shown in other expense in the condensed consolidated statements of operations.

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:

	June 10, 2021
Expected (remaining) option term (in years)	3.69
Expected volatility%	65.0 %
Risk-free interest rate%	0.45 %
Expected dividend yield%	0 %
Fair value of common stock (per share)	$ 9.51

Management considers 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 30, 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 remits payment for goods purchased from the Company under the development agreement, a pro-rata share of warrants vest. The warrants were set to expire on September 24, 2029 but were completely vested and exercised as of the Closing.

The Company accounts 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 accounts for the warrants that vest to the customer as a reduction to deferred revenue and a corresponding adjustment to convertible preferred stock. The value of the warrants is measured based on the grant date fair value. The grant date was considered to occur at the execution date of the development agreement.

In accordance with the development agreement, 19,036 warrants vested during the three months ended September 30, 2021 and 110,212 warrants vested during the nine months ended September 30, 2021. As a result, the Company recorded $0.4 and $0.6 million of expense related to the warrants for the three and nine months ended September 30, 2021, respectively. As of September 30, 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 $0.9 million as of September 30, 2022. The Company recorded a gain of $0.0 million and $1.7 million, respectively, for the three and nine months ended September 30, 2022, which is included in change in fair value of derivative liabilities on the condensed consolidated statements of operations.

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

	September 30, 2022	September 30, 2021	July 14, 2021
Market price of public stock	$ 1.98	$ 6.56	$ 8.56
Exercise price	$ 11.50	$ 11.50	$ 11.50
Expected term (years)	3.79	4.79	5.01
Volatility	121.0 %	66.0 %	39.1 %
Risk-free interest rate	4.13 %	0.93 %	0.85 %
Dividend rate	0.0 %	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 15. Income Taxes

The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the Company’s condensed consolidated financial statements and tax returns. Deferred tax assets and liabilities are determined based upon the differences between the consolidated financial statements carrying amounts and the tax bases of existing assets and liabilities and for loss and credit carryforwards, using enacted tax rates expected to be in effect in the years in which the differences are expected to reverse. Deferred tax assets are reduced by a valuation allowance if it is more likely than not that these assets may not be realized. The Company recognized a de minimis tax expense (benefit) during the three and nine months ended September 30, 2022 and 2021.

The Company provides reserves for potential payments of taxes to various tax authorities related to uncertain tax positions. Amounts recognized are based on a determination of whether a tax benefit taken by the Company in its tax filings or positions is “more likely than not” to be sustained on audit. The amount recognized is equal to the largest amount that is more than 50% likely to be sustained. Interest and penalties associated with uncertain tax positions are recorded as a component of income tax expense. As of September 30, 2022 and December 31, 2021, the Company’s uncertain tax positions 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 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 at December 31, 2021. Since its inception, the Company has not recorded any income tax benefits for the net losses incurred or for the research and development tax credits earned in each year and interim period, as the Company believes, based upon the weight of available evidence, that it is more likely than not that all of its net operating loss carryforwards and tax credit carryforwards will not be realized. 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 has been established at December 31, 2021. There is no material adjustment to the valuation allowance at September 30, 2022.

On August 16, 2022, the Inflation Reduction Act was enacted into U.S. law. The Company does not currently expect that the Inflation Reduction Act will have a material impact on its income taxes.

Note 16. Leases

In January 2017, the Company entered into a lease agreement for 32,000 rentable square feet of office space located at 85 School Street, Watertown, Massachusetts. The lease term, which commenced in June 2017, was set to expire August 1, 2023. In August 2017, the Company entered into the First Amendment of the lease which extended the maturity date to January 31, 2024.

In November 2020, the Company entered into a lease agreement for 36,291 rentable square feet of office space on the 1st floor of the building located at 480 Pleasant Street, Watertown, Massachusetts. The lease term, which commenced in November 2020, is set to expire July 31, 2028, with lease payments being made on a monthly basis. There is also an option to extend for 2 additional periods of 5 years, which is not reasonably certain to be exercised and therefore not included in the measurement of the lease.

In March 2019, the Company entered into a lease agreement for 25,000 rentable square feet of office space in the building located at 900 Middlesex Turnpike, Billerica, Massachusetts. The lease term, which commenced in July 2019, was set to expire July 1, 2026, with an option to extend for 2 additional periods of 5 years each, and required monthly payments. In December 2021, the Company entered into the First Amendment of the lease and expanded the office space by approximately 21,902 rentable square feet and extended the maturity date to May 31, 2029 ("Expansion Premises"). In July 2022, the Company entered into the Amended and Restated First Amendment to the lease which modified the lease commencement date to November 1, 2022, when the lease premises are expected to be made available to the Company. In addition, the lease expiration date of the original premises and expansion premises was amended to October 31, 2029. The annual base rent for the Expansion Premises per the lease agreement is approximately $0.4 million for the first lease year, and is subject to annual increases of 3% thereafter. The undiscounted future minimum rent obligation is approximately $2.7 million. The Expansion Premises has not been made available to the Company as of September 30, 2022 and is therefore not included in the table below, as the lease term for the Expansion Premises has not commenced.

In December 2021, the Company entered into a lease agreement for 120,681 rentable square feet of office space located at 60 Tower Road, Waltham, Massachusetts (the "Premises"). The lease term, which commenced April 1, 2022, is set to expire September 30, 2031. At lease commencement, the classification and measurement of the lease was determined and recognized on the balance sheet. The annual base rent under the lease is approximately $4.8 million for the first lease year, which commenced July 2022, and is subject to fixed annual increases. The undiscounted future minimum rent obligation is approximately $49.3 million, and the discounted right of use asset and liability on the date of commencement, April 1, 2022, was $36.2 million. Per the lease agreement, the Company has provided a security deposit in the form of a letter of credit in the amount of approximately $0.8 million. This letter of credit is recorded as restricted cash within non-current other assets on the balance sheet.

Rent expense under the Company's operating lease agreements was $2.5 million and $0.6 million for the three months ended September 30, 2022 and 2021. For the nine months ended September 30, 2022 and 2021, rent expense was $5.1 million and $1.9 million. There were not any financing, variable, or short term leases during the nine months ended September 30, 2022 and 2021. Future minimum lease payments under these agreements are as follows as of September 30, 2022:

(in thousands)		Amount
2022 (remaining three months)	$	1,314
2023		8,026
2024		7,209
2025		7,256
2026		7,385
After 2026		30,423
Total future lease payments	$	61,613
Less: interest		(13,502)
Present value of lease liabilities	$	48,111

	Three Months Ended September 30, 2022	Nine Months Ended September 30, 2022
Supplemental cash flow information:		
Cash payments for operating leases included in cash flows used in operating activities	1,954	3,966

	September 30, 2022
Other lease information	
Weighted-average remaining lease term - Operating leases	8.1 years
Weighted-average discount rate - Operating leases	6.0 %

Future minimum lease payments under these agreements are as follows as of December 31, 2021:

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

Note 17. Commitments and Contingencies

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 three and nine months ended September 30, 2022.

Note 18. Net (Loss) Profit Per Share

The Company computes basic net profit (loss) per share using net profit (loss) attributable to Company common stockholders and the weighted-average number of common shares outstanding during each period. Diluted earnings per share includes shares issuable upon exercise of warrants, outstanding stock options, stock-based awards, and earnout awards where the conversion of such instruments would be dilutive. The Company assessed the dilutive effect of potential common shares under the treasury stock method for warrants, outstanding stock options, and stock-based awards, but excluding contingently issuable shares for the Markforged Earnout Shares.

As a result of the Merger, the Company has retroactively adjusted the weighted-average number of shares of common stock outstanding prior to the Merger closing date by multiplying them by the Exchange Ratio used to determine the number of shares of common stock into which they converted.

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands, except per share amounts)	2022	2021	2022	2021
Numerator:				
Net (loss) profit	$ (22,970)	$ 21,703	$ (14,656)	$ 594
Net (loss) profit attributable to common stockholders - Basic & Diluted	(22,970)	21,703	(14,656)	594
Denominator:				
Weighted average shares outstanding - Basic	189,766,945	162,942,990	188,225,543	81,373,265
Add: Weighted average unvested options outstanding	—	4,148,330	—	4,033,901
Add: Dilutive effect of restricted units issued	—	—	—	—
Weighted average shares outstanding - Diluted	189,766,945	167,091,320	188,225,543	85,407,166
Net (loss) profit per common share:				
Basic	$ (0.12)	$ 0.13	$ (0.08)	$ 0.01
Diluted	(0.12)	0.13	(0.08)	0.01

For the three and nine months ended September 30, 2022, 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:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Unvested RSUs	12,313,957	3,844,737	12,313,957	3,844,737
Unvested option awards	12,386,057	—	12,386,057	—
Warrants	8,524,984	8,524,984	8,524,984	8,524,984
Contingently issuable earnout shares	14,666,667	14,666,667	14,666,667	14,666,667
Total	47,891,665	27,036,388	47,891,665	27,036,388

Note 19. 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:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2022	2021	2022	2021
Americas	$ 12,591	$ 14,937	$ 34,150	$ 35,169
EMEA	5,353	5,118	19,618	17,804
APAC	7,264	3,990	17,526	11,611
Total	$ 25,208	$ 24,045	$ 71,294	$ 64,584

Revenue generated from customers within the Company's country of domicile, the United States, amounted to $12.4 million and $14.3 million for the three months ended September 30, 2022 and 2021, respectively. For the nine months ended September 30, 2022 and 2021, revenue in the United States was $32.5 million and $33.7 million. The Company's long-lived assets, inclusive of right-of-use assets, are substantially located in the United States, where the Company's primary operations are located.

Item 2. 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 unaudited consolidated financial statements and the related notes thereto included elsewhere in this Quarterly Report on Form 10-Q. 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 Quarterly Report on Form 10-Q, 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 $71.3 million and $64.6 million for the nine months ended September 30, 2022 and 2021, respectively, and incurred a net loss of $14.7 million and net profit of $0.6 million, respectively, for those same periods. Net profit (loss) for the nine months ended September 30, 2022 and 2021 is inclusive of non-cash mark-to-market gains of $52.2 million and $42.9 million, respectively. As of September 30, 2022, we had an accumulated deficit of $90.4 million. We expect to continue to incur operating 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 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.

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.

Recent Developments

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

We have experienced longer lead-times, higher costs, delays in procuring parts and materials, delays in production, and increased production labor costs. 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. Partially due to these factors, we have experienced a longer and more costly production ramp-up of our new FX20 printer. We are working closely with our suppliers and customers to minimize impacts, and we continue to closely monitor availability of labor and supply of parts and materials required for our business. However, the extent to which our operations may continue to be impacted by 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.

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. The extent to which the COVID-19 pandemic may impact our business going forward will depend on numerous evolving factors that we cannot reliably predict. These factors may adversely impact business spending on manufacturing technology as well as customers' ability to pay for our products and services on an ongoing basis.

For more information on operations and risks related to the COVID-19 pandemic and global supply chain disruptions, please see the section of this Quarterly Report on Form 10-Q 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 30% and 27% of total revenue for the three months ended September 30, 2022 and 2021, respectively. Recurring revenue was 33% and 29% of total revenue for the nine months ended September 30, 2022 and 2021, 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 our 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;
- Excess and obsolete material related to new product introductions;
- The impact of 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 impact of inflation, the extent to which we utilize contract manufacturers compared to in-house manufacturing, the ability to achieve economies of scale in our purchase volumes, any impacts to changes in our manufacturing on our product warranty obligations and freight and logistics costs; 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 believe our research and development department is staffed at a level that enables us to innovate and develop products throughout 2023 and 2024.

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 reorganized our go-to-market team during the fourth quarter of 2022, and expect that costs will stabilize as we continue to optimize our team.

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 believe our general and administrative costs have stabilized as we have completed our investments required to operate as a public company.

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 liabilities and private placement warrant liability. All were accounted for as liabilities as of the date of the Merger, or acquisition, and remeasured to fair value at the end of the reporting period.

Other (expense) income, net

Other (expense) income, net includes other non-operating expenses and income sources.

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.

On August 16, 2022, the Inflation Reduction Act of 2022 was signed into law, with tax provisions primarily focused on implementing a 15% minimum tax on global adjusted financial statement income and a 1% excise tax on share repurchases. The Inflation Reduction Act of 2022 will become effective beginning in Fiscal 2024. The Company does not currently expect that the Inflation Reduction Act will have a material impact on its income taxes.

Results of Operations

The results of operations presented below should be reviewed in conjunction with the condensed consolidated financial statements and notes included elsewhere in this Quarterly Report on Form 10-Q. The following tables set forth our results of operations for the periods presented.

Comparison of the three months ended September 30, 2022 and 2021

(dollars in thousands)	Three Months Ended September 30, 2022	2021	$ Change	% Change
Revenue	$ 25,208	$ 24,045	$ 1,163	5 %
Cost of revenue	12,959	10,330	2,629	25 %
Gross profit	12,249	13,715	(1,466)	(11)%
Operating expense				
Sales and marketing	11,783	10,399	1,384	13 %
Research and development	10,421	9,761	660	7 %
General and administrative	12,873	15,935	(3,062)	(19)%
Total operating expense	35,077	36,095	(1,018)	(3)%
Loss from operations	(22,828)	(22,380)	(448)	2 %
Change in fair value of warrant liabilities	(448)	1,418	(1,866)	(132)%
Change in fair value of contingent earnout liability	(656)	42,710	(43,366)	(102)%
Other expense, net	(39)	(48)	9	(19)%
Interest expense	(2)	(6)	4	(67)%
Interest income	1,006	6	1,000	NM
(Loss) profit before income taxes	(22,967)	21,700	(44,667)	(206)%
Income tax benefit (expense)	3	(3)	6	(200)%
Net (loss) profit	$ (22,970)	$ 21,703	$ (44,673)	(206)%

NM — Not meaningful

Revenue, cost of revenue, and gross margin

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

The following table sets forth the changes in the components of gross margin for the three months ended September 30, 2022 and 2021.

(dollars in thousands)	Three Months Ended September 30, 2022	2021	$ Change	% Change
Revenue	$ 25,208	$ 24,045	$ 1,163	5 %
Cost of revenue	12,959	10,330	2,629	25 %
Gross profit	12,249	13,715	(1,466)	(11)%
Gross margin	49 %	57 %	—	(15)%

Comparison of revenue

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

(in thousands)	Three Months Ended September 30, 2022	2021	$ Change	% Change
Hardware	$ 17,571	$ 17,469	$ 102	1 %
Consumables	5,568	4,899	669	14 %
Services	2,069	1,677	392	23 %
Total Revenue	$ 25,208	$ 24,045	$ 1,163	5 %

Consolidated revenue for the three months ended September 30, 2022 was $25.2 million compared with revenue of $24.0 million for the three months ended September 30, 2021 representing an increase of 5%, primarily driven by increases in consumable and service revenue over the comparable period.

Hardware revenue remained consistent during the three months ended September 30, 2022 compared to the three months ended September 30, 2021. Overall unit sales decreased over the three months ended September 30, 2022 driven by a shift in sales to higher value next-gen printers, specifically the FX20. Consumables revenue increased approximately 14% for the three months ended September 30, 2022 compared to the three months ended September 30, 2021. The increase in consumables revenue was due to the increase in active printers being utilized in the field as a result of the incremental volume of new printer sales in the prior year. Services revenue increased approximately 23% for the three months ended September 30, 2022 compared to the three months ended September 30, 2021. The increase in services revenue was driven by an increase in the percentage of hardware units sold with a warranty and maintenance contract during the preceding year, 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 three months ended September 30, 2022 was $13.0 million compared with cost of revenue of $10.3 million for the three months ended September 30, 2021 representing an increase of 25%. This was primarily due to higher than anticipated costs to produce the initial units of our newest printer, the FX20, principally the cost of mechanical and electronic components, and labor to produce the FX20, and, more broadly across our product portfolio, rising freight and logistics costs. Gross profit for the three months ended September 30, 2022 was $12.2 million compared with gross profit of $13.7 million for the three months ended September 30, 2021 representing an decrease of 11%. Gross profit margin for the three months ended September 30, 2022 was 49% while the gross profit margin for the three months ended September 30, 2021 was 57%. The decline in consolidated gross profit is primarily due to the increased costs to procure supplies of mechanical and electronic components and increases in the cost of labor to produce the initial units of our newest printer, the FX20. Additionally, gross profit was impacted by increases to freight and logistics expenses in support of production, and a shift in our product mix.

Operating expenses

The following table sets forth the components of operating expenses for the three months ended September 30, 2022 and 2021.

	Three Months Ended September 30,					
	2022		2021		Change	
(dollars in thousands)	Amount	% Revenue	Amount	% Revenue	$	%
Operating expenses						
Sales and marketing	$ 11,783	47 %	$ 10,399	43 %	$ 1,384	13 %
Research and development	10,421	41 %	9,761	41 %	660	7 %
General and administrative	12,873	51 %	15,935	66 %	(3,062)	(19)%
Total operating expenses	$ 35,077	139 %	$ 36,095	150 %	$ (1,018)	(3)%

Sales and marketing expense increased 13% for the three months ended September 30, 2022, as compared to the three months ended September 30, 2021, primarily due to increased spending on personnel costs of $1.9 million, which was partially offset by a decline in contractor costs of $1.0 million as more roles were shifted in-house. Events and travel costs increased $0.5 million as more events were held, and rent increased $0.3 million due to the commencement of the new Waltham headquarters lease. The increases in expense are consistent with our increase in headcount over the comparable quarter as we executed on our growth strategy, and increased travel in the current year as a result of the lifting of travel restrictions from the COVID-19 pandemic. These increases were partially offset by a decline in demand generating advertising spending of $0.8 million due to a strategic shift by our marketing team to other advertising avenues.

Research and development expense increased 7% for the three months ended September 30, 2022, as compared to the three months ended September 30, 2021, primarily due to increases in personnel and contractor costs of $1.2 million. The increase in employee related costs are consistent with our investment in human capital to meet our innovation goals. Rent expense increased by $0.6 million due to the commencement of the new Waltham headquarters lease. These increases were offset by a decrease in stock-based compensation of $0.7 million due to the graded vested accounting for stock based compensation. In addition there was a decrease in prototype research and development of $0.4 million due to the phase of the development of the FX20 in the third quarter of 2021 versus current projects.

General and administrative expenses decreased 19% for the three months ended September 30, 2022, as compared to the three months ended September 30, 2021, primarily due to a decrease in stock-based compensation expense of $2.5 million due to the nature of graded vesting of expense, decreased legal expense of $1.5 million, and a decrease in the use of contractors of $0.7 million. Offsetting these decreases, rent expense increased by $0.8 million due to the commencement of the new Waltham headquarters lease and tax compliance costs of $0.2 million.

Change in fair value of derivative liabilities and contingent earnout liability, other (expense) income, net, interest expense, and interest income

The following table sets forth Change in fair value of derivative liabilities for the three months ended September 30, 2022 and 2021.

	Three Months Ended September 30,			
(dollars in thousands)	**2022**	**2021**	**$ Change**	**% Change**
Change in fair value of derivative liabilities	$ (448)	$ 1,418	$ (1,866)	(132)%
Change in fair value of contingent earnout liability	(656)	42,710	(43,366)	(102)%
Other expense, net	(39)	(48)	9	(19)%
Interest expense	(2)	(6)	4	(67)%
Interest income	1,006	6	1,000	NM

Fair value of derivative liabilities increased creating a loss of $1.1 million for the three months ended September 30, 2022, compared to net income of $44.1 million during the three months ended September 30, 2021, primarily related to the change in fair value of derivative liabilities for the SPAC earnout shares and the Teton development milestone achievement. The changes in fair value directly correlate with the change in the Company's common stock price over the period, and probability of earnout milestone achievement.

The change in interest income is directly correlated to the interest rates during each period, slightly offset by the decrease in the cash balance in short-term investment accounts.

Provision for income taxes

We recorded a de minimis expense (benefit) for income taxes for the three months ended September 30, 2022 and 2021, respectively.

Comparison of the nine months ended September 30, 2022 and 2021

	Nine Months Ended September 30,			
(dollars in thousands)	**2022**	**2021**	**$ Change**	**% Change**
Revenue	$ 71,294	$ 64,584	$ 6,710	10 %
Cost of revenue	34,514	26,729	7,785	29 %
Gross profit	36,780	37,855	(1,075)	-3 %
Operating expense				
Sales and marketing	35,104	25,711	9,393	37 %
Research and development	31,375	21,487	9,888	46 %
General and administrative	38,094	32,770	5,324	16 %
Total operating expense	104,573	79,968	24,605	31 %
Loss from operations	(67,793)	(42,113)	(25,680)	61 %
Change in fair value of warrant liabilities	1,221	170	1,051	618 %
Change in fair value of contingent earnout liability	50,982	42,710	8,272	19 %
Other expense, net	(429)	(168)	(261)	155 %
Interest expense	(11)	(15)	4	(27)%
Interest income	1,380	9	1,371	NM
(Loss) profit before income taxes	(14,650)	593	(15,243)	NM
Income tax benefit	6	(1)	7	(700)%
Net (loss) profit	$ (14,656)	$ 594	$ (15,250)	NM

Revenue, cost of revenue, and gross margin

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

The following table sets forth the changes in the components of gross margin for the nine months ended September 30, 2022 and 2021.

(dollars in thousands)	Nine Months Ended September 30, 2022	2021	$ Change	% Change
Revenue	$ 71,294	$ 64,584	$ 6,710	10 %
Cost of revenue	34,514	26,729	7,785	29 %
Gross profit	36,780	37,855	(1,075)	(3)%
Gross margin	52 %	59 %	—	(12)%

Comparison of revenue

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

(in thousands)	Nine Months Ended September 30, 2022	2021	$ Change	% Change
Hardware	$ 48,098	$ 46,039	$ 2,059	4 %
Consumables	16,913	14,295	2,618	18 %
Services	6,283	4,250	2,033	48 %
Total Revenue	$ 71,294	$ 64,584	$ 6,710	10 %

Consolidated revenue for the nine months ended September 30, 2022 was $71.3 million compared with revenue of $64.6 million for the nine months ended September 30, 2021 representing an increase of 10%, primarily driven by sales of increases in consumable and service revenue over the comparable period, as well as increased sales of our next-gen printers, specifically the FX20.

Hardware revenue increased approximately 4% for the nine months ended September 30, 2022 compared to the nine months ended September 30, 2021. The increase in revenue was primarily due to a shift in sales to FX20 printers from legacy printers. This increase was partially offset by a decrease in units sold of other high value composite printers, largely driven by the $8.0 million transaction that occurred in the fourth quarter of 2020 and contributed $1.2 million to hardware revenue in the first quarter of 2021. Consumables revenue increased approximately 18% for the nine months ended September 30, 2022 compared to the nine months ended September 30, 2021; this was due to the increase in active printers being utilized in the field as a result of the incremental volume of new printer sales in the prior year. Services revenue increased approximately 48% for the nine months ended September 30, 2022 compared to the nine months ended September 30, 2021, driven primarily by an increase in the percentage of hardware units sold with a warranty and maintenance contract during the preceding year, 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 nine months ended September 30, 2022 was $34.5 million compared with cost of revenue of $26.7 million for the nine months ended September 30, 2021 representing an increase of 29%. This was primarily due to higher than anticipated costs to produce the initial units of our newest printer, the FX20, principally the cost of mechanical and electronic components, and labor to produce the FX20, and, more broadly across our product portfolio, rising freight and logistics costs. Gross profit for the nine months ended September 30, 2022 was $36.8 million compared with gross profit of $37.9 million for the nine months ended September 30, 2021. Gross profit margin for the nine months ended September 30, 2022 was 52% while the gross profit margin for the nine months ended September 30, 2021 was 59%. The decline in consolidated gross profit is primarily due to the increased costs to procure supplies of mechanical and electronic components and increases in the cost of labor to produce the initial units of our newest printer, the FX20. Additionally, gross profit was impacted by increases to freight and logistics expenses in support of production, and a shift in our product mix.

Operating expenses

The following table sets forth the components of operating expenses for the nine months ended September 30, 2022 and 2021:

	Nine Months Ended September 30,					
	2022		2021		Change	
(dollars in thousands)	Amount	% Revenue	Amount	% Revenue	$	%
Operating expenses						
Sales and marketing	$ 35,104	49 %	$ 25,711	40 %	$ 9,393	37 %
Research and development	31,375	44 %	21,487	33 %	9,888	46 %
General and administrative	38,094	53 %	32,770	51 %	5,324	16 %
Total operating expenses	$ 104,573	147 %	$ 79,968	124 %	$ 24,605	31 %

Sales and marketing expense increased 37% for the nine months ended September 30, 2022, as compared to the nine months ended September 30, 2021, primarily due to increased spending on personnel costs of $5.7 million, stock-based compensation of $1.4 million, and market development funds of $0.7 million. Events and travel costs increased $2.2 million as COVID-19 restrictions lifted and more events were held compared to the comparable period. In addition, rent expense increased by $0.6 million due to the commencement of the new Waltham headquarters lease. The increases in expense are consistent with our increase in headcount as we execute our growth strategy. These increases were partially offset by a decline in contractor costs of $1.6 million as we shifted roles in-house, and a decline in demand generating advertising spending of $1.5 million due to a strategic shift by our marketing team to other advertising avenues.

Research and development expense increased 46% for the nine months ended September 30, 2022, as compared to the nine months ended September 30, 2021, primarily due to increases in personnel and contractor costs of $5.6 million, and stock-based compensation expenses increased $1.6 million. The increase in employee related costs are consistent with our investment in human capital to meet our innovation goals. In addition, rent expense increased by $1.4 million due to the commencement of the new Waltham headquarters lease.

General and administrative expenses increased 16% for the nine months ended September 30, 2022, as compared to the nine months ended September 30, 2021, primarily due to increased personnel and contractor costs of $1.6 million, and stock-based compensation of $1.2 million. The increases are consistent with the additions to our management team to position the company for future growth, and additional key personnel to support our public company infrastructure, and additional public company costs that began being incurred after the Merger. Rent expense increased by $0.9 million due to the commencement of the new Waltham headquarters lease. Director and officer insurance expense increased by $0.7 million over the comparable period, and software and subscription expense increased by $0.5 million as we invested in new tools to support our public company infrastructure. These increases were slightly offset by a $0.7 million decrease in recruiting costs.

Change in fair value of derivative liabilities and contingent earnout liability, other (expense) income, net, interest expense, and interest income

The following table sets forth change in fair value of derivative liabilities for the nine months ended September 30, 2022 and 2021:

	Nine Months Ended September 30,			
(dollars in thousands)	2022	2021	$ Change	% Change
Change in fair value of derivative liabilities	$ 1,221	$ 170	$ 1,051	618 %
Change in fair value of contingent earnout liability	50,982	42,710	8,272	19 %
Other expense, net	(429)	(168)	(261)	155 %
Interest expense	(11)	(15)	4	(27)%
Interest income	1,380	9	1,371	NM

Fair value of derivative liabilities decreased creating additional income of $52.2 million for the nine months ended September 30, 2022, compared to income of $42.9 million during the nine months ended September 30, 2021, primarily related to the change in fair value of the derivative liability for the Markforged Earnout Shares issued in connection with the Merger. The changes in fair value directly correlate with the change in our common stock price between each period.

The change in interest income is directly correlated to the interest rates during each period, slightly offset by a decrease in the cash balance in our short-term investment accounts.

Provision for income taxes

We recorded a de minimis expense (benefit) for income taxes for the nine months ended September 30, 2022 and 2021, respectively.

Non-GAAP Net Profit (Loss)

In addition to our financial results determined in accordance with U.S. generally accepted accounting principles ("GAAP"), we believe that the below non-GAAP net profit (loss) financial measure, that excludes one-time charges and certain non-cash items, is useful in evaluating the performance of our business. We define non-GAAP net profit (loss) as net profit (loss) less stock-based compensation expense, net change in fair value of derivative liabilities and contingent earnout liabilities, and certain non-recurring expenses.

We monitor non-GAAP net profit (loss) as a measure of our overall business performance, which enables us to analyze our past and future performance without the effects of non-cash items and/or one-time charges. While we believe that non-GAAP net profit (loss) is useful in evaluating our business, non-GAAP net profit (loss) is a non-GAAP financial measure that has limitations as an analytical tool. Non-GAAP net profit (loss) can be useful in evaluating our performance by eliminating the effect of financing 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 Quarterly Report on Form 10-Q 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.

Investors should note that beginning with the second quarter of 2022, we have modified the presentation of "non-recurring costs" included in non-GAAP gross margin, non-GAAP operating profit (loss), non-GAAP net profit (loss) and non-GAAP earnings per share metrics to include certain non-recurring litigation costs. We use these metrics to provide an understanding of the results of our core business performance and believe these non-recurring litigation costs are reflective of one-time expenses that are not indicative of the performance of our core business' operations. This change increases "non-recurring costs" by $0.6 million, $1.0 million, and $0.8 million in the first through third quarters of 2022, respectively, and by $3.7 million, $0.9 million, and $2.3 million in the first through third quarters of 2021, respectively. To conform to the current period's presentation, we have included non-recurring litigation costs as "non-recurring costs" when presenting the foregoing non-GAAP figures for the year to date period and periods presented for 2021.

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

We recommend that you review the reconciliation of non-GAAP net profit (loss) to net income (loss), the most directly comparable GAAP financial measure, and that you not rely on any single financial measure to evaluate our business.

Non-GAAP Net Profit (Loss)

	Three Months Ended September 30,		Nine Months Ended September 30,	
(dollars in thousands)	**2022**	**2021**	**2022**	**2021**
Net (loss) profit	$ (22,970)	$ 21,703	$ (14,656)	$ 594
Stock compensation expense	5,286	8,424	15,620	11,395
Change in fair value of derivative liabilities	448	(1,418)	(1,221)	(170)
Change in fair value of contingent earnout liability	656	(42,710)	(50,982)	(42,710)
Non-recurring costs	1,427	2,329	4,411	6,962
Non-GAAP net loss	$ (15,153)	$ (11,672)	$ (46,828)	$ (23,929)

Liquidity and Capital Resources

We have historically funded our operations primarily through the sale of convertible preferred stock, 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 cash and cash equivalents balances of $181.8 million as of September 30, 2022. We incurred a net loss of $14.7 million and net income of $0.6 million for the nine months ended September 30, 2022 and 2021, respectively.

Currently we generate negative operating cash flows as we pursue further business growth. Our cash and cash equivalents balance as of September 30, 2022 of $181.8 million is more than sufficient to meet the working capital and capital expenditure needs for the next 12 months following the filing for this Quarterly Report on Form 10-Q. 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 nine months ended September 30, 2022 and 2021

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

	Nine Months Ended September 30,		Change	
(dollars in thousands)	**2022**	**2021**	**$**	**%**
Net cash used in operating activities	$ (65,317)	$ (38,795)	$ (26,522)	68 %
Net cash used in investing activities	(41,629)	(2,323)	(39,306)	NM
Net cash provided by financing activities	1,599	279,138	(277,539)	(99)%
Effect of exchange rate changes on cash	(21)	—	(21)	(100)%
Net change in cash and cash equivalents	$ (105,368)	$ 238,020	$ (343,388)	(144)%

Cash flow from operations

Net cash used in operating activities for the nine months ended September 30, 2022 and 2021 was $65.3 million and $38.8 million, respectively. Operating cash flows and changes in working capital for comparative periods were as follows:

	Nine Months Ended September 30,	
(dollars in thousands)	**2022**	**2021**
Operating cash flows before changes in working capital	$ (44,258)	$ (27,269)
Changes in working capital	(21,059)	(11,526)

Net cash used in operating activities increased by $26.5 million for the nine months ended September 30, 2022 compared to the nine months ended September 30, 2021. The change in operating cash flows before changes in working capital consists of an increase in net loss of $15.3 million, adjusted for non-cash items, primarily consisting of gains on changes in the fair value of liabilities of $9.3 million, offset by an increase in stock-based compensation expense of $4.2 million, and depreciation, amortization, and non-cash lease interest of $5.0 million. Cash consumed by working capital increased $9.3 million for the nine months ended September 30, 2022 compared to the nine months ended September 30, 2021; this was primarily driven by increases in inventory as we built additional printers in anticipation of stronger demand for our desktop series in the second half of 2022.

Cash flow from investing activities

Net cash used in investing activities for the nine months ended September 30, 2022 and 2021 was $41.6 million and $2.3 million, respectively. The increase in cash used is directly related to the cash paid for the acquisitions, net of cash acquired, completed in the second and third quarters of 2022.

Cash flow from financing activities

Net cash provided by financing activities was $1.6 million for the nine months ended September 30, 2022 and net cash provided by financing activities was $279.1 million for the nine months ended September 30, 2021. The change in financing activities was primarily due to the Merger.

Critical accounting policies and estimates

Our discussion and analysis of our financial condition and results of operations are based on the historical consolidated and condensed financial statements included elsewhere herein. We prepared these financial statements in conformity with U.S. GAAP. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities at the dates of the financial statements and the reported amounts of revenues and expenses during the reporting periods. We base our estimates on historical experience and on various other assumptions we believe to be reasonable under the circumstances. We routinely evaluate these estimates, utilizing historical experience, consultation with experts and other methods we consider reasonable in the particular circumstances. Our results may differ from these estimates, and any effects on our business, financial position or results of operations resulting from revisions to these estimates are recorded in the period in which the facts that give rise to the revision become known. Changes in these estimates could materially affect our financial position, results of operations or cash flows. See the "Critical Accounting Policies and Estimates" section in "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Note 3, "Significant Accounting Policies" in the Notes to Consolidated Financial Statements included within our Annual Report on Form 10-K for the year ended December 31, 2021, filed with the SEC on March 31, 2022.

Acquisitions

We account for business combinations using the acquisition method of accounting, which requires that the assets acquired and liabilities assumed be recorded at their respective estimated fair values as of the acquisition date. The excess of the fair value of the purchase consideration over the fair values of these identifiable assets and liabilities is recorded as goodwill. While we use our best estimates and judgments, our estimates are inherently uncertain and subject to refinement. During the measurement period, which may be up to one year from the acquisition date, we may record adjustments to the fair value of these tangible and intangible assets acquired and liabilities assumed, with the corresponding offset to goodwill. We continue to collect information and reevaluate these estimates and assumptions quarterly and record any adjustments to our preliminary estimates to goodwill provided that we are within the measurement period.

The judgments made in determining the estimated fair value assigned to the assets acquired, as well as the estimated useful life of each asset, can materially impact the consolidated statements of operations of the periods subsequent to the acquisition through depreciation and amortization, and in certain instances through impairment charges, if the asset becomes impaired in the future. In determining the estimated fair value for intangible assets, we typically utilize the income approach, which discounts the projected future net cash flow using a discount rate deemed appropriate by management that reflects the risks associated with such projected future cash flow. Significant estimates and assumptions include revenue growth rates and discount rates. Determining the useful life of an intangible asset also requires judgment, as different types of intangible assets will have different useful lives and certain assets may even be considered to have indefinite useful lives.

Goodwill and Intangible Assets

Goodwill is not amortized, but is reviewed at least annually for impairment or earlier, if an indication of impairment exists. Determining the fair value of a reporting unit is judgmental in nature and involves the use of significant estimates and assumptions.

We have the option of first assessing qualitative factors to determine whether it is necessary to perform a quantitative impairment test for goodwill or we can perform the quantitative impairment test without performing the qualitative assessment. In performing the qualitative assessment, we consider certain events and circumstances specific to the reporting unit and to the entity as a whole, such as macroeconomic conditions, industry and market considerations, overall financial performance and cost factors when evaluating whether it is more likely than not that the fair value of the reporting unit is less than its carrying amount.

If the results of the quantitative test indicate the fair value of a reporting unit exceeds the carrying value of the net assets assigned to a reporting unit, goodwill is considered not impaired and no further testing is required. If the carrying value of the net assets assigned to a reporting unit exceeds the fair value of a reporting unit, goodwill is deemed impaired and is written down to the extent of the difference between the fair value of the reporting unit and the carrying value.

The Company evaluates definite-lived intangible assets for impairment when events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable through future operations. If indicators of impairment are present, the Company then compares the estimated undiscounted cash flows that the asset group is expected to generate to its carrying value. If such assets are impaired, the impairment recognized is measured as the amount by which the carrying amount of the asset group exceeds its fair value.

We will complete our annual impairment test in the fourth quarter of 2022. We will continue to monitor and evaluate the carrying values. If market and economic conditions or business performance deteriorate, this could increase the likelihood of us recording an impairment charge.

Recent accounting pronouncements

Refer to Note 3 of our condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q for the recent accounting pronouncements that we have adopted and have not yet adopted.

JOBS Act accounting election

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. 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. We intend to use this extended transition period to enable us to comply with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (1) are no longer an emerging growth company or (2) affirmatively and irrevocably opt 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.

We intend to rely on the other exemptions and reduced reporting requirements provided by the JOBS Act.

Item 3. 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 September 30, 2022, 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.

Item 4. 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 the end of the fiscal quarter ended September 30, 2022, as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act. Based upon that evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were not effective as of September 30, 2022 because of the material weaknesses in internal control over financial reporting described below.

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.

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 September 30, 2022 covered by this Quarterly Report on Form 10-Q that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. 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 the Company previously disclosed) 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 1A. 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 Quarterly Report on Form 10-Q, including our unaudited consolidated financial statements and notes thereto and the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this Quarterly Report on Form 10-Q 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 September 30, 2022, we had an accumulated deficit of $90.4 million, including current year net loss of $14.7 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 Quarterly Report on Form 10-Q, 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, and any related effects of foreign exchange rate fluctuations for sales and expenses that are not in U.S. dollars;
- general economic and industry conditions that affect our costs and/or customer demand, such as increases inflation and interest rates, general economic slowdown and potential for recession; 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 continuing impact of the COVID-19 pandemic has significantly affected our business and operations, and the duration and extent to which this or other future health epidemics and any related economic downturns will impact our future results of operations and overall financial performance remains uncertain.

The COVID-19 pandemic and efforts to control its spread have significantly curtailed the movement of people, goods and services worldwide.

It 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 as well as our suppliers, 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. 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.

Impacts to our business from the COVID-19 pandemic and any future health epidemics depends on multiple factors that cannot be accurately predicted, such as the duration and scope of the epidemic, the extent and effectiveness of containment actions, the disruption caused by such actions, including governmental responses, and the efficacy and rates of vaccines. Disruptions as a result of the COVID-19 pandemic or future health epidemics could result in 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. For example, in the first and second quarters of 2020, many of our customers reduced capital expenditures, which negatively impacted our revenue and results of operations. The COVID-19 pandemic caused significant supply chain disruptions that affected our ability to produce our products on time and at our projected cost. Further, we had to close and/or limit capacity at our headquarters and manufacturing facilities, which created operational challenges and introduced additional risks related to remote work. We cannot predict the impact that the COVID-19 pandemic or future health epidemics may have on our business and cannot guarantee that any such events will not materially and adversely affect our business and results of operations.

To the extent the COVID-19 pandemic or future health epidemics adversely affect 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 have recently experienced and expect to continue to be 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. For example, we have experienced production challenges meeting demand for our FX20 printer, including issues procuring materials and production constraints, which limited revenue during the third quarter of 2022, and initial production costs have exceeded targets negatively impacting our gross margin. 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, and future health epidemics, on production, distribution and demand for our products;
- increased production costs, including due to general inflationary pressures on the supplies we procure, and unexpected 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, general inflationary pressures, 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. In the nine months ended September 30, 2022, one VAR generated an aggregate of 10% of total revenue, and one VAR did represent 11% of our accounts receivable balance as of September 30, 2022. 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.

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 have continued into 2022. 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, including our FX20 printer. 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 and cost increases 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 COVID-19 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 and in a cost effective manner 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, or if these providers continue to increase their rates, 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 will be 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 became 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. If our stock does not perform as well as other companies' our equity incentive programs may have reduced retentive value. 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 county;

•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 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, including but not limited to investments related to our facilities. 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, for example, if interest rates continue to rise and make debt financing prohibitively expensive, or such financing may not be available 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 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, 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. For example, since the first quarter of 2022, we have experienced reduced demand from European markets, which may be partially attributable to regional energy cost increases and uncertainty.

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.

Rising inflation rates could negatively impact our revenues and profitability if increases in the prices of our services or a decrease in consumer spending results in lower sales. In addition, if our costs increase and we are not able to pass along these price increases to our customers, our net income would be adversely affected, and the adverse impact may be material.

Inflation rates, particularly in the United States, have increased recently to levels not seen in years. Increased inflation may result in decreased demand for our products and services, increased operating costs (including our labor costs), reduced liquidity, and limitations on our ability to access credit or otherwise raise debt and equity capital. In addition, the United States Federal Reserve has raised, and may again raise, interest rates in response to concerns about inflation. Increases in interest rates, especially if coupled with reduced government spending and volatility in financial markets, may have the effect of further increasing economic uncertainty and heightening these risks. In an inflationary environment, we may be unable to raise the sales prices of our products and services at or above the rate at which our costs increase, which could/would reduce our profit margins and have a material adverse effect on our financial results and net income. We also may experience lower than expected sales and potential adverse impacts on our competitive position if there is a decrease in consumer spending or a negative reaction to our pricing. A reduction in our revenue would be detrimental to our profitability and financial condition and could also have an adverse impact on our future growth.

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 including, without limitation, the United States Toxic Substances Control Act ("TSCA") and the Registration, Evaluation, Authorization and Restriction of Chemical Substances ("REACH") concerning the use, import and export of chemicals and hazardous substances, such as chlorinated solvents. Other countries may have more stringent requirements that lead to increased costs, which could have material adverse effect on our business, financial conditions, and results of operations. 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. We could also be subject to significant fines or other civil and criminal penalties should we not achieve such compliance. Additionally, customer sentiment regarding the use of certain chemicals and hazardous substances could negatively impact our ability to sell certain products.

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 cancelled 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 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 Quarterly Report on Form 10-Q 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, in general, 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, inflation, 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 13 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 2. Unregistered Sales of Equity Securities and Use of Proceeds.

None.

Item 3. Defaults upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

None.

Item 6. Exhibits.

The following exhibits are filed as part of, or incorporated by reference into, this Quarterly Report on Form 10-Q.

Exhibit Number	Description
2.1	Sale and Purchase Agreement, dated as of July 11, 2022, by and among Markforged Holding Corporation and Höganäs Aktiebolag (incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K filed with the Securities and Exchange Commission on July 12, 2022).
3.1	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).
3.2	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).
10.1**	Amended and Restated First Amendment to Lease dated December 7, 2021, by and between 900 Middlesex Property Owner, LLC and MarkForged, Inc.
31.1**	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.
31.2**	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.
32.1*	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.
32.2*	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.
101.INS**	Inline XBRL Instance 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)

* These certifications are furnished to the SEC pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 and are deemed not filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, nor shall they be deemed incorporated by reference in any filing under the Securities Act of 1933, except as shall be expressly set forth by specific reference in such filing.
** Filed herewith

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

		Markforged Holding Corporation
Date: November 9, 2022	By:	/s/ Shai Terem Shai Terem Chief Executive Officer (Principal Executive Officer)
Date: November 9, 2022	By:	/s/ Mark Schwartz Mark Schwartz Chief Financial Officer (Principal Financial and Accounting Officer)

AMENDED AND RESTATED FIRST
AMENDMENT TO LEASE

This Amended and Restated First Amendment to Lease ("Amendment") is entered into as of July 27 , 2022, by and between 900 Middlesex Property Owner, LLC, a Massachusetts limited liability company with a usual place of business at 133 Pearl Street, Boston, Massachusetts 02110 ("Landlord"), and MarkForged, Inc., a Delaware corporation, located at 900 Middlesex Turnpike, Bldg. 4, Billerica, Massachusetts ("Tenant").

WHEREAS, pursuant to a Lease dated as of March 2019 between Landlord and Tenant (the "Lease"), Tenant is presently leasing from Landlord, certain premises consisting of approximately 25,000 square feet as more fully described in the Lease ("Existing Premises") at the real property known as 900 Middlesex Turnpike, Bldg. 4, Billerica, Massachusetts (the "Property").

WHEREAS, Tenant has requested that Landlord increase the Premises by approximately 21,902 rentable square feet within the Building (the "Expansion Premises"), as defined in Exhibit A which Landlord has agreed to do and which shall be incorporated collectively into the definition of Leased Premises.

WHEREAS, Landlord and Tenant entered into a First Amendment to Lease dated December 7, 2021 and based upon various changing circumstances, have agreed to amend and restate in entirety the First Amendment to Lease as more fully described herein.

NOW THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt whereof is hereby acknowledged, the parties agree as follows:

1.<u>Definitions</u>. Capitalized terms used herein and not otherwise defined herein, shall have the meanings ascribed to such terms in the Lease. Unless the context clearly indicates otherwise, all references to the "Lease" in the Lease shall be deemed to refer to the Lease as amended thereby and hereby.

2.<u>Amendment to Leased Premises</u>. That the definition "Leased Premises" shall be deleted in its entirety and replaced with the following:

"LEASED PREMISES: Approximately 46,902 square feet of space located in the Building and identified on Exhibit A-1 as the Existing Premises and the Expansion Premises."

3.That the definition "Lease Term" shall be deleted in its entirety and replaced with the following:

"LEASE TERM: The Lease Term will expire on October 31, 2029".

4.That a new definition shall be inserted into the Lease for "Expansion Commencement Date" as follows:

"EXPANSION COMMENCEMENT DATE: November 1, 2022,
subject to completion of Landlord's Work, per Section 8 of this amendment.

5.That a new definition shall be inserted into the Lease for "Expansion Rent Commencement Date" as follows:

"Expansion Rent Commencement Date means ninety (90) days following the earlier of (i) last day of the Buildout Period, or (ii) Tenant commencing operations in the Expansion Premises."

6.Minimum Rent Revision. Prior to the Expansion Rent Commencement Date, the Tenant shall continue to pay Rent as provided for in the Lease as to the Existing Premises; provided however, the Minimum Rent Schedule contained in the Lease shall be deleted in its entirety and replaced with the following, effective as of the Expansion Rent Commencement Date as to the Existing Premises and as to the Expansion Premises.

Minimum Rent for the Existing Premises shall be paid as follows:

Period Ending	**Annual Minimum Rent**	**Monthly Installment**
11/16/2019	$0.00	$0.00
11/30/2020	$343,750.00	$28,645.83
11/30/2021	$354,062.50	$29,505.21
10/31/2022 (11 mo)	$364,684.38	$30,390.36
10/31/2023	$375,624.91	$31,302.08
10/31/2024	$386,893.65	$32,241.14
10/31/2025	$398,500.46	$33,208.37
10/31/2026	$410,455.48	$34,204.62
10/31/2027	$422,769.14	$35,230.76

10/31/2028	$435,452.22	$36,287.68
10/31/2029	$448,515.78	$37,376.32

Minimum Rent for the Expansion Premises shall be paid as follows:

Period Ending	**Annual Minimum Rent**	**Monthly Installment**
5/31/2023	$0.00	$0.00
10/31/2023	$350,432.00	$29,202.67
10/31/2024	$360,944.96	$30,078.75
10/31/2025	$371,773.31	$30,981.11
10/31/2026	$382,926.51	$31,910.54
10/31/2027	$394,414.30	$32,867.86
10/31/2028	$406,246.73	$33,853.89
10/31/2029	$418,434.13	$34,869.51

To the extent that the dates are based on the timing of the buildout, the parties agree to execute a Rent Commencement Agreement confirming the dates.

That a new definition for “Buildout Period” is inserted the Lease as follows:

> “BUILDOUT PERIOD: Subject to Applicable Law, Tenant shall be granted early access until the later of, (a) One Hundred and Twenty days (120) days from the Expansion Commencement Date, or (b) Landlord’s substantial completion of the work in Article 8 below(the “Buildout Period”) to commence Tenant improvements, including, without limitation, installation of its furniture, fixtures and equipment, and certain other improvements set forth in Exhibit “B-1” attached hereto (the “Tenant Improvements”), preparing the Leased Premises for the Tenant’s use so long as Tenant and its contractors do not interfere with Landlord and its contractors. Tenant shall, during the Buildout Period, be responsible for all utilities used by Tenant and shall provide Landlord with the required Tenant insurance prior to entering into occupancy during the Buildout Period. Notwithstanding anything to the contrary contained herein, Tenant shall not conduct any business on the Expansion Premises during the Buildout Access Period. In the event Tenant conducts any business in the Expansion Premises during the Buildout Period, the commencement of the Free Rent Period will deemed to have occurred and the Minimum Rent Commencement Date for the Expansion Premises will occur ninety (90) days following.”

7. That the definition "Pro Rata Share" shall be deleted in its entirety and replaced with the following:

> "Pro Rata Share: Tenant's Pro Rata Share shall be 26.55%, and will increase to 49.80% on the Expansion Premises Rent Commencement Date".

8. Landlord shall be responsible for completing the following work, at Landlord's sole cost and expenses promptly following the Expansion Commencement Date during the Buildout Period:

(i) furnish and install McQuay factory controllers to control existing roof top units servicing the Premises from within the building to ensure the existing units operate redundantly .

(ii) Removal of all defunct HVAC, mechanical and/or electrical equipment not being used on the roof above the Expansion Premises.

(iii) Manufacturing floor and the Expansion Premises to be resealed and unreasonable cracks to be filled in.

(iv) Landlord will complete a demising wall between the Expansion Premises and TECNAU remaining premises.

(v) Landlord shall separately meter Tenant's electric and gas.

(vi) Landlord shall move the trash compactor to a location selected by Landlord.

9. <u>Modification to Expansion Option</u>. Notwithstanding anything to the contrary contained in the Lease, Section 2.3, is hereby deleted in its entirety and is not applicable to this First Amendment to Lease.

10. That section 7.3 shall be deleted in its entirety and replaced with the following:

> "7.3 PARKING. Landlord and Tenant acknowledge that the Leased Premises includes the right of Tenant to park seventy-nine (79) passenger vehicles in the areas and space depicted on Exhibit A, of

which eight (8) will be designated by Landlord as reserved parking with no obligation on the part of Landlord to police or enforce such

reserved parking. Landlord will provide signage only, in form acceptable to Landlord in its reasonable discretion."

11.<u>Tenant Allowance</u>. That the Tenant shall be provided an allowance for Tenant Improvements to the Expansion Premises as follows:

ALLOWANCE. Landlord and Tenant agree that Landlord shall provide Tenant with an allowance of Five Hundred Forty Seven Thousand Five Hundred Fifty Dollars and 00/100 Dollars ($547,550.00) (the "Tenant Improvement Allowance") for the Tenant Work and any other work and improvements that Tenant may in its discretion elect to make to the Premises (collectively the "Tenant Improvements"). The Tenant Improvement Allowance may be used for the Tenant Improvements and any costs relating to the design, construction, acquisition and installation of the Tenant Improvements to be installed in the Expansion Premises, including without limitation, architectural and engineering fees, licenses, permits and the costs of any and all plans and specifications and/or construction of the Tenant Improvements. With respect to all Tenant Improvements (i) Tenant's choice of architects/space planner and contractor, if any, with respect to such Tenant Improvements, shall be subject to Landlord's prior written approval, with approval not to be unreasonably withheld, conditioned or delayed, (ii) prior to commencement of construction of the Tenant Improvements, Tenant shall provide Landlord with plans and specifications for Landlord's approval, which approval shall not be unreasonably withheld, conditioned or delayed, (iii) such Tenant Improvements shall be constructed in accordance with such plans and specifications approved by Landlord, and (iv) Tenant or Tenant's contractor shall carry "Builder's All Risk" insurance in commercially reasonable amounts covering the construction of Tenant Improvements. All Tenant Improvements shall be performed and completed in compliance with all applicable laws, codes, regulations and ordinances, free of liens and without any claims for unpaid bills or materials, labor or supplies. Tenant's contractor or contractors for the Tenant Improvements shall be licensed and carry Worker's Compensation insurance covering all of their respective employees, and shall also carry commercial general liability insurance, including property damage, all with commercially reasonable limits in form reasonably approved by Landlord. Tenant's contractor or contractors shall submit to Landlord, a Certificate of Insurance, naming Landlord as an additional insured prior to the commencement of any Tenant Improvements. Tenant shall furnish to Landlord, to the extent applicable, executed construction permits, evidence reasonably satisfactory to Landlord of final inspection of the Tenant Improvements by all governmental agencies having jurisdiction over the Expansion Premises and such invoices, certifications, affidavits, lien releases and other documentation as Landlord may reasonably request, to be assured, to Landlord's reasonable satisfaction, that the Tenant Improvements have been completed in compliance with all laws and, if applicable, in accordance with the plans and specifications approved by Landlord and have been paid for by Tenant.

Landlord shall have the option to either pay such expenses directly or to have Tenant be responsible for paying such expenses. Tenant will be responsible for paying all costs of the Tenant Improvements in excess of the Tenant Improvement Allowance. If the Tenant Improvement allowance is not fully used by the first anniversary of the Expansion Commencement Date or the cost of the Tenant Improvements is less than the Tenant Improvement Allowance, such money shall remain the sole property of Landlord and shall be forfeited by Tenant and no longer offered. Tenant shall not be given any such surplus in cash or allowed to use such surplus in any manner and shall return such surplus to Landlord immediately. Landlord shall pay to Tenant (or if determined by Landlord directly to Tenant's general contractor), the Tenant Improvement Allowance in multiple disbursements (but not more than once in any calendar month), following the receipt by Landlord of the following items:

(a)An application for payment substantially in the form of AIA Document G702, covering all work for which disbursement is to be made to a date specified therein, and

(b)The architect's certification that the work for which payment has been requested has been completed, including with respect to the last application for payment only, any punch-list items, on appropriate AIA form or another form reasonably approved by Landlord (collectively a "Completed Application for Payment"). Landlord shall pay such amount requested in the applicable Completed Application for Payment to Tenant (or, if determined otherwise by Landlord, directly to Tenant's general contractor) within thirty (30) days following Tenant's submission of the Completed Application for Payment.

12.Estoppel. Tenant hereby certifies and acknowledges that, to Tenant's best knowledge, as of the date of this Amendment, (a) Landlord is not in default in any respect under the Lease; (b) Tenant does not have any defenses to its obligations under the Lease; and (c) there are no offsets against Rent or Additional Rent. Tenant acknowledges and agrees that: (i) the representations herein set forth constitute a material consideration to Landlord in entering into this Amendment; (ii) such representations are being made by Tenant for purposes of inducing Landlord to enter into this Amendment; and (iii) Landlord is relying on such representations in entering into this Amendment.

13.Brokers. Landlord and Tenant hereby represent and warrant to the other party that it has not entered into any agreement or taken any other action which might result in any obligation on the part of the other party to pay any brokerage commission, finder's fee or other compensation with respect to this First Amendment, other than JLL whose fee shall be paid in accordance with a separate agreement by Landlord, and each party agrees to protect, defend, indemnify and hold the other party harmless from and against any and all actions, adjudications, awards, causes of action, claims, costs, damages, demands, expenses (including, without limitation, attorneys' fees and costs

and court costs), fees, fines, forfeitures, injuries, judgments, liabilities, liens, losses, obligations, orders, penalties, proceedings, stop notices and suits (collectively, "Claims") in any way arising or resulting from or in connection with any breach or inaccuracy of such representation and warranty by the indemnifying party.

14.USA Patriot Act. Each party shall take any actions that may be required to comply with the terms of the USA Patriot Act of 2001, as amended, any regulations promulgated under the foregoing law, Executive Order No. 13224 on Terrorist Financing, any sanctions program administrated by the U.S. Department of Treasury's Office of Foreign Asset Control or Financial Crimes Enforcement Network, or any other laws, regulations, executive orders or government programs designed to combat terrorism or money laundering, or the effect of any of the foregoing laws, regulations, orders or programs, if applicable, on the Lease. Each party represents and warrants to the other party that it is not an entity named on the List of Specially Designated Nationals and Blocked Persons maintained by the U.S. Department of Treasury, as last updated prior to the date of this First Amendment.

15.Ratification. Each of Landlord and Tenant hereby ratify and confirm their respective rights and obligations under the Lease. Except as specifically herein amended, the Lease is and shall remain in full force and effect according to the terms thereof. In the event of any conflict between the terms and provisions of the Lease and the terms and provisions of this First Amendment, the terms and provisions of this First Amendment shall control.

16.Headings. The headings to sections of this First Amendment are for convenient reference only and shall not be used in interpreting this First Amendment.

17.Authority. Each of the parties hereto represents and warrants to the other that the persons executing this First Amendment on behalf of such party have the full right, power and authority to enter into and execute this First Amendment on such party's behalf and that no consent from any other person or entity is necessary as a condition precedent to the legal effect of this Amendment.

18.Merger; Amendments. All prior understandings and agreements between the parties with respect to the subject matter of this First Amendment are merged within this First Amendment, which alone fully and completely sets forth the understanding of the parties with respect thereto. This First Amendment may not be changed or modified nor may any of its provisions be waived orally or in any manner other than by a writing signed by Landlord and Tenant.

19.Successors and Assigns. The terms, covenants and conditions contained herein are binding upon and inure to the benefit of the parties hereto and their successors and assigns.

20.Counterparts. This First Amendment may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same agreement.

IN WITNESS WHEREOF, the Landlord and Tenant have executed this Amended and Restated First Amendment to Lease on the day and year set forth above.

LANDLORD: 900 MIDDLESEX PROPERTY OWNER LLC

By: 900MTPB4, LLC, Its Manager

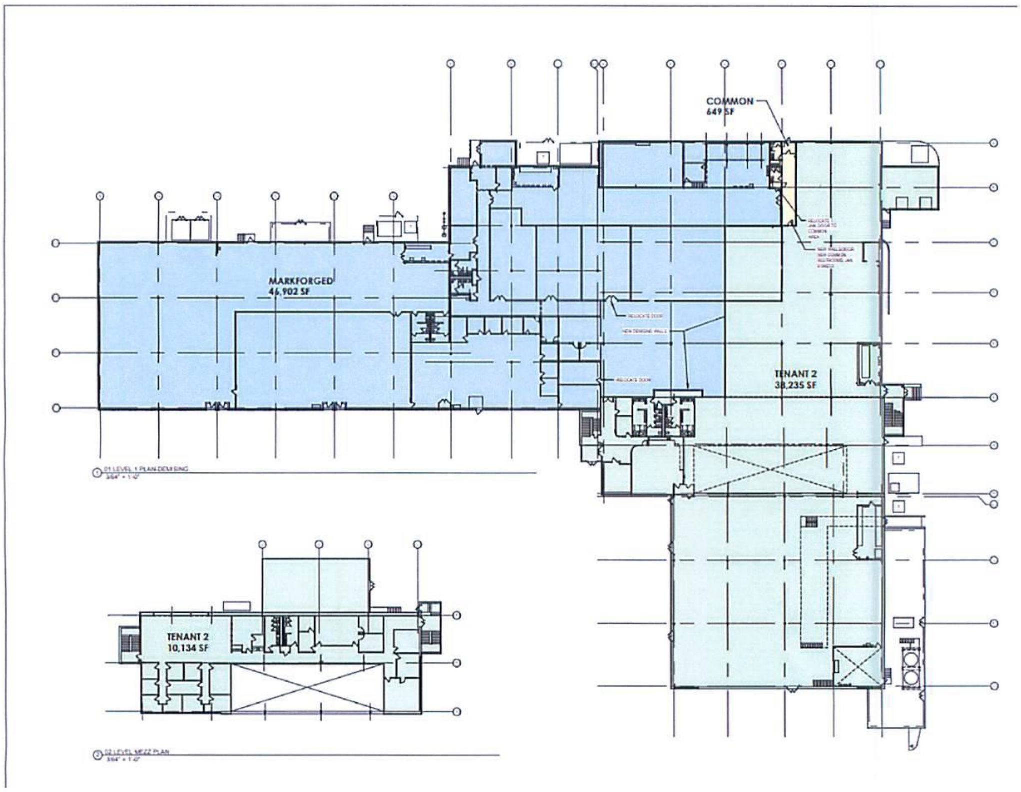
By: 900M SPONSOR, LLC, Its Manager

By: /s/ Steven E. Goodman
Steven E. Goodman, Manager

TENANT: MARKFORGED, INC.

By: /s/ Mark Schwartz
Mark Schwartz
Its duly authorized Chief Financial Officer

Exhibit A



COMMON
649 SF
MARKFORGED
46,902 SF
RELOCATE DOOR
NEW DEMISING WALLS
RELOCATE DOOR
TENANT 2
38,235 SF
01 LEVEL 1 PLAN-DEMISING
3/64" = 1'-0"
TENANT 2
10,134 SF
02 LEVEL MEZZ PLAN
3/64" = 1'-0"

Exhibit 31.1

CERTIFICATION 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

I, Shai Terem, certify that:

1.I have reviewed this Quarterly Report on Form 10-Q for the quarter ended September 30, 2022 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 officers 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 officers 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: November 9, 2022	By:	/s/ Shai Terem
	Name:	Shai Terem
	Title:	Chief Executive Officer

Exhibit 31.2

CERTIFICATION 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

I, Mark Schwartz, certify that:

1.I have reviewed this Quarterly Report on Form 10-Q for the quarter ended September 30, 2022 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 officers 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 officers 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: November 9, 2022	By:	/s/ Mark Schwartz
	Name:	Mark Schwartz
	Title:	Chief Financial Officer

Exhibit 32.1

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 Quarterly Report of Markforged Holding Corporation (the "Company") on Form 10-Q for the quarter ended September 30, 2022, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Shai Terem, Chief Executive Officer, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 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; 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: November 9, 2022	By:	/s/ Shai Terem
	Name:	Shai Terem
	Title:	Chief Executive Officer

Exhibit 32.2

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 Quarterly Report of Markforged Holding Corporation (the "Company") on Form 10-Q for the quarter ended September 30, 2022, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Mark Schwartz, Chief Financial Officer, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 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; 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: November 9, 2022	By:	/s/ Mark Schwartz
	Name:	Mark Schwartz
	Title:	Chief Financial Officer