UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

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

For the fiscal year ended December 31, 2022

OR

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

Commission file number: 001-38835

DESKTOP METAL, INC.

(Exact name of registrant as specified in its charter)

Delaware	**83-2044042**
(State of Other Jurisdiction of incorporation or Organization)	(I.R.S. Employer Identification No.)
63 3rd Avenue, Burlington, MA	**01803**
(Address of principal executive offices)	(Zip code)

Registrant's telephone number, including area code: (978) 224-1244

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, $0.0001 Par Value per Share	**DM**	**New York Stock Exchange**

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.
Yes ☐ No ☒

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

Indicate by check mark whether the Registrant has submitted electronically; every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.0405 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, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☒	Accelerated filer ☐	Non-accelerated filer ☐	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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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

Based on the closing price as reported on the New York Stock Exchange, the aggregate market value of the Registrant's Common Stock held by non-affiliates on June 30, 2022 (the last business day of the Registrant's most recently completed second fiscal quarter) was approximately $590.0 million. Shares of Common Stock held by each executive officer and director and by each shareholder affiliated with a director or an executive officer have been excluded from this calculation because such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes. The number of outstanding shares of the Registrant's Common Stock as of February 24, 2023 was 318,813,781.

Documents Incorporated by Reference

Portions of the Registrant's Definitive Proxy Statement relating to the 2023 Annual Meeting of Stockholders to be filed pursuant to Regulation 14A with the Securities Exchange Commission are incorporated by reference into Part III of this report. Such proxy statement will be filed with the Securities and Exchange Commission not later than 120 days following the end of the Registrant's fiscal year ended December 31, 2022.

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BASIS OF PRESENTATION

On December 9, 2020, we consummated the business combination, or the Business Combination, contemplated by the Agreement and Plan of Merger, dated August 26, 2020, by and among our company (formerly known as Trine Acquisition Corp.), Desktop Metal Operating, Inc. (formerly known as Desktop Metal, Inc.) and Sparrow Merger Sub, Inc., pursuant to which Sparrow Merger Sub, Inc. merged with and into Desktop Metal Operating, Inc., with Desktop Metal Operating, Inc. becoming our wholly owned subsidiary. Upon the closing of the Business Combination, we changed our name to Desktop Metal, Inc.

Unless otherwise indicated or the context otherwise requires, references in this Annual Report on Form 10-K to “we,” “us,” “the company” and “Desktop Metal” refer to the consolidated operations of Desktop Metal, Inc. and its subsidiaries. References to “Trine” refer to the company prior to the consummation of the Business Combination and references to “Legacy Desktop Metal” refer to Desktop Metal Operating, Inc. prior to the consummation of the Business Combination.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K, including "Management’s Discussion and Analysis of Financial Condition and Results of Operations" in Item 7, contains forward-looking statements. All statements contained in this Annual Report on Form 10-K other than statements of historical fact, including statements regarding our future operating results and financial position, our business strategy and plans, market growth, trends, events, and our objectives for future operations, are forward-looking statements. The words “may,” “will,” “expect,” “anticipate,” “believe,” “intend,” “project,” “could,” “would,” “estimate,” “potential,” “continue,” “plan,” “target,” or the negative of these words or similar expressions are intended to identify forward-looking statements.

The forward-looking statements included herein are based on current expectations of management. Actual results may differ from those expressed in forward-looking statements due to additional factors, including those set forth in Part I, Item 1A. “Risk Factors” elsewhere in this Annual Report on Form 10-K. Although we believe that expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, performance, or achievements. The events and circumstances reflected in our forward-looking statements may not be achieved or occur, and actual results could differ materially from those projected in the forward-looking statements. Moreover, we operate in an evolving environment. New risk factors and uncertainties may emerge from time to time, and it is not possible for management to predict all risk factors and uncertainties. As a result of these factors, we cannot assure you that the forward-looking statements in this Annual Report on Form 10-K will prove to be accurate. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances, or otherwise.

You should read this Annual Report on Form 10-K completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

PART I

Item 1. Business

Business Overview

Desktop Metal is pioneering a new generation of additive manufacturing technologies focused on Additive Manufacturing 2.0, the volume production of end-use parts. We offer a comprehensive portfolio of integrated additive manufacturing solutions comprised of hardware, software, materials and services with support for metals, polymers, elastomers, ceramics, sands, composites, wood and biocompatible materials. Our solutions span use cases across the product life cycle, from product development to mass production and aftermarket operations, and they address an array of industries, including automotive, healthcare and dental, consumer products, heavy industry, aerospace, machine design and research and development.

At Desktop Metal, we believe additive manufacturing, commonly referred to as 3D printing, is one of the most exciting and transformational technology innovations of our time. According to market research and management estimates, the global additive manufacturing market, which includes spending on systems, materials, parts and other 3D printing software and services, is expected to grow from $15.2 billion in 2021 to approximately $100.0 billion by 2031 at a compound annual growth rate of approximately 20%.

Additive manufacturing has the capacity to change the way parts of nearly all materials are designed, manufactured and sold around the world, and it provides businesses of all sizes the means to make high performance products faster, more sustainably, and at costs and volumes competitive with conventional manufacturing processes. Our mission is to enable high volume production, while making additive manufacturing accessible to all engineers, designers and manufacturers. In doing so, we believe we will empower businesses to adopt radical, new approaches to design and production and enable the success of many of the high growth industries that will drive global economic growth in the years to come.

Our growth strategy begins with a commitment to research and development. Since our founding in 2015, we have invested significant resources in research and development towards building an extensive portfolio of proprietary and differentiated technologies with a focus on making additive manufacturing an easy-to-use, economic and scalable solution. These technologies represent the cornerstones of our future product introductions, are critical to enhancing our existing offerings and are supported by over 950 patents or pending patent applications. Our additive manufacturing platforms, which leverage these technologies for the production of tools and end-use parts, enable businesses to address their specific goals through a range of solutions that span price points, throughput levels and operating environments.

Our product platforms offer several key advantages over competitive additive manufacturing systems including breakthrough print speeds, competitive part costs, accessible workflows and software, turnkey solutions and support for an extensive library of qualified materials, the sale of which represent a recurring revenue stream from customers of our additive manufacturing solutions in addition to system consumables and other services, such as installation, training and technical support. As a result of these strengths, our solutions are lowering the barriers to adopting additive manufacturing and unlocking new applications where conventional manufacturing has customarily held cost and volume advantages. Across printers, parts and materials, we intend to continue investing to advance our current technology portfolio and develop new technologies that allow us to serve a broader customer base and reach new verticals, thereby expanding our addressable market and driving adoption of Additive Manufacturing 2.0.

We leverage our core competencies in technology innovation and product development by marketing and selling our Additive Manufacturing 2.0 solutions through a leading global distribution network, managed and augmented by our own internal sales and marketing teams. This distribution network, which covers over 40 countries around the world, is composed of sales and distribution professionals with decades of experience in digital manufacturing technologies and works alongside our direct sales force to market and sell products across a range of industries and price points. Similarly, our internal manufacturing and supply chain teams work collaboratively with our internal engineering department and third-party contract manufacturers to scale up initial prototypes for commercialization and volume commercial shipments. Together, our hybrid distribution and manufacturing approaches allow us to produce, sell and service our products at-scale in global markets and create substantial operating leverage as we execute our strategy.

Our proprietary technology solutions also serve as the foundation for produced parts offerings in which we which we directly manufacture parts for sale to our customers with a focus on key applications and verticals in which additive manufacturing can provide significant design, performance, cost and supply chain advantages relative to conventional manufacturing. These offerings will enable us to provide a more holistic suite of solutions for our customers and enable the accelerated adoption of our Additive Manufacturing 2.0 solutions across select high-value production applications, which we refer to as “killer apps”, such as medical and dental devices and fluid power systems. We believe such offerings will not only create a high-margin revenue stream, but will also facilitate lead generation for our additive manufacturing systems at scale and enable high-performance and specialized applications using new materials ahead of broader market introduction.

We are led by visionary technologists and a team of proven leaders with experience bringing emerging technologies to market across the hardware, materials and software sectors. Our technologies have the potential to empower engineers and designers to easily access additive manufacturing and drive new application discovery as well as provide manufacturers with reliable and high-performance solutions that facilitate the production of innovative designs in high volumes. We believe that, taken together, these core competencies will propel us towards helping businesses realize the true promise of Additive Manufacturing 2.0.

Industry Background

Conventional manufacturing processes have numerous shortcomings.

Historically, processes such as casting, stamping, molding and machining have dominated global manufacturing, which is a $14.2 trillion industry in 2021, according to the Wohlers Report 2022. These conventional and subtractive manufacturing techniques have

numerous limitations. Most require high upfront expenses in the form of tools, such as molds, dies, jigs or fixtures. Designing and manufacturing these tools can result in long lead times for parts as well as minimum volume requirements in order to achieve cost efficiencies.

Tooling requirements associated with casting, stamping, and injection molding also leave little room for design iteration without increasing time-to-market and development costs. New parts and design changes often require a new tool, thereby slowing the pace at which businesses can introduce new products and react to shifts in market preferences and making it difficult to compete effectively. Computer numerical controlled machining, or CNC machining, is an alternative to stamping, casting and molding that does not require a mold or die, enabling lower-volume production with reduced lead times. However, because CNC machining is a subtractive process in which material is removed from a solid block to create a part, it typically results in higher part costs and significant material waste. In addition, the CNC machining process often requires heavy involvement from specialist technicians, and machine programming can be time intensive. Each of these conventional manufacturing processes also creates design restrictions that can result in significantly higher part weights and costs or require assemblies, adversely impacting performance in favor of manufacturability and driving additional manufacturing and supply chain complexity.

Additive manufacturing has the potential to address the limitations of conventional manufacturing.

Additive manufacturing addresses many of the limitations of conventional manufacturing through a combination of flexibility, ease of use and cost, making it an efficient and effective process across the product life cycle, from design and prototyping to production. Additive manufacturing is a digital manufacturing process that produces 3D objects from digital models through the repeated deposition of thin layers of material. This process eliminates the need for tooling inputs and provides a range of benefits including:

- **Accelerated time-to-market.** Businesses can manufacture design files at the push of a button with no tooling required. While design cycles for conventional manufacturing can take weeks or months, additive manufacturing can shorten this cycle to days due to the ability to rapidly switch between or iterate on designs without excessive delay. Such improvements in time-to-market for new products can help businesses react more rapidly to shifts in customer demand.

- **Design flexibility.** Conventional manufacturing can force design compromises as a result of subtractive manufacturing processes or the use of tools. While 3D printing may involve design guidelines primarily to reduce dependency on supports and optimize process success, designers generally have freedom to produce geometries not possible or economically feasible with conventional manufacturing. As an example, with additive manufacturing, designers can produce intricate organic or complex, lattice shapes that are optimized for strength and functional performance to reduce weight and material usage.

- **Assembly consolidation.** Improved design flexibility enables the consolidation of sub-assemblies into single parts, which can improve reliability by reducing the number of failure points in a product. Decreasing part quantity is also a productivity breakthrough for many businesses. With fewer unique parts to fabricate, procure, store and assemble, businesses can drastically simplify their supply chains.

- **Mass customization.** Additive manufacturing enables the customization and production of designs at scale, eliminating costs traditionally associated with multiple tools and tooling changeover as well as reducing the risk of excess inventory and material obsolescence. Each part printed using additive manufacturing can be identical to or radically different from the other parts within a given print. Several end markets, including audiology and dental, have already leveraged mass customization through additive manufacturing to improve the aesthetics and performance of parts.

- **Supply chain re-engineering.** Additive manufacturing suitable for end-use parts and spare parts production can improve supply chains by enabling on-demand manufacturing in distributed locations. Decentralized networks of additive manufacturing systems with low tooling and set-up costs can replace centralized facilities with conventional manufacturing equipment in locations frequently selected because of lower cost of labor. In addition, producing parts near the point and time of demand can significantly reduce lead times, inventories, and dependencies on forecasting without incurring additional costs related to logistics and customs.

- **Sustainable manufacturing.** Additive manufacturing is a more efficient production process than subtractive techniques, such as CNC machining. It requires fewer material inputs and reduces material waste. By enabling optimized geometries

lighter than conventionally manufactured counterparts, additive manufacturing can also lead to downstream sustainability benefits, including reduced fuel consumption in industries such as automotive and aerospace. In addition, by reducing supply chain complexity, additive manufacturing can reduce emissions from transporting physical goods around the world.

Many businesses are motivated to deploy additive manufacturing to improve production processes at-scale.

Many businesses faced with increased global competition and rapidly changing market preferences are turning to additive manufacturing to overcome the limitations of conventional manufacturing and provide a competitive advantage. While many businesses still value the rapid prototyping benefits of additive manufacturing, they are also eager to realize benefits largely related to end-use part production. According to Ernst & Young, over 50% of industrial businesses expect to use additive manufacturing to produce products that better meet customer requirements; reduce logistics efforts, transport and inventories; and manufacture existing products at lower costs.

Most existing additive manufacturing technologies primarily focus on design & prototyping applications.

Additive manufacturing technologies face stringent business requirements for use in production with respect to accuracy, surface finish, material properties and throughput, all of which must meet or exceed the standards set by more mature conventional manufacturing alternatives. Most commercially available 3D printers leverage legacy additive manufacturing technologies including fused filament fabrication, or FFF, stereolithography, or SLA, and powder bed fusion, or PBF. These first-generation 3D printing technologies build parts by tracing each layer using a single point or multiple points, such as an extrusion nozzle in FFF printers or a laser in SLA and PBF systems. While these technologies have evolved significantly since the early 2000s, and have mostly overcome initial deficiencies around accuracy, surface finish and material properties, their throughput and the resulting production economics have continued to present a challenge. Such technologies can typically only increase part throughput with additional time or systems, which limits customers' ability to increase production without also increasing their equipment costs. Many existing additive manufacturing solutions consequently continue to focus on design and prototyping use cases or other low volume production applications where design flexibility and turnaround time are important to customers, but costs and part throughput are not, and where other key performance measures, including accuracy, surface finish and material properties are also less critical.

As a result, businesses still face hurdles in adopting legacy additive manufacturing for end-use production.

While the growth of additive manufacturing has accelerated in recent years, many companies still hesitate to fully adopt the existing, legacy technologies to produce end-use parts in volume, preventing them from realizing the full benefits of additive manufacturing. Ernst & Young found that only 18% of industrial businesses in 2019 used additive manufacturing for end-use parts, lagging other use cases such as rapid prototyping. Because these existing, legacy technologies are better suited to design and prototyping applications, businesses pursuing additive manufacturing solutions face significant barriers to adopting these technologies for end-use applications. Using legacy additive manufacturing technologies to make end-use parts can be expensive, particularly for businesses under margin pressure. This is due to the high costs of legacy additive manufacturing equipment and related consumable materials, which are often priced at high levels by vendors to compensate for the low productivity of their systems. When combined with the limited throughput of these legacy additive manufacturing technologies, high upfront and operating costs result in part costs that typically cannot compete with conventional manufacturing. Consequently, industries that require inexpensive parts in large quantities, such as automotive and consumer products, face challenges in adopting additive manufacturing for end-use parts production.

Our Market Opportunity

In part as a result of the drawbacks of these legacy additive manufacturing technologies, businesses of all sizes are engaging Desktop Metal to begin their deployment of additive manufacturing for scalable, end-use parts production. We believe our product portfolio enables customers to capture value at every stage in the product lifecycle, from research and development to the mass production of tools and end-use parts. We provide easy-to-use, high-throughput, and integrated additive manufacturing solutions comprised of hardware, software, materials, and services. Our solutions expand the addressable market for additive manufacturing by facilitating applications in vertical markets that have been restricted from adopting additive manufacturing due to cost and productivity hurdles, such as automotive, consumer products, heavy industry and machine design. As a result, we believe we are at the forefront of the next generation of companies that will drive the accelerated adoption of Additive Manufacturing 2.0, whereas legacy additive manufacturing technologies are primarily focused on enabling rapid prototyping and tooling applications. According to

market research and management estimates, this market is expected grow from $15.2 billion in 2021 to approximately $100.0 billion by 2031 at a compound annual growth rate of approximately 20%, as additive manufacturing displaces conventional manufacturing across a growing range of applications.

Our Growth Strategy

The key elements of our strategy for growth include the following:

Focus on solutions that make additive manufacturing accessible for volume production and end-use applications.

We believe the adoption of additive manufacturing, particularly for end-use parts, is driven by the availability of solutions that offer a tool-free, digital path to producing large quantities of parts that are both higher performance and lower cost than achievable through conventional manufacturing processes. Our product portfolio is focused on additive manufacturing printer platforms designed for Additive Manufacturing 2.0, or the volume production of end-use parts, and we intend to continue investing resources in enhancing these solutions and developing technologies with breakthrough advances in print speed and other process parameters to deliver the highest throughput systems and lowest part costs in the additive manufacturing market. We believe such improvements will encourage customer investment in additive manufacturing across a range of industrial applications and vertical markets where conventional manufacturing has customarily held cost and volume advantages and where alternative additive manufacturing suppliers cannot compete. Focusing on production applications also enables us to capture recurring revenue streams associated with parts in production through the sales of consumables and service contracts. We are committed to lowering the barriers to deploying such additive manufacturing solutions in manufacturing lines by integrating and providing the hardware, materials and software required to deploy end-use parts. To accomplish this, we intend to continue investing in materials and sintering technologies complementary to our 3D printers that enable ease of use and broad adoption across a wide set of customers with varying levels of experience with additive manufacturing.

Qualify additional materials to reach new verticals and expand our addressable market

Our current product portfolio supports 3D printing using an extensive library of materials, including metals, polymers, elastomers, ceramics, sands, composites, wood and biocompatible materials, and we are in the process of qualifying additional materials for printing that meet or exceed the properties achievable through conventional manufacturing processes. Our metal additive manufacturing systems are designed using sintering-based, powder metallurgy processes, for which hundreds of well-characterized metal alloys and ceramics are available, offering a broad set of materials for us to evaluate and qualify for use with these platforms. Several of these solutions also provide open platforms for customers to develop and print with proprietary or third-party materials while others offer a full, turnkey experience including metal powders which we qualify and distribute for customer use. Our photopolymer systems support a wide range of both proprietary and third-party, industry-validated resins through a selectively open business model. By developing or qualifying additional materials on our systems and enabling customers and partners to do the same, we believe we can serve a broader customer base and address new applications and vertical markets, thereby expanding market share of our solutions and helping drive adoption of additive manufacturing.

Extend our distribution channels and reach

We have a leading global distribution network for our additive manufacturing technology solutions consisting of over 140 resellers, covering more than 40 countries around the world. Our direct sales force augments the reach of our distribution network, focusing primarily on selling our higher priced solutions, cross-selling our solutions across materials, serving major accounts and expanding our footprint within multinational and Fortune 500 organizations. We intend to extend this hybrid distribution approach by adding further geographic coverage and sales capacity across both reseller and direct sales channels as well as developing industry-specific expertise to drive penetration in vertical markets such as automotive, foundries, aerospace, healthcare and dental, and consumer products.

Build a diverse, global customer base across industries and applications

We believe that our success depends, in part, on our ability to develop a diverse, global customer base to reduce risks associated with revenue concentration in any single geographic region or industry. Our customers today include businesses of all sizes, ranging from small and medium enterprises to Fortune 500 organizations and span many industries and applications, including automotive,

foundries, healthcare and dental, consumer products, heavy industry, aerospace, machine design and research and development. We believe this diversification will also allow us to identify new applications for which our solutions are appropriate and provide us with customer feedback to assist our product development efforts and ensure we are addressing a broad range of market needs.

Promote awareness through training and education

As businesses increasingly embrace additive manufacturing over the next decade, we intend to educate the market on best practices for adoption of the technology across the entire product life cycle. Our leadership position provides a platform to deliver this education both for our existing customers and the market as a whole, generating organic interest in our solutions and facilitating our business expansion. Such education is a critical component of our sales and marketing efforts. We believe businesses that are well-informed or that have firsthand experience of the benefits of our additive manufacturing solutions relative to conventional manufacturing are more likely to purchase and expand their use of our products and services over time. To drive such awareness, we are developing rich additive manufacturing content and curricula for delivery through both online and in-person media, including classes, programs, certifications, and professional services. We are developing global centers of excellence, leveraging our own headquarters in conjunction with our distribution network's presences, to serve as showrooms for our solutions, learning facilities and focal points for additive manufacturing-focused professional services.

Develop robust produced parts offerings focused on "killer apps" for additive manufacturing

We are establishing produced parts offerings in which we directly manufacture parts for sale to our customers with a focus on key, high-value applications and verticals in which additive manufacturing can provide significant design, performance, cost and supply chain advantages relative to conventional manufacturing. These offerings will enable us to provide a more holistic suite of solutions for our customers and enable the accelerated adoption of our Additive Manufacturing 2.0 solutions across select high-value and high margin production applications, which we refer to as "killer apps", including, but not limited to, medical and dental devices, and fluid power systems. For example, we are building Desktop Labs, a dental and biofabrication platform focused on leveraging our proprietary additive manufacturing solutions to vertically integrate into digital solutions, design services and parts production capabilities for dental and biofabrication applications. By leveraging additive manufacturing, we believe we can provide improved delivery timelines, higher performance parts, and a more integrated, end-to-end customer experience relative to manufacturers that leverage conventional processes, enabling pricing power and accelerating our customer acquisition capabilities. Providing produced parts also enables customers to leverage our technology for these "killer apps" with a lower initial capital expenditure investment before bringing their production in-house when they are ready to purchase our additive manufacturing systems. We believe such services will facilitate lead generation for our additive manufacturing systems at scale and enable high-performance and specialized applications using new materials ahead of broader market introduction.

Our Competitive Strengths

We are a pioneer in the additive manufacturing industry with a mission to make the technology accessible to all designers, engineers, and manufacturers. We believe our collective expertise coupled with the following competitive strengths, will allow us to maintain and extend a leadership position in next-generation additive manufacturing and expand our market opportunity:

Differentiated and proprietary technology platform focused on area-wide print processes reinforced by a strong intellectual property portfolio

We have invested significant resources in developing proprietary technologies to accelerate the adoption of additive manufacturing for the volume production of end-use parts. Elements of these technologies and processes are protected by our know-how and by over 950 patents or pending patent applications, which reinforces our competitive advantage. A majority of our proprietary technologies improve upon binder jetting or digital light processing, or DLP, which are "area-wide" 3D printing processes that use inkjet printheads or DLP projectors, respectively, to print an entire layer or large sections of a layer at one time. Such area-wide processes are consequently more efficient and can address higher volume applications than processes used by other additive manufacturing suppliers, such as FFF, SLA and PBF, which trace each layer over time using single (or multiple) points of energy or material deposition. For example, our Single Pass Jetting, or SPJ, technology combines all the sequential steps of conventional binder jetting and applies them with each pass of a single carriage over the "build box" to achieve dramatic reductions in print time per layer, leading to significant increases in part capacity and improvements in part costs. Similarly, in DLP, our proprietary Hyperprint technology leverages closed-loop processing in combination with a heated resin vat for improved accuracy and higher speed while our

Projection Array technology combines multiple high-resolution projectors into a single exposure, increasing power density and resolution to improve print speeds and enable large format build areas for production applications.

High printer throughput

We believe that the proprietary technologies used on each of our binder jet and DLP platforms enables the highest rate of parts production per unit of time among competing additive manufacturing systems for a given layer resolution. The Production System P-50, which is designed to achieve print speeds of up to 12,000 cubic centimeters per hour at a 65-micron printed layer height, can enable customers to manufacture up to hundreds of thousands or even millions of parts per year using additive manufacturing, unlocking new applications due to improved part costs and enhanced design flexibility. The Xtreme 8K uses patented Projection Array technology to support printing large photopolymer parts at build speeds up to 100 times those of legacy thermoplastic FFF printers. Our additive manufacturing solutions employ additional, proprietary technology innovations as a means to overcome some of the challenges that arise with high-speed 3D printing and ensure part consistency, accuracy, and resolution. Through continued advances in underlying hardware and our own technology and processes, we believe that our products' print speeds will continue to increase, driving down the cost of parts produced on our additive manufacturing systems. This will further differentiate our solutions from competitors while also improving our ability to compete with conventional manufacturing processes at larger quantities of parts and across a wider range of applications.

Integrated, turnkey solutions

We aim to provide our customers with easy-to-use, turnkey solutions for additive manufacturing without the need for additional third-party equipment or software. We believe a compelling user experience across our product portfolio begins with cohesive and modern software applications for efficient build preparation and communication with our additive manufacturing systems, which receive feature enhancements via over-the-air or offline firmware updates. For our solutions related to metal additive manufacturing, which is a complex process that involves multiple steps to go from a digital file to a metal part, we have developed breakthrough sintering simulation and compensation software as well as a furnace using proprietary technology purpose-built to provide industrial strength, partial-pressure and vacuum-enabled sintering in an office-friendly package. Sintering is a critical step for powder metallurgy-based metal additive manufacturing processes. These additional software and hardware solutions enable customers with minimal additive manufacturing experience or materials expertise to process high-density, complex metal parts entirely in-house with high accuracy while reducing trial-and-error without third-party equipment required. Similarly, we provide cleaning and curing solutions for our photopolymer additive manufacturing systems, enabling customers to fully process parts post-print to achieve exceptional material properties, resolution and accuracy. We also provide a range of proprietary and third-party consumables and materials optimized for use with our additive manufacturing systems and designed to enable high-quality parts with consistency.

Broad product portfolio and material library

Every organization has a different challenge or application that drives its consideration of additive manufacturing. We offer our customers a range of solutions spanning multiple price points, throughput levels, operating environments, and technologies to enable businesses to find the solution that solves their specific pain point and achieves their goals across an extensive library of qualified materials. Our broad product portfolio covers a spectrum of use cases, scaling with customer needs from entry-level, office-friendly additive manufacturing systems for low volume production of metal, polymer, composite or biocompatible parts to high-end, industrial additive manufacturing systems for mass production of low-cost metal, polymer, elastomer, ceramic, sand or wood parts. In addition, this portfolio eliminates the need for customers to source products for different applications from multiple third-party vendors, giving us a market advantage relative to competitors with a more limited set of solutions.

Global presence and distribution capabilities

We have developed an industry-leading global distribution network for our additive manufacturing solutions consisting of over 140 resellers covering over 40 countries around the world and within a short drive of a significant portion of worldwide manufacturing sector locations. Our resellers, who have extensive experience across digital modeling, 3D printing, and metal and polymer manufacturing processes, provide marketing, sales, application engineering, and local support services for end users across an array of vertical markets, such as healthcare and dental. They also bring an existing base of customers worldwide into which we can drive awareness of and ultimately sell our additive manufacturing solutions. Our direct sales force augments the reach of our global distribution network, serving major accounts and expanding our footprint within multinational and Fortune 500 organizations. To

support both our reseller and direct sales channels, we leverage an experienced team of application engineers who help customers identify and develop compelling use cases for additive manufacturing in their organizations to drive adoption of our solutions. We believe this hybrid distribution approach allows us to efficiently expand our customer deployments from a single machine to multiple machines and scale across a range of price points and solution complexities while enabling a tight and ongoing relationship with customers of all sizes.

We have also established adoption centers in each of the Americas, the Europe, the Middle East and Asia, or EMEA region, and the Asia-Pacific, or APAC region, through which we offer sales and marketing and delivery of support and printing services to our customers. These adoption centers provide us with physical presence alongside our reseller locations in or near areas where many global industrial businesses have manufacturing facilities, providing potential customers with the ability to see our additive manufacturing systems in operation and evaluate their production capabilities prior to ordering such solutions to bring production in-house.

Visionary and experienced management team

Our management team has deep operational experience bringing emerging technologies to market across the hardware and software sectors. Our Co-Founder, Chief Executive Officer and Chairman, Ric Fulop, has extensive leadership experience in disruptive technology businesses, such as A123 Systems, which he previously founded, and is a member of the Board of Governors of the World Economic Forum Advanced Manufacturing. Our Chief Financial Officer, Jason Cole, has spent much of his career as a senior financial officer at a public technology hardware company. In engineering, we are led by accomplished and visionary technologists across the additive manufacturing, robotics, and materials science industries. Our commercialization efforts are managed by individuals with prior successes in building and growing both direct and indirect, channel-driven sales organizations.

Complete customer engagement model

We have a deep customer engagement model focused on helping customers solve their manufacturing problems. We have built a comprehensive portfolio of print platforms and materials capabilities focused on mass production to serve our diverse set of customers in whatever their mission is. Additionally, we have a robust team of materials development professionals, application engineers, and process developers to support our growing installed base of customers.

Our Additive Manufacturing Solutions

We offer a comprehensive portfolio of integrated additive manufacturing solutions comprised of hardware, software, materials and services with support for metals, polymers, elastomers, ceramics, sands, composites, wood, and biocompatible materials. Our additive manufacturing solutions, which are based on our proprietary technologies, are described below.

Metal Additive Manufacturing Systems

Our metal additive manufacturing systems are designed using sintering-based, powder metallurgy processes, in which metal powder is bound together in a printer and sintered in a furnace to form a dense metal part. Hundreds of metal alloys are available to such powder metallurgy processes, many with well-characterized and high-quality material properties.

Our binder jet metal additive manufacturing platforms are differentiated in their ability to deliver high-performance printed metal parts at production-scale volumes and part costs competitive with conventional manufacturing processes. These platforms, including the Production System, the Shop System, and the X-Series, collectively offer a range of price points, throughput levels, and build sizes, ensuring our customers can find a solution that fits their specific application needs and enabling them to scale their manufacturing operations within the Desktop Metal solutions ecosystem.

The Production System is an industrial manufacturing platform powered by patent-pending SPJ binder jetting technology designed to be the fastest way to 3D print metal parts at scale. The Production System platform consists of the P-1 and the P-50 printer models, enabling customers to scale from process and materials development in a smaller form factor solution to mass production of low-cost, end-use parts on the same print engine. On the Production System P-50, SPJ technology offers dramatic increases in print speeds up to 100 times those of legacy PBF additive manufacturing technologies and the flexibility to use low-cost, third-party MIM powders. As a result, the Production System P-50, which is designed to achieve print speeds of up to 12,000 cubic centimeters per

hour at a 65-micron printed layer height, can produce high-resolution parts at costs competitive with conventional mass production techniques for quantities up to hundreds of thousands of units, addressing the needs of original equipment manufacturers and third-party contract manufacturers seeking cost-effective additive manufacturing solutions at scales required in industries such as automotive, consumer electronics, and consumer products. In addition, each of the Production System printer models feature an inert, chemically inactive processing environment, enabling support for a range of both non-reactive and reactive metals in a controlled fashion while also promoting consistent characteristics and quality across printed parts.

The Shop System platform introduces mid-volume binder jetting with rich feature detail and exceptional surface finish to the machine shop market. With the Shop System, which includes several configurations and build sizes and can achieve build speeds up to 10 times those of legacy PBF additive manufacturing technologies, businesses can produce serial batches of hundreds or thousands of complex, end-use metal parts in a fraction of the time and cost of conventional manufacturing and comparably priced additive manufacturing technologies. It is an affordable, turnkey solution that facilitates the full manufacturing process from digital file to sintered metal part, and includes a powder station for part depowdering prior to sintering, closed-loop powder recycling and our proprietary furnace technology with software and profiles optimized for mid-volume production. While the Shop System was initially designed for metal parts production, we have also qualified and are commercializing this solution for additional material categories enabled by binder jetting, such as wood and ceramics.

The X-series platform is designed for serial production of binder jet 3D printed metal, ceramic, or composite parts, balancing speed and quality while offering broad material compatibility for a full spectrum of academics, researchers and manufacturers. The X-series, which consists of the X160Pro, X25Pro and InnoventX printer models, leverages patented Triple ACT technology to support high-resolution printing with industry-leading surface finish, final part accuracy, density and part variability as low at 0.3% across large build areas. Each of these printer models also features significant process flexibility, enabling the use of a range of ultra-fine, third-party MIM powders. The X-Series provides customers the ability to get started with binder jetting for academia, research and development, and small batch processing without the need for large quantities of powder on the compact InnoventX and scale to volume production of large, traditionally investment cast parts for applications in automotive, aerospace, and defense on the X160Pro, which is the largest commercially available binder jet system in the market and also features Industry 4.0 cloud connectivity and process-linking capabilities enabled by Siemens MindSphere.

The Studio System platform is designed for office-friendly 3D printing using proprietary bound metal deposition, or BMD, technology in which loose powders and lasers, which are less user-friendly elements commonly associated with 3D printing, are eliminated in favor of bound metal rods to shape parts layer-by-layer. Integrated through Desktop Metal’s cloud-based Fabricate software, this turnkey, easy-to-use solution delivers a streamlined and automated workflow for producing low volumes of complex metal parts in house via additive manufacturing technology. Through BMD, the Studio System minimizes requirements for special facilities or expensive EHS equipment as compared to legacy PBF additive manufacturing technologies and improves ease-of-use. Parts produced using the Studio System 2 also feature our proprietary Separable Supports technology, which enables simplified post-processing and support removal relative to legacy PBF additive manufacturing technologies.

We also offer the Desktop Metal Furnace, which can be paired with the Studio System and our entry-level binder jetting solutions to create turnkey metal additive manufacturing solutions that are simple to install and easy to use, making metal additive manufacturing significantly more accessible to businesses with no prior powder metallurgy experience. The Desktop Metal Furnace is fully-automated, sized to fit through ADA-compliant doors and built using proprietary technology that provides industrial-strength, vacuum-enabled sintering in an office-friendly package. It is designed to achieve temperatures up to 1,400 degrees Celsius and to ensure uniform heating and cooling without the residual stresses introduced into parts by legacy PBF additive manufacturing processes, which can result in poor part performance.

Photopolymer Additive Manufacturing Systems

Our photopolymer additive manufacturing systems are designed using advanced, area-wide photopolymer print processes in which liquid photopolymer resin is cured using light from a high-resolution projector system to produce precision polymer parts with smooth surface finish and properties in line with or exceeding conventionally manufactured thermoplastics.

The Xtreme 8K platform features the largest build area among production-grade DLP systems. It is designed for industrial, high-temperature production of end-use photopolymer parts and uses high-powered light sources coupled with a water-cooled DLP chip for extended life on the factory floor. Leveraging patented Projection Array technology, the Xtreme 8K combines its two high-powered

4K projectors into a single exposure using multi-image calibration to drive power density during curing and enable the high-speed production of exceptionally large photopolymer parts within the 71 liters build envelope without sacrificing quality or accuracy. Projection Array technology, which supports build speeds on the Xtreme 8K up to 100 times those of legacy thermoplastic FFF printers, is also capable of printing parts with up to 16K resolution using patented pixel shifting technology. With the speed and resolution enabled by the Xtreme 8K, businesses can achieve superior price performance for large volumes of end-use parts versus comparable polymer additive manufacturing systems.

The Einstein series, designed for dental professionals, offers key features essential to superior 3D printing in the dental market, including accuracy, speed and versatility. The Einstein series consists of the Einstein, a solution ideal for fast, and easy, chairside dental printing, and the Einstein Pro XL, a solution with a larger 5.7 liter build volume and faster build speeds designed for high-production dental and orthodontic labs. Both Einstein printer models are equipped with a combination of Hyperprint technology and proprietary NanoFit 385 technology built on industrial 385 nanometer projectors to enable dental applications with rapid turnaround times, stunning clarity, exceptional accuracy, and natural looking finishes.

The Envision One platform, which consists of several models for high-temperature and large part processing, enables high-volume production of end-use photopolymer parts at an affordable upfront price, offering exceptional price performance. Envision One printers are powered by patented continuous digital light manufacturing technology, or CDLM, to achieve exceptional build speeds and parts with isotropic properties, paired with proprietary domeless basement technology for the material tray, which reinforces precision and part accuracy. EnvisionOne printers are built with industrial projectors with 4K resolution and 385 nanometer wavelength that deliver high-intensity light uniformly and with high precision across the entire build surface.

We also offer several additional DLP solutions, including the P4K platform and the D4K Pro platform, designed for a range of production volumes and industrial and healthcare end-use applications. P4K and D4K Pro printers are equipped with industrial 385 nanometer projectors and proprietary DLP technology across several build volume sizes to deliver high speed printing and extremely high-quality surface finish that minimizes post-processing requirements.

Across each of these platforms, we have a large library of qualified materials suitable for healthcare and dental, consumer products, and industrial applications. In addition, we offer accessories to facilitate post-processing of photopolymer parts produced on our printer platforms. Our washing solutions, such as the PWA 2000 and PWA 2000 XL, provide automated rinsing capabilities to efficiently clean delicate and larger, complex parts alike while minimizing liquid use to reduce costs and environmental impact. Our curing solutions, such as the PCA 2000 and PCA 4000, cure parts printed using our photopolymer platforms and feature ultraviolet light emitting diode (LED) light sources that leverage multiple wavelengths to deep cure parts and achieve a smooth, final surface finish.

Digital Casting Additive Manufacturing Systems

Our digital casting additive manufacturing systems comprise our S-Series platform and leverage binder jetting technology to print large-scale molds, mold cores, and investment casting patterns with high precision across a variety of sand materials for foundry applications to enable our customers to innovate through enhanced design solutions and improved turnaround times for their clients.

The S-Max and S-Max Pro are high-performance digital casting solutions designed for fast, precise and reliable production of sand molds and cores for metal casting applications, making it an ideal choice for industrial production of high-complexity castings that range in size for automotive, aerospace, energy, and other heavy industries. Both models offer two large job boxes of 1,260 liters each and support a range of binder systems, providing the versatility to print cores and molds compatible with ferrous and nonferrous metals. The S-Max printer, which can achieve build speeds up to 100 liters per hour, offers a robust solution for the majority of our available sand printing binders, including all cold hardening binder systems, making it suitable for common casting materials. The S-Max Pro printer, which can achieve build speeds up to 125 liters per hour, offers an additional inorganic binder option, which can deliver high-quality aluminum castings popular among automotive foundries. Designed for high-volume production, the S-Max Pro also leverages Siemens control systems with Industry 4.0 integration, cloud connectivity, and real-time process controls with early print error detection via integrated cameras. It is available as a standalone solution and can also be connected with optional auxiliary equipment to create a fully automated, turnkey production line for 3D sand printing, including a “box-in-box” system for automated loading and removal of build boxes and an automated or semi-automated desanding station, which reduces processing time by up to 95%, providing customers with the ability to support 24/7 continuous production on up to four S-Max Pro printers.

The S-Max Flex is designed to be the fastest and most flexible robotic 3D printing solution for digital casting applications. This all-new robotic additive manufacturing system features an industrial third-party, multi-axis robot with a print carriage end effector leveraging patent-pending SPJ binder jetting technology to deposit, spread, and compact powder and deposit binder in a single pass over the build box to produce high quality components for foundry applications at scale. Developed with the goal of providing faster payback and easier manufacturing line integration for foundries, the S-Max Flex offers a more affordable entry point into digital casting operations with exceptional build rates up to 115 liters per hour. The solution also includes a telescoping build box up to 1,900 liters in volume and a semi-automated bulk depowdering station in a flexible, modular footprint that can be easily configured to difference floorspace requirements. For foundries and pattern shops, the S-Max Flex offers an accessible path to sand 3D printing in a robotic architecture that can be easily scaled.

The S-Print is an ideal entry-level solution for prototypes and small series production in digital casting applications. With a 160-liter build volume, it combines a compact footprint with the flexibility to use the full range of available sand printing binder systems to accommodate a variety of casting materials for rapid product development and short-run production.

Biofabrication Additive Manufacturing Systems

The 3D-Bioplotter platform is a versatile and user-friendly biofabrication solution that processes biocompatible materials for potential computer-aided tissue engineering applications such as bone regeneration, cartilage regeneration, soft tissue fabrication, drug release and organ printing. It is one of the most widely referenced biofabrication platforms in the industry today and is being used for groundbreaking medical research and development. Designed to enable flexibility and combinations of different materials and temperatures, the platform leverages a modular architecture, including sterilized heating and cooling cartridges and a robotic tool changer to switch between one of up to five syringes, each of which has individual temperature control, and which use air or mechanical pressure to dispense liquid, melt, paste or gels from a cartridge. The 3D-Bioplotter can fabricate parts using a wide range of open-source and standard materials, from soft hydrogels to polymer melts or hard ceramics and even metals. Software-designed complex inner partners enable researchers and manufacturers to precisely control mechanical properties.

Consumable materials

We sell an array of consumable materials, or consumables, for use with several of our additive manufacturing systems. The sales of these materials provide us with a recurring revenue stream from customers of our additive manufacturing solutions. These materials consist of:

- **Binder jetting materials.** For use with our binder jetting platforms, we sell a combination of proprietary binders engineered in-house by our materials team and third-party binders both to support a broad array of MIM alloys, sands and ceramics. In particular, our proprietary binders have been developed to maximize success and yield through each stage of the binder jetting process, resulting in high-resolution parts with exceptional surface finish and strong material properties. In addition, while many of our binder jetting solutions support an open platform through which customers can purchase third-party powders, we also sell a range of powders qualified and optimized for use with several of our platforms, including Shop System, with numerous additional materials in various stages of qualification.

- **Photopolymer resins.** For use with our area-wide photopolymer print platforms, we sell proprietary resins engineered in-house by our materials team to achieve high-performance material properties and support a broad range of applications across healthcare and dental, consumer products and industrial verticals. This extensive library of materials also includes biocompatible resins as well as several Food and Drug Administration, or FDA, cleared resins for use in medical and dental applications. In addition to our proprietary resins, we sell third-party, industry-validated materials that have been qualified for use with our platforms through a selectively open business model.

- **BMD materials.** For use with the Studio System, we sell metal and ceramic materials, including stainless steels, carbon steels, tool steels, titanium and copper. We also continue to develop additional materials to meet our customers' needs for new applications and vertical markets. These office-friendly materials are delivered in our unique cartridge-based, rod format, which is a key differentiator for the Studio System as it allows for high metal loading and high-force extrusion during printing, resulting in high density parts with strong mechanical properties, as well as quick and easy material changeovers.

- **Bioprinting materials.** For use with 3D-Bioplotter, we sell several biocompatible materials for potential use in tissue engineering applications.

In addition, depending on the product, our consumables may include wear components for our additive manufacturing systems, such as printheads, build plates or material trays, which require replacement after a specified usage amount or in accordance with predetermined replacement cycles, in order to maintain the proper operations of the equipment.

Software

Software is a key component of our additive manufacturing solutions and is at the core of their accessibility and ease-of-use. Built on cloud, desktop, and mobile technologies, our build preparation software applications, Fabricate, Envision One RP, XPrep and Viriprint, streamline the process of setting up prints and provides a cohesive, modern user interface and experience across our product portfolio. In addition to basic features such as automatic and custom support generation, part scaling and positioning, our software also enables the unique features of each of our additive manufacturing systems, such as the ability to adjust closed-cell infill for the Studio System, to leverage automated dental model preparation for Einstein printers and to densely nest multiple parts into a build across all our binder jetting and photopolymer platforms. These software applications natively read commonly used 3D CAD file formats as well as traditional 3D printing file formats, such as STLs.

Our systems also feature onboard, color touchscreen controls and a user-friendly experience consistent with our build preparation software applications. For our cloud-enabled systems, these onboard controls facilitate remote over-the-air updates delivered directly to the equipment, allowing for continuous improvement via new features and enhancements. Several of our systems are integrated with third-party internet-of-things platforms such as Siemens MindSphere, which enables real-time, cloud-based monitoring of print status, including live information on key system metrics and alerts for out-of-range issues, and for which we are developing closed-loop quality assurance systems to automatically detect and correct errors during printing.

In addition, we offer Live Sinter, a proprietary sintering process simulation and compensation software designed to improve part accuracy, reduce sintering support structures and associated costs and minimizing printing trial and error for binder jet additive manufacturing processes. This software dynamically simulates the results of the sintering process by leveraging a GPU-accelerated, multi-physics engine in combination with finite element analysis, or FEA, and artificial intelligence. It also automates the compensation of geometries for the distortion and shrinkage that typically occurs during sintering, further optimizing the printing process to create high-accuracy parts and make binder jetting more accessible and easier to adopt in production for customers with limited additive manufacturing experience.

Desktop Labs: Our Dental and Biofabrication Platform

Dental and biofabrication represent important emerging killer apps for additive manufacturing because the parts in these market segments are typically patient-specific. Traditional production methods in these industries include labor- and resource-intensive conventional manufacturing processes, such as milling. As a result, we believe this market is poised to rapidly adopt additive manufacturing. To accelerate the adoption of additive manufacturing in these applications, we have launched Desktop Labs, an end-to-end platform focused on the vertical integration of digital solutions, design services and parts production capabilities for dentists through a trusted community of premium, full-service dental laboratories.

We believe that Desktop Labs will provide a competitive advantage by modernizing the dental practice experience and the standard of care through improved quality of restorations, faster turnaround times, and customized chairside solutions enabled by state-of-the-art Desktop Health printers and breakthrough materials, such as Flexcera, combined with innovative software workflows. While the majority of production at Desktop Labs facilities is currently supported by conventional manufacturing technologies, we are focused on rapidly digitizing Desktop Labs properties using these proprietary additive manufacturing solutions to enhance their profitability, expanding margins through efficient production capabilities while delivering improved patient outcomes. Through additive manufacturing-enabled digital workflows, Desktop Labs can realize significant cost reductions within key restorative dental device categories, including restorations such as dentures or crowns, splints and guards and surgical guides, and provide end-to-end solutions for private dental practices, dental services organizations (DSOs), dental hospitals, dental institutions, and even other dental labs.

Recently, Desktop Labs launched a subscription managed service offering pairing third-party intraoral scanners with its end-to-end platform of design and manufacturing services. Through this offering, dentists can capture patient data using an intraoral scanner then create print-ready digital files using Desktop Labs design capabilities, 3D print custom restorations and other dental parts either in their office using Desktop Health Einstein printers or using Desktop Labs' outsourced manufacturing services. The Desktop Labs managed service subscription offers dentists a seamless, integrated digital dentistry platform with real-time technical communication, workflow management, digital design, and case support, enabling reductions in patient visits and dental device remakes, real-time issue resolution, and an overall positive impact on dental practice economics, efficiency, and resource management.

Over time, we also intend to leverage the Desktop Labs platform to provide biofabrication solutions leveraging proprietary materials currently in the advanced stages of research and development. We believe Desktop Labs can develop into an industry-leading business that provides printers, materials and end-use parts for dental and biofabrication customers with additive manufacturing at its core.

Customers

Our customers range from small and medium sized enterprises to Fortune 500 companies and represent a broad array of industries, including automotive, aerospace, healthcare, consumer products, heavy industry, machine design, research and development, and others. No single customer has accounted for more than 10% of our total revenue in 2022.

Research and Development

The additive manufacturing market is undergoing rapid technological advancements across hardware, software, and materials. We invest significant resources into ongoing research and development programs because we believe our ability to maintain and extend our market position depends, in part, on breakthrough technologies that offer a unique value proposition for our customers and differentiation versus our competitors. Our research and development team, which is responsible for both the development of new products and improvements to our existing product portfolio, consists of talented and dedicated engineers, technicians, scientists, and professionals with experience from a wide variety of the world's leading additive manufacturing, robotics, materials, and technology organizations. Our primary areas of focus in research and development include, but are not limited to:

- Printing technologies for metals, polymers, elastomers, ceramics, sands, composites, wood and biocompatible materials, focused on driving improvements to speed, ease of use, and part size;
- Binder and resin formulation to enhance the support for additional materials and new applications;
- Sintering technology and powder metallurgy techniques to increase materials compatibility and part quality;
- Powder and post-processing technology to ensure reliable and repeatable production at scale; and
- Simulation and artificial intelligence-based software tools to maximize part quality and accuracy.

Sales and Marketing

We sell our additive manufacturing solutions through a global distribution network consisting of over 140 resellers, covering over 40 countries around the world. Our resellers purchase and resell our products to our customers, and select resellers also perform installation, application engineering, and local support and maintenance services, with backup services provided by our internal applications engineering and support teams. Our resellers are overseen by Desktop Metal regional channel managers, and most operate on an exclusive basis with respect to the additive manufacturing technologies that we offer. Many resellers offer third-party digital manufacturing software and/or CNC machines in their respective regions, which provides an opportunity to cross-sell our additive manufacturing solutions to a broad, existing customer base that has purchased these other products. Our direct sales force augments the reach of our distribution network, focusing primarily on selling our higher priced solutions, cross-selling our solutions across materials, serving major accounts and expanding our footprint within multinational or Fortune 500 organizations. We believe this hybrid distribution approach not only broadens our global reach, but also creates a tight and ongoing relationship between us and our customers.

Our marketing strategies are focused on supporting sales growth by (i) driving awareness; (ii) developing comprehensive sales and marketing content, tools, and campaigns for each stage of the sales process; and (iii) scaling those campaigns via our global distribution network and direct sales force. We drive awareness for Desktop Metal, our additive manufacturing solutions, and our customers' successes through public relations and communications efforts that span mainstream, business, and trade press across the manufacturing sector generally and in key verticals such as automotive, aerospace, healthcare, consumer products, heavy industry and machine design. Our internal marketing team develops compelling, high-fidelity content in multiple formats and delivery methods to facilitate marketing campaigns and sales enablement.

Manufacturing and Suppliers

Depending on the platform and volume requirements, our hardware products are either manufactured in-house or via third-party contract manufacturers with international quality certifications, such as ISO 9001, ISO 13485, and ISO/TS 16949. We design our products and internally manufacture initial engineering prototypes and low to medium volumes of products where applicable. Our internal manufacturing and supply chain teams work collaboratively with our engineering department and our third-party contract manufacturers to scale up the prototypes for commercialization through a phase gate product launch process. Our third-party contract manufacturers provide a variety of services including sourcing off-the-shelf components, manufacturing custom components/assemblies, final product assembly and integration, end of line testing and quality assurance per our specifications. Key consumables used in various print processes, such as proprietary resins and binders, are developed and produced either in-house or with core partners to ensure protection of intellectual property and production that meets our formula and specifications.

Across our solutions, we initially manage the supply chain for key components and materials, and then set up supply agreements to ensure stable supply and redundancy where applicable. When working with third-party contract manufacturers, depending on the criticality of the component, our internal supply chain group may continue to manage the supplier relationship throughout the life of the product. In addition, commodity hardware items are managed by our contract manufacturers' sourcing teams under a vendor list approved by us to leverage the buying power of their global scale. Commodity consumables are qualified and purchased directly from known industry leaders and provided to the customer to properly support equipment operation. Inventory levels are managed with our manufacturing partners to ensure an adequate supply is on hand to meet business forecasts with the ability to produce at multiple locations.

Our raw materials and components are derived from several suppliers and, except as set forth below, the loss of an individual supplier would not have a material adverse effect on our business. Each of our binder jet additive manufacturing systems has a single supplier of certain printhead components, and several of our photopolymer DLP systems has a single supplier of certain projector components. While we believe that these component suppliers are each replaceable, in the event of the loss of any one of these suppliers, we could experience delays and interruptions that might adversely affect the financial performance of our business.

Intellectual Property

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

As of December 31, 2022, we own or co-own over 950 patents and pending patent applications in the United States and in various foreign countries. Desktop Metal's patents and patent applications are directed to, among other things, additive manufacturing and related technologies.

Human Capital

Our employees are critical to our success. As of December 31, 2022, we had over 1,200 employees. We also engage numerous consultants and contractors to supplement our permanent workforce. A majority of our employees are engaged in research and development and related functions. To date, we have not experienced any work stoppages and consider our relationship with our

employees to be in good standing. None of our employees are subject to a collective bargaining agreement or represented by a labor union.

We believe that developing a diverse, equitable and inclusive culture is critical to continuing to attract and retain the top talent necessary for our long-term success and strategy. We value diversity at all levels and continue to focus on extending our diversity and inclusion initiatives across our entire workforce, including the expansion of individuals with diverse backgrounds in leadership.

Our principles of accountability, honesty, integrity and customer-focus, serve as our cultural pillars. We focus our efforts on creating a collaborative environment where our colleagues feel respected and valued. We provide our employees with competitive compensation, opportunities for equity ownership and a robust employment package, including health care, disability and long-term planning insurance, retirement planning and paid time off. In addition, we regularly interact with our employees to gauge employee satisfaction and identify areas of focus.

Government Regulations

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

On November 4, 2021, the Audit Committee of the Board of Directors engaged a third party to conduct an independent internal investigation as a result of a whistleblower complaint relating to manufacturing and product compliance practices at our EnvisionTEC US LLC facility in Dearborn, Michigan. In response, and to address the issues identified in the investigation, we implemented changes in the management of the Dearborn facility and improvements in manufacturing and compliance policies and procedures for the applicable products. Following notification to the FDA, we also initiated voluntary recalls of certain shipments of Flexcera resins and the PCA4000 curing box. The investigation is now closed, and the matters subject to the investigation and our responsive actions did not have, and are not anticipated to have, a material impact on our financial statements or business.

Environmental Matters

We are subject to domestic and foreign environmental laws and regulations governing our operations, including, but not limited to, emissions into the air and water and the use, handling, disposal and remediation of hazardous substances. A certain risk of environmental liability is inherent in our production activities.

These laws and regulations govern, among other things, the generation, use, storage, registration, handling and disposal of chemicals and waste materials, the presence of specified substances in electrical products, the emission and discharge of hazardous materials into the ground, air or water, the cleanup of contaminated sites, including any contamination that results from spills due to our failure to properly dispose of chemicals and other waste materials and the health and safety of our employees. We are required to obtain environmental permits from governmental authorities for certain operations.

The export of our products internationally from our production facilities subjects us to environmental laws and regulations concerning the import and export of chemicals and hazardous substances such as TSCA and REACH. These laws and regulations require the testing and registration of some chemicals that we ship along with, or that form a part of, our systems and other products.

See "Risk Factors — We are subject to environmental, health and safety laws and regulations related to our operations and the use of our additive manufacturing systems and consumable materials, which could subject us to compliance costs and/or potential liability in the event of non-compliance" for additional information about the environmental, health and safety laws and regulations that apply to our business.

Export and Trade Matters

We are subject to anti-corruption laws and regulations imposed by governments around the world with jurisdiction over our operations, including the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act 2010, as well as the laws of the countries where we do business. We are also subject to various trade restrictions, including trade and economic sanctions and export controls, imposed by governments around the world with jurisdiction over our operations. For example, in accordance with trade sanctions administered

by the Office of Foreign Assets Control and the U.S. Department of Commerce, we are prohibited from engaging in transactions involving certain persons and certain designated countries or territories, including Cuba, Iran, Syria, North Korea, Russia, Belarus, and the Crimea Region of Ukraine. 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.

See "Risk Factors — 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" for additional information about the environmental, health and safety laws and regulations that apply to our business.

Medical and Dental Devices

Our Desktop Health and Desktop Labs products and services, and its healthcare provider customers and distributors, are and will be subject to extensive federal, state, local and foreign regulations (including those of the U.S. Food and Drug Administration and its foreign equivalents), including, without limitation, regulations with respect to approvals and clearances for products, design, manufacturing and testing, labeling, marketing, sales, quality control, and privacy.

See "Risk Factors — Compliance with regulations for medical devices and solutions is expensive and time-consuming, and failure to obtain or maintain approvals, clearances, or compliance could impact financial projections and/or subject us to penalties or liabilities" for additional information about the environmental, health and safety laws and regulations that apply to our business.

Competition

Desktop Metal has experienced, and expects to continue to experience, competition from a number of companies, including other vendors of additive manufacturing systems. A variety of additive manufacturing technologies compete with our proprietary technologies, including, but not limited to: binder jetting, FFF, DLP, SLA, selective laser sintering, or SLS, PBF, and directed energy deposition, or DED.

We believe that we provide the only additive manufacturing solutions addressing customer requirements around both productivity and ease of use. We are well-positioned to compete in our industry based on these core competencies and on the following competitive strengths:

- Highest rates of parts production among competing additive manufacturing systems for a given layer resolution, enabled by our proprietary binder jetting and photopolymer additive manufacturing technologies;
- Extensive library of supported materials, including metals, polymers, elastomers, ceramics, sands, composites, wood and biocompatible materials, with additional materials in the process of qualification for use with our additive manufacturing systems;
- Cost-effective, industrial sintering technology designed to be office-friendly, easily serviceable by a global distribution network, and more gas and power efficient than industrial sintering equipment;
- Integrated software experiences with a cohesive, modern user interface for efficient print preparation and simplified system operations as well as proprietary sintering simulation and compensation technology; and
- Global distribution capabilities in over 40 countries around the world, featuring world-class levels of support and applications engineering services.

In addition, our broad product portfolio offers customers a variety of capabilities and price points that can scale with customer needs, and we believe that this enables us to compete across a wide range of vertical markets. It also eliminates the need for customers to source products for different applications from multiple third-party vendors, giving us a significant market advantage relative to vendors with a more limited product portfolio.

We also compete with established organizations selling conventional manufacturing solutions and services, such as casting, injection molding, forming, extrusion and CNC machining. Such businesses typically primarily address volume production applications. We believe we compete favorably against such offerings and are well-positioned to drive adoption of additive manufacturing across an expanding set of applications given the benefits our solutions provide around lead time reductions, improved design flexibility and performance, supply chain efficiencies, and part costs, which we expect to decrease over time as our technologies and system productivity improves as a result of our research and development efforts.

Company Formation

Trine was a blank check company incorporated under the laws of the State of Delaware in September 2018 and Legacy Desktop Metal was incorporated under the laws of the State of Delaware in 2015. On December 9, 2020, we consummated the Business Combination and Trine was renamed to Desktop Metal, Inc. Our principal executive offices are located at 63 Third Avenue in Burlington, Massachusetts 01803. Our website address is www.desktopmetal.com. We have included our website address in this report solely as an inactive textual reference.

Available Information

Copies of the periodic reports that we file with the Securities and Exchange Commission, or SEC, such as our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and any other filings may be obtained by the public, free of charge, by visiting the Investors section of our website at ir.desktopmetal.com, or by contacting our Investor Relations department at our office address listed above. The SEC also maintains a website that contains periodic reports, proxy and information statements and other information regarding issuers that file electronically with the SEC at www.sec.gov The contents of these websites are not incorporated into this filing. Further, our references to the URLs for these websites are intended to be inactive textual references only.

Item 1A. Risk Factors

Summary of Risk Factors

Our business is subject to numerous risks. Below is a summary of the principal factors that could cause our actual results to differ materially from those expressed in forward-looking statements made by us or on our behalf. This summary does not address all of the risks that we face. Additional discussion of the risks summarized in this risk factor summary, and other risks that we face, can be found under the heading "Risk Factors" immediately following this section and should be carefully considered, together with other information in this Annual Report on Form 10-K and our other filings with the SEC, before making an investment decision regarding our Class A common stock.

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

- 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.

- 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.

- As part of our growth strategy, we may acquire or make investments in other businesses, patents, technologies, products or services. Our efforts to do so, or our failure to do so successfully could disrupt our business and have an adverse impact on our financial condition.

- We may experience difficulties in integrating the operations of acquired companies into our business and in realizing the expected benefits of these acquisitions.

- We are an early-stage company with a history of losses. We have not been profitable historically and may not achieve or maintain profitability in the future.

- Future sales, or the perception of future sales, of our Class A common stock by us or our existing stockholders in the public market could cause the market price for our Class A common stock to decline.

Risk Factors

Our business is subject to numerous risks. You should carefully consider the risks and uncertainties described below and the other information in this Annual Report on Form 10-K before making an investment decision regarding our Class A common stock. Our business, financial condition, results of operations, or prospects could be materially and adversely affected if any of these risks occurs, and as a result, the market price of our Class A common stock could decline, and you could lose all or part of your investment. This Annual Report on Form 10-K also contains forward-looking statements that involve risks and uncertainties. See "Cautionary Note Regarding Forward-Looking Statements." Our actual results could differ materially and adversely from those anticipated in these forward-looking statements as a result of certain factors, including those set forth below.

Risks Related to Our Business and Industry

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

Several of our announced additive manufacturing solutions are yet to be commercially released. There are often delays in the design, testing, manufacture and commercial release of new products, and any delay in the launch of our products could materially damage our brand, business, growth prospects, financial condition and operating results. Even if we successfully complete the design, testing and manufacture for one or all of our products 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;

- lack of innovation of the product;

- failure of the product to perform in accordance with the customer's expectations or industry standards;

- ineffective distribution and marketing;

- delay in obtaining any required regulatory approvals;

- unexpected production costs; or

- release of competitive products.

Our success in the market for the products we develop will depend largely on our ability to prove our products' capabilities in a timely manner. Upon 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 another larger and more established company or may take longer than expected to make the decision to order our products. 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.

We may experience significant delays or other obstacles in the design, production, launch and/or maintenance of produced parts offerings, and we may be unable to successfully commercialize said offerings.

We are building out produced parts offerings for customers, and produced parts is an existing offering of some of our recently-acquired businesses. These offerings present similar challenges and risks to those outlined herein with respect to the design,

production, launch and profitability of new additive manufacturing solutions. We have a limited history operating in the direct manufacturing and produced parts businesses, and as a result we may face challenges in designing or delivering parts that meet customer specifications, both on time and cost-effectively. Additionally, our produced parts in the healthcare and dental industry may be subject to regulatory approvals and controls, which may delay the design, production or launch of products. In particular, we may fail to develop commercially successful produced parts offerings if we are unable to meet customer needs or industry standards, if we fail to meet our desired gross margins or customer price expectations, or if our marketing and distribution strategy proves ineffective. If we are unsuccessful in establishing such offerings, sales of our additive manufacturing solutions and our overall operating results could suffer.

Our business activities have been disrupted and may continue to be disrupted by the COVID-19 pandemic.

In 2020 and 2021, the COVID-19 pandemic caused disruption and volatility in the global economy and capital markets, which increases the cost of capital and adversely impacts access to capital. Government-enforced travel bans and business closures around the world significantly impacted our ability to sell, install and service our additive manufacturing systems at customers around the world. The pandemic has, and may continue to, disrupt our third-party contract manufacturers and supply chain and delay payments from customers. We also experienced some delays in installation of our products at customers' facilities, which has and could lead to postponed revenue recognition for those transactions. In addition, installation delays could prevent us from achieving anticipated consumables revenues due to systems being put into operation later, or at lower utilization, than expected. Furthermore, if significant portions of our workforce are unable to work effectively, including because of illness, quarantines, government actions, facility closures, remote working or other restrictions in connection with the COVID-19 pandemic, our operations will likely be adversely impacted.

If the COVID-19 pandemic continues for a prolonged duration, we or our customers may be unable to perform fully on our contracts, which will likely result in increases in costs and reduction in revenue. These cost increases may not be fully recoverable or adequately covered by insurance. The long-term effects of COVID-19 to the global economy and to us are difficult to assess or predict and may include a further decline in the market prices of our products, risks to employee health and safety, risks for the deployment of our products and services and reduced sales in geographic locations impacted. Any prolonged restrictive measures put in place in order to control COVID-19 or other adverse public health developments in any of our targeted markets may have a material and adverse effect on our business operations and results of operations.

We cannot guarantee that our restructuring activities and other cost savings measures will achieve their intended results.

In June 2022, we implemented a strategic integration and cost savings initiative (the "Initiative") to match strategic and financial objectives and optimize resources for long term growth. In January 2023, we expanded the Initiative. We intend to implement additional cost savings measures in the future. We have incurred, and expect to continue to incur, substantial costs in connection with these initiatives. Our ability to achieve the anticipated cost savings and other benefits from these initiatives within the expected time frame is subject to many estimates and assumptions. There can be no assurance that the anticipated cost savings will be achieved, or that they will not be significantly and materially less than anticipated, or that the completion of such cost savings initiatives will be effectively accomplished. In addition, our ability to realize the anticipated cost savings are subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond our control, such as operating difficulties, supply chain disruptions, local regulations, employment laws or general economic or industry conditions. If we fail to realize the anticipated cost savings it could have a material negative impact on our results of operations and financial position.

In addition, our restructuring activities and cost savings initiatives may subject us to litigation risks and expenses and may have other consequences, such as attrition beyond our planned reduction in workforce, a negative effect on employee morale and productivity or a negative effect on our ability to attract highly skilled employees. Our competitors may use our restructuring plans to seek to gain a competitive advantage over us. As a result, our restructuring plans and cost savings initiatives may affect our revenue and operating results in the future

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. Our products are sold, and will continue to be sold, at different price points. Sales of certain of our products have, or are expected to have, higher gross margins than others. If our product mix shifts too far into lower gross margin products, 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. 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. Our financial performance also depends on the portion of our produced parts revenue supplied using additive manufacturing processes, which may enable higher gross margins and operational efficiencies as compared to conventional manufacturing technologies.

If we fail to meet our customers' price expectations, demand for our products and product lines could be negatively impacted and our business and results of operations could suffer.

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 and our competitors' pricing and marketing strategies, 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 and results of operations could suffer.

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.

The industrial manufacturing market, which today is dominated by conventional manufacturing processes that do not involve 3D printing 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 or economics required by potential customers to encourage the continuation of this shift towards additive manufacturing. If additive manufacturing technology does not continue to gain broader market acceptance as an alternative to conventional manufacturing processes, or does so more slowly than anticipated, 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.

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 systems 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.

Certain of our operating costs are fixed and cannot readily be reduced, which diminishes the positive impact of our restructuring programs 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.

Our business model is predicated, in part, on building a customer base that will generate a recurring stream of revenues through the sale of our consumables and service contracts. 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 maintain and increase sales of our proprietary consumables and service contracts as they generate recurring revenues. Existing and future customers of our systems may not purchase our consumables or related service contracts at the rate we expect for certain product lines or at the same rate at which customers currently purchase those consumables and services. In addition, our entry-level systems focused on low-volume production generally use a lower volume of consumables relative to our volume throughput systems focused on high-volume production. If our current and future customers purchase a lower volume of our consumable materials or service contracts, or if our entry-level systems represent an increasing percentage of our future installed customer base, resulting overall in lower purchases of consumables and service contracts

on average than our current installed customer base or than we expect, our recurring revenue stream relative to our total revenues would be reduced and our operating results would 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.

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. This could result in delayed market acceptance of those products or claims from resellers, customers or others, which may result in litigation, increased end user warranty, support and repair or replacement costs, damage to our reputation and business, or significant costs and diversion of support 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 could lead us to incur significant expenses.

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

The sale and support of our products entails the risk of product liability claims. Any product liability claim brought against us, regardless of its merit, could result in material expense, diversion of management time and attention, damage to our business and reputation and brand, and cause us to fail to retain existing customers or to fail to attract new customers.

Our operations could suffer if we are unable to attract and retain key management or other key employees.

We believe our success has depended, and continues to depend, on the efforts and talents of our senior management and other key personnel, including, in particular, our Co-Founder, Chief Executive Officer, and Chairman, Ric Fulop. Our executive team is critical to the management of our business and operations, as well as to the development of our strategy. Members of our senior management team may resign at any time. The loss of the services of any members of our senior management team, especially Mr. Fulop, could delay or prevent the successful implementation of our strategy or our 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 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.

To support the continued growth of our business, we may need to effectively recruit and hire new employees, and we need to effectively integrate, develop, motivate and retain new and existing employees. High demand exists for senior management and other key personnel (including scientific, technical, engineering, financial and sales personnel) in the additive manufacturing industry, and there can be no assurance that we will be able to retain our current key personnel. We experience intense competition for qualified personnel. While we intend to continue to provide competitive compensation packages to attract and retain key personnel, some of our competitors for these employees have greater resources and more experience, making it difficult for us to compete successfully for key personnel. Moreover, new employees may not become 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 or new applications for existing products. Furthermore, possible shortages of key personnel, including engineers, in the regions surrounding our Boston facility could require us to pay more to hire and retain key personnel, thereby increasing our costs. Since March 2020, we have had many employees working remotely to protect the health and safety of our employees, contractors, customers and visitors. We also shifted customer, industry and other stakeholder events to virtual-only experiences, and may continue to conduct future events virtually. Given our limited history with remote operations, the long-term impacts are uncertain.

Departing employees' knowledge of our business and industry can be extremely difficult to replace and provides their future employers with a competitive advantage. Where applicable law permits, 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 while they work for us, and in some cases, 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. If we cannot

demonstrate that our legally protectable interests will be harmed, we may be unable to prevent our competitors from benefiting from the expertise of our former employees or consultants and our ability to remain competitive may be diminished.

If we fail to grow our business as anticipated, our net sales, gross margin and operating margin will be adversely affected. If we grow as anticipated but fail to manage our growth and expand our operations accordingly, our business may be harmed and our results of operation may suffer.

Over the past several years, we have experienced rapid growth, and we are attempting to continue to grow our business substantially. To this end, we have made, and expect to continue to make, significant investments in our business, including investments in our infrastructure, technology, marketing and sales efforts. These investments include dedicated facilities expansion and increased staffing, both domestic and international. If our business does not generate the level of revenue required to support our investment, our net sales and profitability will be adversely affected.

Our ability to effectively manage our anticipated growth and expansion of our operations will also require us to enhance our operational, financial and management controls and infrastructure, human resources policies and reporting systems. These enhancements and improvements may require significant capital expenditures, investments in additional headcount and other operating expenditures and allocation of valuable management and employee resources. Our future financial performance and our ability to execute on our business plan will depend, in part, on our ability to effectively manage any future growth and expansion. There are no guarantees we will be able to do so in an efficient or timely manner, or at all.

We may experience significant delays or obstacles to realizing the success of our Desktop Labs platform and Desktop Health product offerings.

The Desktop Labs platform and our Desktop Health products aim to leverage our proprietary additive manufacturing technologies and materials to grow the market for existing applications in the dental market and identify, develop and/or commercialize future solutions in the healthcare and dental markets for personalized patient care spanning dentistry, orthodontics, dermatology, orthopedics, cardiology, plastic surgery and printed regenerative tissues and grafts. These businesses operate in a highly competitive space which may make it difficult for us to implement business plans and expectations and identify and realize opportunities. In addition, their technology, products, materials and applications may be subject to strict regulatory requirements in the United States and other countries. The regulatory approval or clearance process may be lengthy and costly, and regulatory requirements may impact the timing of, or our ability to, commercialize the regulated technology, products, materials and applications. The success of these parts of our business will also depend on our ability to attract, hire and retain qualified personnel, establish sales, marketing and distribution infrastructure, and establish and maintain supply and manufacturing relationships.

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 in more than 40 countries around the world, and we derive a substantial percentage of our sales from these international markets. In 2022, we derived approximately 35% of our revenues from countries outside the United States. 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. We 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.

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;
- specific and significant regulations, including the European Union's General Data Protection Regulation, or GDPR, which imposes compliance obligations on companies who possess and use data of EU residents;
- 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;
- 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 3D printing 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.

Additionally, we have teams that are engaged in marketing, selling, and supporting our products internationally, and we must hire and train experienced personnel to staff and manage our foreign operations. To the extent that we experience difficulties in recruiting, training, managing and retaining international employees, particularly managers and other members of our international sales team, we may experience difficulties in sales productivity in international markets.

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. A decline 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. The economic uncertainty in Europe, the United States, India, China and other countries may cause end-users to further delay or reduce technology purchases.

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

For example, the possibility of an ongoing trade war between the United States and China may impact the cost of raw materials, finished products or components used in our products and our ability to sell our products in China. 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 addition, the United Kingdom's exit from the European Union on January 31, 2020 may result in increased costs of barriers to trade, and uncertainty surrounding this transition 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. If global economic conditions remain volatile for a prolonged period or if European economies experience further disruption, our results of operations could be adversely affected.

In the future, some of our arrangements for additive manufacturing solutions may contain customer-specific provisions that may impact the period in which we recognize the related revenues under GAAP.

Some customers that purchase additive manufacturing solutions from us may require specific, customized factors relating to their intended use of the solution or the installation of the product in the customers' facilities. These specific, customized factors are occasionally required by the customers to be included in our commercial agreements relating to the purchases. As a result, our responsiveness to our customers' specific requirements has the potential to impact the period in which we recognize the revenue relating to that additive manufacturing system sale.

Similarly, some of our customers must build or prepare facilities to install a subset of our additive manufacturing solutions, and the completion of such projects can be unpredictable, which can impact the period in which we recognize the revenue relating to that additive manufacturing solution sale.

We rely on our 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, 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 addition, during the COVID-19 pandemic, a substantial portion of our employees have conducted 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;
- we must dedicate significant resources to system repairs or increase cyber security protection; or
- we otherwise incur significant litigation or other costs.

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.

Additionally, some of the companies we acquire may not have the same level of information technology systems which may require that we invest significant resources to get those systems to the level of security we require.

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.

If we fail to implement or are delayed in the implementation of our new ERP system platform, we may not be able to effectively transact our business or produce our financial statements on a timely basis and without incurrence of additional costs, which would adversely affect our business, results of operations and cash flows.

We are currently implementing Oracle Enterprise Resource Planning, or ERP, to manage enterprise functions for our significant subsidiaries. This integration involves significant complexity, requiring us to move and reconfigure all of our current system processes, transactions, data and controls to a new platform. Due to this complexity and the scope and volume of changes involved in this implementation, we may experience delays and higher than planned resource needs in our migration efforts. Although we will conduct testing, assessments and validation to ensure that our internal financial and accounting controls will be effective post-implementation, we may nevertheless experience difficulties in transacting our business due to system challenges, delays or process deficiencies following the initial launch of the system, which could impair our ability to conduct our business or to produce accurate financial statements on a timely basis. If our ability to conduct our business or to produce accurate financial statements on a timely basis is impaired, our business, results of operations and cash flows would be adversely affected.

Our current levels of insurance may not be adequate for our potential liabilities.

We maintain insurance to cover our potential exposure for most claims and losses, including potential product and non-product related claims, lawsuits and administrative proceedings seeking damages or other remedies arising out of our commercial operations. However, our insurance coverage is subject to various exclusions, self-retentions and deductibles. We may be faced with types of liabilities that are not covered under our insurance policies, such as environmental contamination or terrorist attacks, or that exceed our policy limits. 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, our existing policies may be cancelled or otherwise terminated by the insurer, and/or the companies that we acquire may not be eligible for certain types or limits of insurance. 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.

Due to our acquisition activity, the existing information technology systems and cyber controls of the acquired entities and integration efforts with respect thereto, as well as the state of the cyber insurance market generally, the costs for our cyber insurance increased in 2022, and the cost of such insurance could continue to increase for future policy periods. Our cyber insurance coverage does not extend to all of our group companies and while we are working to implement better cyber controls and infrastructure for these entities, we may continue to be unable to secure cyber risk coverage for them for future periods. Moreover, the scope and limits of our cyber insurance coverage may not be sufficient or available to cover all expenses or other losses, including fines, or all types of claims that may arise in connection with cyberattacks, security compromises, and other related incidents.

Uncertainty and instability resulting from the conflict between Russia and Ukraine could negatively impact our business, financial condition and operations.

The ongoing war in Ukraine could negatively impact global and regional financial markets which could result in businesses postponing spending in response to tighter credit, higher unemployment, financial market volatility, negative financial news, and other factors. In addition, our suppliers and contractors may have staff, operations, materials or equipment located in the Ukraine or Russia which could impact our supply chain or services being provided to us. Moreover, we outsource some of our software development and design to third-party contractors that have employees and consultants located in Ukraine, Russia and/or Belarus. Poor relations between the United States and Russia, sanctions by the United States and the European Union against Russia, and any escalation of political tensions or economic instability in the area could have an adverse impact on our third-party contractors. In particular, Russia's invasion of Ukraine and the increased tensions among the United States, the North Atlantic Treaty Organization and Russia could increase the scope of armed conflict, cyberwarfare and economic instability that could disrupt or delay the operations of these resources in Russia, Belarus and/or Ukraine, disrupt or delay communication with such resources or the flow of funds to support their operations, or otherwise render our resources unavailable.

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.

Our revenues are derived from the sale of additive manufacturing systems, produced parts, and consumables and services. We have encountered and will continue to encounter challenges experienced by growing companies in a market subject to rapid innovation and technological change. 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 either generally or for particular applications. Our ability to compete in the additive manufacturing market depends, in large part, on our success in developing and introducing new additive manufacturing systems 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:

- 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.

The additive manufacturing industry is competitive. We expect to face increasing competition in many aspects of our business, which could cause our operating results to suffer.

The additive manufacturing industry in which we operate is fragmented and competitive. We compete for customers with a wide variety of producers of additive manufacturing and/or 3D printing 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 we do, including name recognition, as well as experience and expertise in intellectual property rights and operating within certain international markets, any of which may enable them to compete effectively against us. For example, a number of companies that have substantial resources have announced that they are beginning production of 3D printing systems, which will further enhance the competition we face.

Future competition may arise from the development of allied or related techniques for equipment, materials 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 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.

Because the additive manufacturing market is rapidly evolving, forecasts of market growth in this Annual Report on Form 10-K may not be accurate.

Market opportunity estimates and growth forecasts included in this Annual Report on Form 10-K are subject to significant uncertainty and are based on assumptions and estimates that may not prove to be accurate. The forecasts and estimates in this Annual Report on Form 10-K relating to the expected size and growth of the markets for additive manufacturing technology and other markets in which we participate may prove to be inaccurate. Even if these markets experience the forecasted growth described in this Annual Report on Form 10-K, we may not grow our business at similar rates, or at all. Our future growth is subject to many factors, including market adoption of our products, which is subject to many risks and uncertainties. Accordingly, the forecasts and estimates of market size and growth described in this Annual Report on Form 10-K, including our estimates that the size of the total addressable market is expected to be more than $100 billion in 2030, should not be taken as indicative of our future growth. In addition, these forecasts do not consider the impact of the COVID-19 pandemic, and we cannot assure you that these forecasts will not be materially and adversely affected as a result.

Risks Related to Acquisitions

Difficulties or delays integrating the businesses and operations of acquired companies into Desktop Metal, or realizing the expected benefits of these acquisitions, may adversely affect the company's future results.

Acquisitions involve numerous risks, any of which could harm our business and negatively affect our financial condition and results of operations. The success of our acquisitions, including EnvisionTEC and ExOne, will depend in part on our ability to realize the anticipated business opportunities from combining the operations of acquired companies with our business in an efficient and effective manner. Ongoing and expanded integration processes could take longer than anticipated and could result in the loss of key employees, the disruption of each company's ongoing businesses, tax costs or inefficiencies, or inconsistencies in standards, controls, information technology systems, procedures and policies, any of which could adversely affect our ability to maintain relationships with customers, employees or other third parties, or our ability to achieve the anticipated benefits of the acquisitions, and could harm our financial performance. Specifically, our ability to address the following integration matters may impact realization of anticipated benefits of our acquisitions:

- combining the operations and corporate functions of acquired companies;

- meeting the capital requirements of the acquired companies, in a manner that permits us to achieve any cost savings or other synergies anticipated to result from the acquisitions;
- integrating and unifying the offerings and services available to customers;
- identifying and eliminating redundant and underperforming functions, product lines and assets;
- harmonizing the acquired companies' operating practices, employee development and compensation programs, internal controls and other policies, procedures and processes;
- consolidating the acquired companies' administrative and information technology infrastructure; and
- coordinating distribution efforts.

If we are unable to successfully or timely integrate the operations of acquired companies with our business, we may incur unanticipated liabilities and be unable to realize the revenue growth, synergies and other anticipated benefits resulting from the acquisitions, and our business, results of operations and financial condition could be materially and adversely affected.

In addition, at times the attention of certain management individuals may be focused on the integration of the acquired businesses and diverted from day-to-day business operations or other opportunities that may have been beneficial to us, which may disrupt our ongoing business.

We have incurred significant costs in connection with our acquisitions. The substantial majority of these costs are non-recurring acquisition expenses. These non-recurring costs and expenses are reflected in the consolidated financial statements included in this Annual Report on Form 10-K. We may incur additional costs in the integration of acquired companies, and may not achieve cost synergies and other benefits sufficient to offset the incremental costs of these acquisitions.

As part of our growth strategy, we may acquire or make investments in other businesses, patents, technologies, products or services. Our efforts to do so, or our failure to do so successfully, could disrupt our business and have an adverse impact on our financial condition.

As part of our business strategy, we may acquire and invest in other companies, patents, technologies, products and/or services. To the extent we seek to grow our business through acquisitions, we may not be able to successfully identify attractive acquisition opportunities or consummate any such acquisitions if we cannot reach an agreement on commercially favorable terms, if we lack sufficient resources to finance the transaction on our own and cannot obtain financing at a reasonable cost or if regulatory authorities prevent such transaction from being consummated. The identification of potential targets, negotiation with targets and due diligence may divert management's attention from their day-to-day responsibilities and require the incurrence of related costs. In addition, competition for acquisitions in the markets in which we operate during recent years has increased, and may continue to increase, which may result in an increase in the costs of acquisitions or cause us to refrain from making certain acquisitions. We may not be able to complete future 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 their day-to-day responsibilities;
- unanticipated costs or liabilities associated with the acquisition;
- incurrence of acquisition-related costs, which would be recognized as a current period expense;
- problems integrating the purchased business, products or technologies;
- 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 platform and of maintaining quality and security standards consistent with our brand;
- difficulty in maintaining controls, procedures and policies during the transition and integration;
- challenges in integrating the new workforce and the potential loss of key employees, particularly those of the acquired business; and
- use of substantial portions of our available cash or the incurrence of debt to consummate the acquisition.

If we proceed with a particular acquisition, we may have to use cash, issue new equity securities with dilutive effects on existing shareholders, incur indebtedness, assume contingent liabilities or amortize assets or expenses in a manner that might have a material adverse effect on our financial condition and results of operations. Acquisitions will also require us 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. In addition, we could also face unknown liabilities or write-offs due to our acquisitions, which could result in a significant charge to our earnings in the period in which they occur. We will also be required to record 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.

Achieving the expected returns and synergies from future acquisitions will depend, in part, upon our ability to integrate the products and services, technology, administrative functions and personnel of these businesses into our product lines in an efficient and effective manner. We cannot assure you that we will be able to do so, that our acquired businesses will perform at levels and on the timelines anticipated by our management or that we will be able to obtain these synergies. In addition, acquired technologies and intellectual property may be rendered obsolete or uneconomical by our own or our competitors' technological advances. Management resources may also be diverted from operating our existing businesses to certain acquisition integration challenges. If we are unable to successfully integrate acquired businesses, our anticipated revenues and profits may be lower. Our profit margins may also be lower, or diluted, following the acquisition of companies whose profit margins are less than those of our existing businesses.

Risks Related to Our Financial Position and Need for Additional Capital

We are an early-stage company with a history of losses. We have not been profitable historically and may not achieve or maintain profitability in the future.

We experienced net losses in each year from our inception, including net losses of $740.3 million and $240.3 million for the years ended December 31, 2022 and 2021, respectively. We believe we will continue to incur operating losses and negative cash flow in the near-term as we continue to invest significantly in our business, in particular across our research and development efforts and sales and marketing programs. These investments may not result in increased revenue or growth in our business or enable us to achieve profitability.

In addition, as a public company, we incur significant additional legal, accounting and other expenses. We will also incur additional legal, accounting and other expenses in connection with acquisitions and integration activities associated therewith. These increased expenditures may 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. We may incur significant losses in the future for a number of reasons, including due to the other risks described in this Annual Report on Form 10-K, and we may encounter unforeseen expenses, difficulties, complications and delays and other unknown events. As a result, our losses may be larger than anticipated, we may incur significant losses for the foreseeable future, and we may not achieve profitability, and even if we do, we may not be able to maintain or increase profitability. Furthermore, if our future growth and operating performance fail to meet investor or securities analyst expectations, or if we have future negative cash flow or losses resulting from our investment in acquiring customers or expanding our operations, this could have a material adverse effect on our business, financial condition and results of operations.

Our limited operating history and rapid growth makes evaluating our current business and future prospects difficult and may increase the risk of your investment.

Much of our growth has occurred in recent periods. Our limited operating history may make it difficult for you to evaluate our current business and our future prospects, as we continue to grow our business. 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 may fail to meet our publicly announced guidance or other expectations about our business, which would cause our stock price to decline.

We provide guidance regarding our expected revenue and Adjusted EBITDA, and we may in the future provide guidance regarding other measures of financial and business performance.

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. Correctly predicting future events is inherently an uncertain process, and our guidance may not ultimately be accurate. Our guidance is based on certain assumptions such as anticipated production and sales volumes, material costs and planned cost reductions. In addition, we have implemented, and in the foreseeable future expect to continue to implement, a number of cost saving measures in order to contain costs from our acquisitions. Those measures may not have their intended effect, and we may not adequately be able to implement them. Even if the measures we implement lead to cost savings, those cost savings may not be sufficient or we may be unable to sustain the cost savings that we achieve. Our ability to achieve the anticipated cost savings and other benefits from these measures within the expected time frames is subject to many estimates and assumptions, and depends on many factors, some of which are beyond our control. If actual results differ from our guidance or from the expectations of securities analysts or investors, or we adjust our guidance in future periods, whether as a result of our inability to successfully implement our cost saving measures or because of other factors, the market value of our common stock could decline significantly.

Our operating results and financial condition may fluctuate from period to period.

Our operating results and financial condition fluctuate from quarter-to-quarter and year-to-year and are likely to continue to vary due to a number of factors, many of which will not be within our control. Both our business and the additive manufacturing industry are changing and evolving rapidly, and our historical operating results may not be useful in predicting our future operating results. If our operating results do not meet the guidance that we provide to the marketplace or the expectations of securities analysts or investors, the market price of our Class A common stock will likely decline. Fluctuations in our operating results and financial condition may be due to a number of factors, including:

- the degree of market acceptance of our products and services;
- our ability to compete with competitors and new entrants into our markets;
- the mix of products and services that we sell during any period;
- the timing of our sales and deliveries of our products to customers;
- the geographic distribution of our sales;
- changes in our pricing policies or those of our competitors, including our response to price competition;
- changes in the amount that we spend to develop and manufacture new products or technologies;
- changes in the amounts that we spend to promote our products and services;

- changes in the cost of satisfying our warranty obligations and servicing our installed customer base;
- expenses and/or liabilities resulting from litigation;
- delays between our expenditures to develop and market new or enhanced solutions and the generation of revenue from those solutions;
- unforeseen liabilities or difficulties in integrating our acquisitions or newly acquired businesses;
- disruptions to our information technology systems or our third-party contract manufacturers;
- general economic and industry conditions that effect customer demand;
- seasonal reductions in business activity in certain parts of the world, particularly during the summer months in Europe;
- the impact of the COVID-19 pandemic on our customers, suppliers, manufacturers and operations; and
- changes in accounting rules and tax laws.

In addition, our revenues and operating results may fluctuate from quarter-to-quarter and year-to-year due to our sales cycle and seasonality among our customers. Generally, our additive manufacturing solutions are subject to the adoption and capital expenditure cycles of our customers. As a result, we typically conduct a larger portion of our business during the fourth quarter of our fiscal year relative to the other quarters. Our quarterly sales also have often reflected a pattern in which a disproportionate percentage of each quarter's total sales occurs towards the end of the quarter. This uneven sales pattern makes predicting revenue, earnings, cash flow from operations, adjusted EBITDA and working capital for each period difficult, increases the risk of unanticipated variations in our quarterly results and financial condition, and places pressure on our inventory management and logistics systems. We face a number of uncertainties related to our ability to achieve our targets in a given quarter, including: we may be unable to obtain materials as a result of global supply chain issues, our customers may decline or be unable to take delivery of products during holidays, and we may not receive our expected level of purchase orders or payments. If these or other events were to occur, our results for a given quarter could be negatively impacted, and may vary materially and adversely from our stated expectations and the estimates or expectations of securities research analysts, investors and other market participants.

Additionally, for our more complex solutions, which may require customers to make additional facilities investment, 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.

Due to the foregoing factors, and the other risks discussed in this Annual Report on Form 10-K, you should not rely on quarter-over-quarter and year-over-year comparisons of our operating results as an indicator of our future performance.

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

We have funded our operations since inception primarily through debt and equity financings and sales. We cannot be certain when or if our operations will generate sufficient cash to fully fund our ongoing operations or the growth of our business. 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 Class A common stock. Any debt financing that we may secure in the future could involve restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and to pursue business opportunities, including potential acquisitions. We may not be able to obtain additional financing on terms

favorable to us, if at all. If we are unable to obtain adequate financing or financing on terms satisfactory to us when we require it, our ability to continue to support our business growth and to respond to business challenges and opportunities could be significantly impaired, and our business may be adversely affected.

Risks Related to Third Parties

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, that could result in death, personal injury, property damage, loss of production, punitive damages and consequential damages. 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 attempt to include legal provisions in our agreements with customers that are designed to limit our exposure to potential liability for damages arising from defects or errors in our products. However, it is possible that these limitations may not be effective as a result of unfavorable judicial decisions or laws enacted in the future. Any such lawsuit, regardless of merit, could result in material expense, diversion of management time and efforts and damage to our reputation, and could cause us to fail to retain or attract customers, which could adversely affect our results of operations.

We depend on our network of resellers and our business could be adversely affected if they do not perform as expected.

We rely heavily on our global network of resellers to sell our products and to provide installation and support services to customers in their respective geographic regions. These resellers may not be as effective in selling our products or installing and supporting our customers as we expect. Further, our contracts with our resellers provide for termination for convenience, and if our contracts with a significant number of resellers, or with the most effective resellers, 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. In addition, if our resellers do not perform as anticipated, or if we are unable to secure qualified and successful resellers, our sales will suffer, which would have an adverse effect on our revenues and operating results. Because we also depend upon our resellers to provide installation and support services for products, if our reseller relationship were terminated or limited to certain products, we may face disruption in providing support for our customers, which would adversely affect our 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.

Additionally, a default by one or more resellers that have a significant receivables balance could have an adverse financial impact on our financial results. 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. However, there can be no assurance that our efforts to identify potential credit risks will be successful. Our inability to timely identify resellers that are credit risks could result in defaults at a time when such resellers 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.

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

Customers may use our additive manufacturing systems to print parts that could be used in a harmful way or could otherwise be dangerous. For example, there have been news reports that 3D printers 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. 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.

We depend on a limited number of third-party contract manufacturers for a significant portion of our manufacturing needs. If these third-party manufacturers experience any delay, disruption or quality control problems in their operations, including due to the COVID-19 pandemic, we could lose market share and our brand may suffer.

We depend on third-party contract manufacturers for the production of several of our additive manufacturing systems. While there are several potential manufacturers for most of these products, several of our products are manufactured, assembled, tested and generally packaged by a limited number of third-party manufacturers. 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 finished 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; and
- potential labor unrest affecting the ability of the third-party manufacturers to produce our products.

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, 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 business, results of operations and financial condition could be materially adversely affected.

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. For example, while we expect our third-party contract manufacturers to be responsible for penalties assessed on us because of excessive failures of the products, there is no assurance that we will be able to collect such reimbursements from these manufacturers, which causes us to take on additional risk for potential failures of our products.

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. Our third-party contract manufacturers are primarily responsible for conducting the tests that support our applications for most regulatory approvals for our products. If our third-party contract manufacturers fail to timely and accurately conduct these tests, 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.

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

We acquire certain of our materials, which are critical to the ongoing operation and future growth of our business, from several third parties. If we or one of our contract manufacturers has a supply chain disruption, or our relationship with any of our contract manufacturers or key suppliers terminates, we could experience delays. 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 relationship with our customers as well as our results of operations and financial condition.

Our facilities and the facilities of our third-party contract manufacturers, suppliers, and customers, are vulnerable to disruption due to natural or other disasters, including climate-related events, strikes and other events beyond our control.

A major earthquake, fire, tsunami, hurricane, cyclone or other disaster, such as a pandemic, major flood, seasonal storms, droughts, extreme temperatures, 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 or suppliers, could significantly disrupt our or their operations and delay or prevent product shipment or installation during the time required to repair, reinforce, rebuild or replace our or their damaged manufacturing facilities. These delays could be lengthy and costly. Climate change may contribute to increased frequency or intensity of certain of these events, as well as contribute to chronic changes in the physical environment (such as changes to ambient temperature and precipitation patterns or sea-level rise) any of which may impair the operating conditions of our facilities or the facilities of our customers or third-party manufacturers or suppliers, or otherwise adversely impact our operations and value chain (including the delivery of our services and products), access to capital, access to insurance or access to talent. If any of our facilities or those of our third-party contract manufacturers, suppliers or customers are negatively impacted by such a disaster, production, shipment and installation of our 3D printing machines could be delayed, which can impact the period in which we recognize the revenue related to that 3D printing 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 diseases (including the outbreak of COVID-19) could have a negative effect on our operations and sales.

Risks Related to Our Class A Common Stock

Our issuance of additional shares of Class A common stock or convertible securities may dilute your ownership of us and could adversely affect our stock price.

From time to time, we have issued, and we expect in the future to issue, additional shares of our Class A common stock or securities convertible into our Class A common stock pursuant to a variety of transactions, including acquisitions. Additional shares of our Class A common stock may also be issued upon exercise of outstanding stock options and warrants to purchase our Class A common stock. The issuance by us of additional shares of our Class A common stock or securities convertible into our Class A common stock would dilute your ownership of us and the sale of a significant amount of such shares in the public market could adversely affect prevailing market prices of our Class A common stock. Subject to the satisfaction of vesting conditions and the expiration of lockup agreements, shares issuable upon exercise of options will be available for resale immediately in the public market without restriction.

In the future, we expect to obtain financing or to further increase our capital resources by issuing additional shares of our capital stock or offering debt or other equity securities, including senior or subordinated notes, debt securities convertible into equity, or shares of preferred stock. Issuing additional shares of our capital stock, other equity securities, or securities convertible into equity may dilute the economic and voting rights of our existing stockholders, reduce the market price of our Class A common stock, or both. Debt securities convertible into equity could be subject to adjustments in the conversion ratio pursuant to which certain events may increase the number of equity securities issuable upon conversion. Preferred stock, if issued, could have a preference with respect to liquidating distributions or a preference with respect to dividend payments that could limit our ability to pay dividends to the holders of our Class A common stock. Our decision to issue securities in any future offering will depend on market conditions and other factors beyond our control, which may adversely affect the amount, timing or nature of our future offerings. As a result, holders of our

Class A common stock bear the risk that our future offerings may reduce the market price of our Class A common stock and dilute their percentage ownership.

Future sales, or the perception of future sales, of our Class A common stock by us or our existing stockholders in the public market could cause the market price for our Class A common stock to decline.

The sale of substantial amounts of shares of our Class A common stock in the public market, or the perception that such sales could occur, could harm the prevailing market price of shares of our Class A common stock. These sales, or the possibility that these sales may occur, also might make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate. Certain shares of our common stock are freely tradable without restriction under the Securities Act, except for any shares of our Class A common stock that may be held or acquired by our directors, executive officers, and other affiliates, as that term is defined in the Securities Act, which are be restricted securities under the Securities Act. Restricted securities may not be sold in the public market unless the sale is registered under the Securities Act or an exemption from registration is available. Any such sales, including sales of a substantial number of shares or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. We may also issue shares of our common stock or securities convertible into our common stock from time to time in connection with financings, acquisitions, investments, or otherwise. Any such issuance could result in ownership dilution to you as a stockholder and cause the trading price of our common stock to decline.

Our directors, executive officers and stockholders affiliated with our directors and executive officers own a significant percentage of our Class A common stock and, if they choose to act together, will be able to exert significant control over matters subject to shareholder approval.

Our directors, executive officers, and stockholders affiliated with our directors and executive officers exert significant influence on us. As of December 31, 2022, these holders owned approximately 13.9% of our outstanding Class A common stock. As a result, these holders, acting together, have significant control over all matters that require approval of our stockholders, including the election of directors, amendments of our organizational documents, or approval of any merger, sale of assets, or other major corporate transactions. The interests of these holders may not always coincide with our corporate interests or the interests of other stockholders, and they may act in a manner with which you may not agree or that may not be in the best interests of our other stockholders.

Anti-takeover provisions in our governing documents and under Delaware law could make an acquisition of us more difficult, limit attempts by our stockholders to replace or remove our current management and limit the market price of our Class A common stock.

Our certificate of incorporation, bylaws, and Delaware law contain provisions that could have the effect of rendering more difficult, delaying, or preventing an acquisition deemed undesirable by our board of directors. Among other things, our certificate of incorporation and bylaws include the following provisions:

- a staggered board, which means that our board of directors is classified into three classes of directors with staggered three-year terms and directors are only able to be removed from office for cause;
- limitations on convening special stockholder meetings, which could make it difficult for our stockholders to adopt desired governance changes;
- a prohibition on stockholder action by written consent, which means that our stockholders will only be able to take action at a meeting of stockholders and will not be able to take action by written consent for any matter;
- a forum selection clause, which means certain litigation against us can only be brought in Delaware;
- the authorization of undesignated preferred stock, the terms of which may be established and shares of which may be issued without further action by our stockholders; and
- advance notice procedures, which apply for stockholders to nominate candidates for election as directors or to bring matters before an annual meeting of stockholders.

These provisions, alone or together, could delay or prevent hostile takeovers and changes in control or changes in our management. As a Delaware corporation, we are also subject to provisions of Delaware law, including Section 203 of the DGCL, which prevents interested stockholders, such as certain stockholders holding more than 15% of our outstanding Class A common stock, from engaging in certain business combinations unless (i) prior to the time such stockholder became an interested stockholder, our board of directors approved the transaction that resulted in such stockholder becoming an interested stockholder, (ii) upon consummation of the transaction that resulted in such stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of our Class A common stock, or (iii) following board approval, such business combination receives the approval of the holders of at least two-thirds of our outstanding Class A common stock not held by such interested stockholder at an annual or special meeting of stockholders.

Any provision of our certificate of incorporation, our bylaws or Delaware law that has the effect of delaying, preventing or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our Class A common stock and could also affect the price that some investors are willing to pay for our Class A common stock.

Our certificate of incorporation and bylaws provide that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

Our certificate of incorporation and bylaws provide that, unless we consent in writing to the selection of an alternative forum, the (a) Court of Chancery of the State of Delaware (or, in the event that the Chancery Court does not have jurisdiction, the federal district court for the District of Delaware or other state courts of the State of Delaware) shall, to the fullest extent permitted by law, be the sole and exclusive forum for: (i) any derivative action, suit or proceeding brought on our behalf; (ii) any action, suit or proceeding asserting a claim of breach of fiduciary duty owed by any of our directors, officers, or stockholders to us or to our stockholders; (iii) any action, suit or proceeding asserting a claim arising pursuant to the DGCL, our certificate of incorporation or bylaws; or (iv) any action, suit or proceeding asserting a claim governed by the internal affairs doctrine; and (b) subject to the foregoing, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. Notwithstanding the foregoing, such forum selection provisions shall not apply to suits brought to enforce any liability or duty created by the Exchange Act or any other claim for which the federal courts of the United States have exclusive jurisdiction. The choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees, which may discourage such lawsuits against us and our directors, officers, and other employees. Alternatively, if a court were to find the choice of forum provision contained in our certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business, results of operations, and financial condition.

Additionally, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. As noted above, our certificate of incorporation and bylaws provide that the federal district courts of the United States of America shall have jurisdiction over any action arising under the Securities Act. Accordingly, there is uncertainty as to whether a court would enforce such provision. Our stockholders will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder.

Risks Related to Our Indebtedness

Our indebtedness and liabilities could limit the cash flow available for our operations, expose us to risks that could adversely affect our business, financial condition and results of operations and impair our ability to satisfy our obligations under the 2027 Notes.

In May 2022, we issued $115.0 million principal amount of 6.0% Convertible Senior Notes due 2027. We may also incur additional indebtedness to meet future financing needs. Our indebtedness could have significant negative consequences for our security holders and our business, results of operations and financial condition by, among other things:

- increasing our vulnerability to adverse economic and industry conditions;
- limiting our ability to obtain additional financing;

- requiring the dedication of a substantial portion of our cash flow from operations to service our indebtedness, which will reduce the amount of cash available for other purposes;
- limiting our flexibility to plan for, or react to, changes in our business;
- diluting the interests of our existing stockholders as a result of issuing shares of our Class A common stock upon conversion of the 2027 Notes; and
- placing us at a possible competitive disadvantage with competitors that are less leveraged than we or have better access to capital.

Our business may not generate sufficient funds, and we may otherwise be unable to maintain sufficient cash reserves, to pay amounts due under our indebtedness, including the 2027 Notes, and our cash needs may increase in the future. In addition, any future indebtedness that we may incur may contain financial and other restrictive covenants that limit our ability to operate our business, raise capital or make payments under any existing indebtedness. If we fail to comply with these covenants or to make payments under any existing indebtedness when due, then we would be in default under that indebtedness, which could, in turn, result in that and any other existing indebtedness becoming immediately payable in full.

We may be unable to raise the funds necessary to repurchase the 2027 Notes for cash following a fundamental change, or to pay the cash amounts due upon conversion, and any other existing indebtedness may limit our ability to repurchase the 2027 Notes or pay cash upon their conversion.

Noteholders may require us to repurchase the 2027 Notes following a fundamental change at a cash repurchase price generally equal to the principal amount of the 2027 Notes to be repurchased, plus accrued and unpaid interest, if any. In addition, upon conversion, we will satisfy part or all of our conversion obligation in cash. We may not have enough available cash or be able to obtain financing at the time we are required to repurchase the 2027 Notes or pay the cash amounts due upon conversion. In addition, applicable law, regulatory authorities and the agreements governing any other indebtedness may restrict our ability to repurchase the 2027 Notes or pay the cash amounts due upon conversion. Our failure to repurchase the 2027 Notes or pay the cash amounts due upon conversion when required will constitute a default under the indenture. A default under the indenture or the fundamental change itself could also lead to a default under agreements governing any other indebtedness, which may result in that other indebtedness becoming immediately payable in full. We may not have sufficient funds to satisfy all amounts due under any other indebtedness and the 2027 Notes.

Provisions in the indenture governing the 2027 Notes could delay or prevent an otherwise beneficial takeover of us.

Certain provisions in the 2027 Notes and the indenture governing the 2027 Notes could make a third-party attempt to acquire us more difficult or expensive. For example, if a takeover constitutes a fundamental change, then holders of the 2027 Notes will have the right to require us to repurchase their 2027 Notes for cash. In addition, if a takeover constitutes a make-whole fundamental change, then we may be required to temporarily increase the conversion rate. In either case, and in other cases, our obligations under the 2027 Notes and the indenture could increase the cost of acquiring us or otherwise discourage a third party from acquiring us or removing incumbent management, including in a transaction that holders of our 2027 Notes or holders of our Class A common stock may view as favorable.

Risks Related to Compliance Matters

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 Russia, Belarus, Cuba, Iran, Syria, North Korea and the Crimea Region of Ukraine. 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 U.S. government has had a renewed focus on export matters. For example, the Export Control Reform Act of 2018 and regulatory guidance 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.

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 of our products) may take action determined to be in violation of such laws and regulations. Any violation 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.

We are subject to environmental, health and safety laws and regulations related to our operations and the use of our additive manufacturing systems, produced parts, and consumable materials, which could subject us to compliance costs and/or potential liability in the event of non-compliance.

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

The export of our products internationally from our production facilities subjects us to environmental laws and regulations concerning the import and export of chemicals and hazardous substances such as the United States Toxic Substances Control Act and the Registration, Evaluation, Authorization and Restriction of Chemical Substances. These laws and regulations require the testing and registration of some chemicals that we ship along with, or that form a part of, our systems and other products. If we fail to comply with these or similar laws and regulations, we may be required to make significant expenditures to reformulate the chemicals that we use in our products and materials or incur costs to register such chemicals to gain and/or regain compliance. Additionally, we could be subject to significant fines or other civil and criminal penalties should we not achieve such compliance.

The SEC's rules on climate change disclosures proposed in March 2022, if adopted, will increase our costs and expenditures, as well as the costs, expenditures and expectations of many of our third parties. The cost of complying with other current and future environmental, health and safety laws applicable to our operations and the operations of many of our third parties, or the liabilities arising from past 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.

Increasing attention to, and evolving expectations for, environmental, social, and governance ("ESG") initiatives could increase our costs, harm our reputation, or otherwise adversely impact our business.

Companies across industries are facing increasing scrutiny from a variety of stakeholders related to their ESG practices. Expectations regarding voluntary ESG initiatives and disclosures may result in increased costs, changes in demand for certain offerings, enhanced compliance or disclosure obligations, or other adverse impacts to our business, financial condition, or results of operations. While we may at times engage in voluntary ESG initiatives, such initiatives may be costly and may not have the desired effect. We may experience pressure to make commitments relating to ESG matters that affect us, but we may be unable to make such commitments for strategic or cost-related reasons (or be perceived as not making commitments to the extent expected by stakeholders), in which case, we may experience reputational fallout, negative impacts with respect to our stakeholder relations or limitations with respect to our access to capital or insurance. Unfavorable ESG ratings could lead to increased negative investor sentiment towards us, which could negatively impact our share price as well as our access to and cost of capital. To the extent ESG matters negatively impact our reputation, it may also impede our ability to compete as effectively to attract and retain employees or customers, which may adversely impact our operations.

Aspects of our business are subject to privacy, data use and data security regulations, which could increase our costs.

We collect personally identifiable information from our employees, prospects, and our customers. Privacy and security laws and regulations may limit the use and disclosure of certain information and require us to adopt certain cybersecurity and data handling practices that may affect our ability to effectively market our services to current, past or prospective customers. We must comply with privacy laws in the United States, Europe and elsewhere, including GDPR in the European Union, which became effective May 25, 2018 and the retained version of the GDPR as it forms part of the law of England and Wales, Scotland and Northern Ireland, and the California Consumer Privacy Act of 2018, which was enacted on June 28, 2018 and became effective on January 1, 2020. These laws create new individual privacy rights and impose increased obligations, including disclosure obligations, on companies handling personal data. In many jurisdictions, consumers must be notified in the event of a data security breach, and such notification requirements continue to increase in scope and cost. Privacy and security laws and regulations may limit the use and disclosure of certain information and require us to adopt certain cybersecurity and data handling practices that may affect our ability to effectively market our services to current, past or prospective customers. While we have invested in, and intend to continue to invest in, resources to comply with these standards, we may not be successful in doing so, and any such failure could have an adverse effect on our business, results of operations and reputation.

As privacy, data use and data security laws are interpreted and applied, compliance costs may increase, particularly in the context of ensuring that adequate data protection and data transfer mechanisms are in place. In recent years, there has been increasing regulatory enforcement and litigation activity in this area in the United States, Germany and in various other countries in which we operate.

Compliance with regulations for medical devices and solutions is expensive and time-consuming, and failure to obtain or maintain approvals, clearances, or compliance could impact financial projections and/or subject us to penalties or liabilities.

Our Desktop Labs and Desktop Health products and services, and healthcare provider customers and distributors, are and will be subject to extensive federal, state, local and foreign regulations, including, without limitation, regulations with respect to approvals and clearances for products, design, manufacturing and testing, labeling, marketing, sales, quality control, and privacy. Unless an exemption applies, we must obtain clearance or approval from the Food and Drug Administration (or comparable foreign regulatory body) before a medical device or solution can be marketed or sold; this process involves significant time, effort and expense. The healthcare market overall is highly regulated and subject to frequent and sudden change. Our failure to secure clearances or approvals or comply with regulations could have an adverse impact on our business and reputation and subject us to lost research and development costs, withdrawal of clearance/approval, operating restrictions, liabilities, fines, penalties and/or litigation.

Risks Related to Intellectual Property

Third-party lawsuits and assertions alleging our infringement of patents, trade secrets or other intellectual property rights may have a significant adverse effect on our financial condition.

Third parties may own issued patents and pending patent applications that exist in fields relevant to additive manufacturing. Some of these third parties may assert that we are employing their proprietary technology without authorization. There may be third-party patents or patent applications with claims related to additive manufacturing. Because patent applications can take many years to issue, there may be currently pending patent applications which may later result in issued patents that our additive technologies may infringe. In addition, third parties may obtain patents in the future and claim that our technologies infringe upon these patents. Any third-party lawsuits or other assertion to which we are subject alleging our infringement of patents, trade secrets or other intellectual property rights may have a significant adverse effect on our financial condition.

We may incur substantial costs enforcing and defending our intellectual property rights.

We may incur substantial expense and costs in protecting, enforcing and defending our intellectual property rights against third parties. Intellectual property disputes may be costly and can be disruptive to our business operations by diverting attention and energies of management and key technical personnel and by increasing our costs of doing business. Third-party intellectual property claims asserted against us could subject us to significant liabilities, require us to enter into royalty and licensing arrangements on unfavorable terms, prevent us from assembling or licensing certain of our products, subject us to injunctions restricting our sale of products, cause severe disruptions to our operations or the marketplaces in which we compete or require us to satisfy indemnification commitments with our customers, including contractual provisions under various license arrangements. In addition, we may incur significant costs in acquiring the necessary third-party intellectual property rights for use in our products. Any of these could have an adverse effect on our business and financial condition.

If we are unable to adequately protect or enforce our intellectual property rights, such information may be used by others to compete against us, in particular in developing consumables that could be used with our printing systems in place of our proprietary consumables.

We have devoted substantial resources to the development of our technology and related intellectual property rights. Our success and future revenue growth will depend, in part, on our ability to protect our intellectual property. We rely on a combination of registered and unregistered intellectual property and protect our rights using patents, licenses, trademarks, trade secrets, confidentiality and assignment of invention agreements and other methods.

Despite our efforts to protect our proprietary rights, it is possible that competitors or other unauthorized third parties may obtain, copy, use or disclose our technologies, inventions, processes or improvements. We cannot assure you that any of our existing or future patents or other intellectual property rights will not be challenged, invalidated or circumvented, or will otherwise provide us with meaningful 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.

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. 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 consumables that are used with our systems. Portions of our proprietary consumables may not be afforded patent protection. Chemical companies or other producers of raw materials used in our consumables may be able to develop consumables that are compatible to a large extent with our products, whether independently or in contravention of our trade secret rights and related proprietary and contractual rights. If such

consumables are made available to owners of our systems, and are purchased in place of our proprietary consumables, our revenues and profitability would be reduced, and we could be forced to reduce prices for our proprietary consumables.

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.

If we attempt enforcement of our intellectual property rights, we may be, and have been in the past, subject or party to claims, negotiations or complex, protracted litigation. Intellectual property disputes and litigation, regardless of merit, can be costly and disruptive to our business operations by diverting attention and energies of management and key technical personnel and by increasing our costs of doing business. Any of the foregoing could adversely affect our business and financial condition.

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.

Our additive manufacturing software 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 sell our products.

Our additive manufacturing software 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, but not in a manner that we believe requires the release of the source code of our proprietary software to the public. We do not plan to integrate our proprietary software with open source software in ways that would require the release of the source code of our proprietary software to the public; however, our use and distribution of open source software may entail greater risks than use of third-party commercial software. 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 release to the public or remove the source code of our proprietary software. We may also face claims alleging noncompliance with open source license terms or infringement or misappropriation of proprietary 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

Our Class A common stock price may be volatile or may decline regardless of our operating performance. You may lose some or all of your investment.

The trading price of our Class A common stock is likely to be volatile. The stock market recently has experienced extreme volatility. This volatility often has been unrelated or disproportionate to the operating performance of particular companies. You may not be able to resell your shares at an attractive price due to a number of factors such as those listed in this section and the following:

- the impact of the COVID-19 pandemic on our financial condition and the results of operations;
- our operating and financial performance and prospects;
- our quarterly or annual earnings or those of other companies in our industry compared to market expectations;

- conditions that impact demand for our products;
- future announcements concerning our business, our customers' businesses or our competitors' businesses;
- the public's reaction to our press releases, other public announcements and filings with the SEC;
- the size of our public float;
- coverage by or changes in financial estimates by securities analysts or failure to meet their expectations;
- market and industry perception of our success, or lack thereof, in pursuing our growth strategy;
- strategic actions by us or our competitors, such as acquisitions or restructurings;
- changes in laws or regulations which adversely affect our industry or us;
- changes in accounting standards, policies, guidance, interpretations or principles;
- changes in senior management or key personnel;
- issuances, exchanges or sales, or expected issuances, exchanges or sales of our capital stock;
- changes in our dividend policy;
- adverse resolution of new or pending litigation against us; and
- changes in general market, economic and political conditions in the United States and global economies or financial markets, including those resulting from natural disasters, terrorist attacks, acts of war and responses to such events.

These broad market and industry factors may materially reduce the market price of our Class A common stock, regardless of our operating performance. In addition, price volatility may be greater if the public float and trading volume of our Class A common stock is low. As a result, you may suffer a loss on your investment.

In the past, following periods of market volatility, stockholders have instituted securities class action litigation. If we were involved in securities litigation, it could have a substantial cost and divert resources and the attention of executive management from our business regardless of the outcome of such litigation.

If securities analysts do not publish research or reports about us, or if they issue unfavorable commentary about us or our industry or downgrade our Class A common stock, the price of our Class A common stock could decline.

The trading market for our Class A common stock depends, in part, on the research and reports that third-party securities analysts publish about us and the industries in which we operate. We may be unable or slow to attract research coverage and if one or more analysts cease coverage of us, the price and trading volume of our securities would likely be negatively impacted. If any of the analysts that may cover us change their recommendation regarding our Class A common stock adversely, or provide more favorable relative recommendations about our competitors, the price of our Class A common stock would likely decline. If any analyst that may cover us ceases covering us or fails to regularly publish reports on us, we could lose visibility in the financial markets, which could cause the price or trading volume of our Class A common stock to decline. Moreover, if one or more of the analysts who cover us downgrades our Class A common stock, or if our reporting results do not meet their expectations, the market price of our Class A common stock could decline.

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.

We are subject to the reporting requirements of the Exchange Act and the Sarbanes-Oxley Act. The Exchange Act requires that we file annual, quarterly and current reports with respect to our business and financial condition. The Sarbanes-Oxley Act requires, among other things, that we establish and maintain effective internal control over financial reporting. Now that we have ceased to be an "emerging growth company" an attestation report on internal control over financial reporting is required to be issued by our independent registered public accounting firm. As a result, we have incurred, and will continue to incur, increased legal, accounting and other expenses. Our entire management team and many of our other employees will continue to devote substantial time to compliance and may not effectively or efficiently manage our transition into a public company.

In addition, the need to establish the corporate infrastructure demanded of a public company may also divert management's attention from implementing our business strategy, which could prevent us from improving our business, results of operations and financial condition. We have made, and will continue to make, changes to our internal control over financial reporting, including IT controls, and procedures for financial reporting and accounting systems to meet our reporting obligations as a public company. However, the measures we take may not be sufficient to satisfy our obligations as a public company. If we do not continue to develop and implement the right processes and tools to manage our changing enterprise and maintain our culture, our ability to compete successfully and achieve our business objectives could be impaired, which could negatively impact our business, financial condition and results of operations. In addition, we cannot predict or estimate the amount of additional costs we may incur to comply with these requirements.

These rules and regulations result in our incurring legal and financial compliance costs and will make some activities more time-consuming and costly. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance, and we 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 more difficult for us to attract and retain qualified people to serve on our board of directors, our board committees or as executive officers.

As a public reporting company, we will be subject to rules and regulations established from time to time by the SEC regarding our internal control over financial reporting. If we fail to establish and maintain effective internal control over financial reporting and disclosure controls and procedures, we may not be able to accurately report our financial results or report them in a timely manner.

We are subject to the rules and regulations established from time to time by the SEC and the NYSE. These rules and regulations require, among other things that we establish and periodically evaluate procedures with respect to our internal control over financial reporting. Reporting obligations as a public company are likely to place a considerable strain on our financial and management systems, processes and controls, as well as on our personnel.

In addition, as a public company, we are required to document and test our internal control over financial reporting pursuant to Section 404 of the Sarbanes-Oxley Act so that our management can certify as to the effectiveness of our internal control over financial reporting.

We have identified material weaknesses in our internal controls over financial reporting as of December 31, 2022. Our internal controls over financial reporting currently do not meet all of the standards contemplated by Section 404 of Sarbanes-Oxley Act of 2002, or 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 are required to maintain internal control over financial reporting and to report any material weaknesses in these controls. The process of designing and implementing effective internal controls is a continuous effort that will require 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 will be 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 will need 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.

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

Matters impacting our internal controls may cause us to be unable to report our financial information on a timely basis and thereby subject us to adverse regulatory consequences, including sanctions by the SEC or violations of applicable NYSE listing rules, which may result in a breach of the covenants under existing or future financing arrangements. There also could be a negative reaction in the financial markets due to a loss of investor confidence in us and the reliability of our financial statements. Confidence in the reliability of our financial statements also could suffer if we or our independent registered public accounting firm continue to report a material weakness in our internal controls over financial reporting. This could materially adversely affect us and lead to a decline in the market price of our Class A common stock.

As of December 31, 2022, our management and auditors determined that material weaknesses existed in our internal control over financial reporting due to the fact that we had not fully integrated our acquired subsidiaries into our control structure, and with our limited accounting department personnel, this may not be achievable. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our annual or interim consolidated financial statements will not be prevented or detected on a timely basis. While we have instituted plans to remediate the issue described above and continue to take remediation steps, including hiring additional personnel, including a vice president of accounting with public company experience, we continued to have a limited number of personnel with the level of GAAP accounting knowledge, specifically related to complex accounting transactions, commensurate with our financial reporting requirements.

Although we believe the hiring of additional accounting resources, implementation of additional reviews and processes requiring timely account reconciliations and analysis and implementation of processes and controls to better identify and manage segregation of duties will remediate the material weakness with respect to insufficient personnel, there can be no assurance that the material weakness will be remediated on a timely basis or at all, or that additional material weaknesses will not be identified in the future. If we are unable to remediate the material weakness, our ability to record, process, and report financial information accurately, and to prepare financial statements within the time periods specified by the rules and forms of the SEC, could be adversely affected which, in turn, to may adversely affect our reputation and business and the market price of our Class A common stock.

Our goodwill has been subject to impairment and may be subject to impairment in the future.

We have $113.0 million of goodwill on our balance sheet as of December 31, 2022. Under U.S. GAAP, goodwill is required to be reviewed for impairment at least annually, or more frequently if potential interim indicators exist. Impairment may result from various factors, including adverse changes in assumptions used for valuation purposes, such as actual or projected revenue growth rates, profitability or discount rates. If the testing indicates that an impairment has occurred, we are required to record a non-cash impairment charge for the difference between the carrying value of the goodwill and the fair value of the goodwill. Events and conditions that could result in impairment include a prolonged period of global economic weakness, a decline in economic conditions, or a slow economic recovery, adverse changes in the market share of our products, or other factors which could result in reductions in our sales or profitability over an extended period. We cannot predict the amount and timing of any future impairments, if any. We have experienced impairment charges with respect to goodwill, and we may experience such charges in the future, particularly if our business performance declines or expected growth is not realized. During the year ended December 31, 2022, we incurred $498.8 million of goodwill impairment charges. It is possible that material changes in our business, market conditions, or assumptions about our market share or position could occur over time. Any future impairment of our goodwill or other intangible assets could have a material adverse effect on our financial condition and results of operations as well as the trading price of our securities.

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

We are currently, and have been in the recent past, subject to litigation, and we could be subject to further litigation in the future. Although we vigorously pursue favorable outcomes, we can provide no assurance as to the outcome of any current or future lawsuits or allegations, 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 losses, damages and expenses that have a significant adverse effect on our financial condition.

We do not intend to pay dividends on our Class A common stock for the foreseeable future.

We currently intend to retain all available funds and any future earnings to fund the development and growth of our business. As a result, we do not anticipate declaring or paying any cash dividends on our Class A common stock in the foreseeable future. Any decision to declare and pay dividends in the future will be made at the discretion of our board of directors and will depend on, among other things, our business prospects, results of operations, financial condition, cash requirements and availability, certain restrictions related to our indebtedness, industry trends and other factors that our board of directors may deem relevant. Any such decision will also be subject to compliance with contractual restrictions and covenants in the agreements governing our current and future indebtedness. In addition, we may incur additional indebtedness, the terms of which may further restrict or prevent us from paying dividends on our Class A common stock. As a result, you may have to sell some or all of your Class A common stock after price appreciation in order to generate cash flow from your investment, which you may not be able to do. Our inability or decision not to pay dividends, particularly when others in our industry have elected to do so, could also adversely affect the market price of our Class A common stock.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Desktop Metal’s corporate headquarters are located in Burlington, Massachusetts. As of December 31, 2022, we leased approximately 110,000 square feet of office and building space for our corporate headquarters and in the surrounding area. We use these facilities primarily for manufacturing, research and development, warehousing, sales, marketing and administration.

As of December 31, 2022, we own or lease approximately 690,000 square feet of building space around the world, with significant locations in the United States, Germany, Italy and Japan. These locations support all aspects of our operations, including manufacturing, research and development, warehousing, sales, marketing and administration.

We believe the existing facilities are in good operating condition and adequate to meet our needs for the immediate future. In connection with the ongoing Initiative, we intend to close four facilities and consolidate them into four core locations in the United States. We intend to continue to evaluate our facility footprint to identify and assess operational savings and efficiencies.

Item 3. Legal Proceedings

We are from time to time subject to various claims, lawsuits and other legal and administrative proceedings arising in the ordinary course of business. Some of these claims, lawsuits and other proceedings may involve highly complex issues that are subject to substantial uncertainties, and could result in damages, fines, penalties, non-monetary sanctions or relief. We recognize provisions for claims or pending litigation when we determine that an unfavorable outcome is probable, and the amount of loss can be reasonably estimated. Due to the inherent uncertain nature of litigation, the ultimate outcome or actual cost of settlement may materially vary from estimates. While the outcome of these claims cannot be predicted with certainty, management does not believe that the outcome of any current legal proceedings will have a material adverse impact on the Company’s consolidated financial statements.

Between September 2021 and the closing of the ExOne Merger on November 12, 2021, twelve putative class action complaints were filed by purported ExOne shareholders against ExOne and the former ExOne Board of Directors alleging violations of federal securities laws in connection with the S-4 filed by ExOne for the ExOne Merger. All have been dismissed.

On November 8, 2021, another purported stockholder, Leo Lissog Goldstein, filed a Section 220 complaint in Delaware Chancery Court against ExOne (*Goldstein v. The ExOne Company, Case No.* 2021-0958-KSJM). Mr. Goldstein seeks to discover certain books and records of the company related to the ExOne Merger purportedly in order to investigate, among other things, the events leading up to and the disclosures made in connection with the ExOne Merger. Mr. Goldstein also moved to intervene and stay the *Campanella* action, discussed below, until his Section 220 action is complete. Mr. Goldstein dismissed his complaint on February 14, 2023.

On November 22, 2021, purported stockholder Pietro Campanella filed a class action lawsuit against ExOne, Desktop Metal, Inc., and former ExOne directors and officers alleging breach of fiduciary duties and aiding and abetting breach of fiduciary duties in connection with the ExOne Merger (*Campanella v. The ExOne Company et al., Case No. 2021-1013*, Case No. 2021-1013-LWW). In particular, Mr. Campanella alleges that ExOne's proxy statement and supplemental disclosures did not adequately disclose information related to a whistleblower investigation at one of Desktop Metal's subsidiaries, EnvisionTEC, and the resignation of EnvisionTEC's CEO.

On December 21, 2021, January 14, 2022, February 2, 2022 and February 22, 2022, four alleged shareholders of Desktop Metal stock filed purported securities class action complaints in the United States District Court for the District of Massachusetts. (Luongo v. Desktop Metal, D. Mass., Case No. 1:21-cv-12099-IT; Hathaway v. Desktop Metal, D. Mass., Case No. 1:22-cv-10059-IT; Guzman-Martinez v. Desktop Metal, D. Mass, Case No. 1:22-cv-10173, Xie v. Desktop Metal, Case No. 1:22-cv-10297-IT). Each complaint alleges that Desktop Metal and certain of its officers and directors violated Sections 10(b) and 20(a) of the Securities and Exchange Act by making false or misleading statements regarding EnvisionTEC's manufacturing and product compliance practices and procedures. On February 4, 2022, the court issued an order consolidating the first three District of Massachusetts securities class actions. On July 7, 2022, the court appointed Sophia Zhou lead plaintiff for the class period of February 17, 2021 through November 15, 2021. The court also vacated its earlier order consolidating the *Xie* action with the other lawsuits and will allow that action to proceed separately, with a new notice to investors, based on a class period of January 15, 2021 to February 16, 2021. On September 29, 2022, the Court re-consolidated the *Xie* action with the other actions for all pre-trial proceedings.

On July 12, 2022, two alleged shareholders of Desktop Metal stock filed derivative actions purportedly on behalf of Desktop Metal in the United States District Court for the District of Massachusetts. (Keyser v. Fulop, et al., Case No. 1:22-cv-11117; Qi v. Fulop, et al., Case No. 1:22-cv-1118). On July 22, 2022, an alleged shareholder of Desktop Metal stock filed a similar derivative complaint in the United States District Court for the District of Delaware (Cherry v. Fulop, et al., Case No. 1:22-cv-00962). The complaints allege that certain officers and directors of Desktop Metal caused harm to the Company by violating Section 14(A) of the Exchange Act and SEC Rule 14a-9 and breaching their fiduciary duties by making false or misleading statements regarding EnvisionTEC's manufacturing and product compliance practice and procedures.

On February 9, 2023, purported stockholder Jeffrey Schantz sent a demand letter to the company, requesting certain books and records of the company related to the December 8, 2020 transaction in which Trine Acquisition Corp. ("Trine"), a special purpose acquisition company ("SPAC"), merged with Desktop Metal.

The Company believes that these complaints are all without merit and intends to defend against them vigorously.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

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

Market Information

Our Class A common stock is listed on the New York Stock Exchange under the symbol "DM".

Stockholders

As of February 24, 2023, there were 167 holders of record of our Class A common stock. The actual number of stockholders of our Class A common stock is greater than the number of record holders.

Dividend Policy

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

Recent Sales of Unregistered Securities

All sales of unregistered securities by us during the year ended December 31, 2022 have been included previously in a Quarterly Report on Form 10-Q or in a Current Report on Form 8-K.

Issuer Purchases of Equity Securities

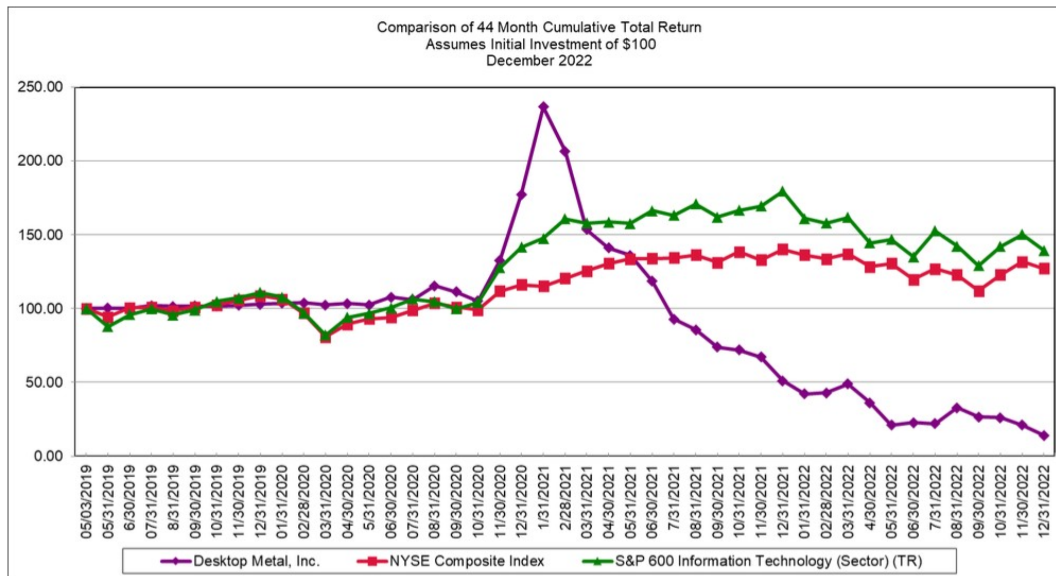
The following table sets forth purchases of our common stock for the three months ended December 31, 2022:

Period	Total number of shares purchased (1)	Average price paid per share	Total number of shares purchased as part of a publicly announced program	Approximate dollar value of shares that may yet be purchased under the program
October 1, 2022 through October 31, 2022	—	$ —	—	—
November 1, 2022 through November 30, 2022	5,383	$ 2.19	—	—
December 1, 2022 through December 31, 2022	1,276	$ 1.98	—	—
Total	6,659		—	

(1) All of the shares were withheld from employees in satisfaction of minimum tax withholding obligations associated with the issuance of shares of Class A common stock in connection with acquisitions during the period.

Performance Graph

The following performance graph shows the total stockholder return on an investment of $100 cash on May 3, 2019 (the date our common stock began trading on the NYSE) through December 31, 2022, for (i) our Class A common stock, (ii) NYSE Composite Index and (iii) the S&P Small Cap 600 Information Technology Index.



The graph assumes an initial investment of $100 on May 3, 2019. The comparisons in the graph are not intended to forecast or be indicative of possible future performance of our common stock. The performance graph and related information shall not be deemed “soliciting material” or be “filed” with the SEC, nor shall such information be incorporated by reference into any future filings under the Securities Act or Exchange Act.

Item 6. Selected Financial Data

Not applicable.

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

The following discussion and analysis provides information which management believes is relevant to an assessment and understanding of Desktop Metal’s consolidated results of operations and financial condition. The discussion should be read in conjunction with Desktop Metal’s consolidated financial statements and notes thereto included elsewhere in Annual Report on Form 10-K. This discussion contains forward-looking statements and involves numerous risks and uncertainties, including, but not limited to, those described under the heading “Risk Factors”. Actual results may differ materially from those contained in any forward-looking statements.

Business Overview

Desktop Metal is pioneering a new generation of additive manufacturing technologies focused on Additive Manufacturing 2.0, the volume production of end use parts. We offer a comprehensive portfolio of integrated additive manufacturing solutions comprised of hardware, software, materials and services with support for metals, polymers, elastomers, ceramics, sands, composites, wood and biocompatible materials. Our solutions span use cases across the product life cycle, from product development to mass production and aftermarket operations, and they address an array of industries, including automotive, healthcare and dental, consumer products, heavy industry, aerospace, machine design and research and development.

Our growth strategy begins with a commitment to research and development. Since our founding in 2015, we have invested significant resources in research and development towards building an extensive portfolio of proprietary and differentiated technologies with a focus on making additive manufacturing an easy-to-use, economic and scalable solution. These technologies represent the cornerstones of our future product introductions, are critical to enhancing our existing offerings, and are supported by over 950 patents or pending patent applications. Our additive manufacturing platforms, which leverage these technologies for the production of tools and end-use parts, enable businesses to address their specific goals through a range of solutions that span price points, throughput levels and operating environments.

Our product platforms offer several key advantages over competitive additive manufacturing systems including breakthrough print speeds, competitive part costs, accessible workflows and software, turnkey solutions and support for over 250 qualified materials, the sale of which represent a recurring revenue stream from customers of our additive manufacturing solutions in addition to system consumables and other services, such as installation, training and technical support. As a result of these strengths, our solutions are lowering the barriers to adopting additive manufacturing and unlocking new applications where conventional manufacturing has customarily held cost and volume advantages. Across printers, parts and materials, we intend to continue investing to advance our current technology portfolio and develop new technologies that allow us to serve a broader customer base and reach new verticals, thereby expanding our addressable market and driving adoption of Additive Manufacturing 2.0.

We leverage our core competencies in technology innovation and product development by marketing and selling our Additive Manufacturing 2.0 solutions through a leading global distribution network, managed and augmented by our own internal sales and marketing teams. This distribution network, which covers over 40 countries around the world, is composed of sales and distribution professionals with decades of experience in digital manufacturing technologies and works alongside our direct sales force to market and sell products across a range of industries and price points. Similarly, our internal manufacturing and supply chain teams to work collaboratively with our internal engineering department and third-party contract manufacturers to scale up initial prototypes for commercialization and volume commercial shipments. Together, our hybrid distribution and manufacturing approaches allow us to produce, sell and service our products at-scale in global markets and create substantial operating leverage as we execute our strategy.

Our proprietary technology solutions also serve as the foundation for product parts offerings in which we which we directly manufacture parts for sale to our customers with a focus on key applications and verticals in which additive manufacturing can provide significant design, performance, cost and supply chain advantages relative to conventional manufacturing. These offerings will enable us to provide a more holistic suite of solutions for our customers and enable the accelerated adoption of our Additive Manufacturing 2.0 solutions across select high-value production applications, which we refer to as “killer apps”, including, but not limited to, medical and dental devices, and fluid power systems. We believe such offerings will not only create a high-margin revenue stream, but will also facilitate lead generation for our additive manufacturing systems at scale and enable high-performance and specialized applications using new materials ahead of broader market introduction.

Operating Results

For the year ended December 31, 2022, we recognized revenues of $209.0 million and used cash in operating activities of $181.5 million, and we ended the year with $184.5 million of cash, cash equivalents, and short-term investments. We incurred a net loss of $740.3 million the year ended December 31, 2022. As of December 31, 2022, we had $76.3 million in cash and cash equivalents, $108.2 million in short-term liquid investments, and current liabilities of $83.4 million.

Recent Developments

Convertible Debt Offering

On May 13, 2022, we issued $100.0 million principal amount of our 6.0% Convertible Senior Notes due 2027 ("2027 Notes"). The 2027 Notes were issued pursuant to, and are governed by, an indenture, dated as of May 13, 2022, between us and U.S. Bank Trust Company, National Association, as trustee. Pursuant to the purchase agreement between us and the initial purchasers of the 2027 Notes, we granted the initial purchasers an option to purchase up to an additional $15.0 million principal amount of 2027 Notes, which was exercised on May 19, 2022.

Strategic Integration and Cost Optimization Initiative

On June 10, 2022, the Board of Directors approved a strategic integration and cost optimization initiative that included a global workforce reduction, facilities consolidation, and other operational savings measures (the "Initiative"). The purpose of the Initiative is to streamline our operational structure, reduce our operating expenses and manage our cash flows. We have commenced workforce reductions in the United States and other countries and are planning for additional workforce changes, the timing of which will vary according to local regulatory requirements. On January 31, 2023, we committed to additional actions to continue and expand the Initiative. These additional actions include closing and consolidating select locations in the United States and Canada and reducing our workforce by an additional 15%, prioritizing investments and operations in line with near-term revenue generation, positioning us to achieve our long-term financial goals.

For all committed restructuring activities under the Initiative, we expect to incur total pre-tax restructuring charges of $19.6 million to $26.0 million related to one-time termination benefits and associated costs, inventory write-offs, lease termination and equipment exit costs, and contract termination costs. As a result of the Initiative, we realized $20.7 million of cost savings in the second half of 2022 and expect annualized cost savings of $100 million in 2023. We continue to anticipate that the Initiative will be substantially complete by the end of 2023.

Goodwill Impairment

We identified potential indicators of impairment and performed interim impairment analyses as of June 30, 2022 and December 31, 2022, utilizing a combination of the income and market approaches. The results of the quantitative analysis performed indicated the carrying value of the reporting unit exceeded the fair value. As such, a $498.8 million goodwill impairment charge was recorded during the year ended December 31, 2022.

COVID-19

In 2020 and 2021, in response to the COVID-19 pandemic, governments around the world implemented safety precautions which included quarantines, travel restrictions, business closures, cancellations of public gatherings and other measures as they deemed necessary. Many organizations and individuals, including our company and employees, took additional steps to avoid or reduce infections, including limiting travel and staying home from work. These measures disrupted normal business operations and had significant negative impacts on businesses and financial markets worldwide. With the availability of vaccines against COVID-19, restrictions on social and business travel and government activities and functions in certain areas of the world have been and continue to be lifted, but infection rates continue to fluctuate and new variants continue to appear, leading to continued uncertainty about the pandemic. While we have largely returned to our normal operations, we continue to monitor our operations and government recommendations to maintain readiness to implement modifications if conditions warrant.

Early in the COVID-19 pandemic we experienced several adverse impacts, including extended sales cycles to close new orders for our products, delays in shipping and installing orders due to closed facilities and travel limitations and delays in collecting accounts receivable. In particular, businesses across an array of vertical markets temporarily reduced capital expenditure budgets globally as they sought to preserve liquidity to ensure the longevity of their own operations, which we believe temporarily impacted demand for purchases of our additive manufacturing solutions. In addition, facility closures at our third party contract manufacturers and key suppliers caused delays and disruptions in product manufacturing, which impacted our costs and our ability to ship products purchased by our customers in a timely manner. While we have experienced some improvement from the severity of these negative impacts, the ongoing pandemic may continue to impact business operations worldwide, including as a result of port congestion, supplier delays and labor shortages, which may increase our costs and impact our path to profitability.

In the long term, we believe that the COVID-19 pandemic and the subsequent disruptions in global supply chains and logistics networks will encourage organizations to reassess their supply chain structure and may accelerate their adoption of solutions such as additive manufacturing, which could allow for greater flexibility through decentralized production capabilities, on-demand inventory resiliency, reductions in supply chain complexity and a reduced reliance on overseas manufacturing.

Key Factors Affecting Operating Results

We believe that our performance and future success depend on many factors that present significant opportunities for us but also pose risks and challenges, including those discussed below and in "*Risk Factors*" section of this Annual Report on Form 10-K.

Adoption of our Additive Manufacturing Solutions

We believe the world is at an inflection point in the adoption of additive manufacturing solutions and that we are well-positioned to take advantage of this opportunity across an array of industries due to our proprietary technologies and global distribution capabilities. We expect that our results of operations, including revenue and gross margins, will fluctuate for the foreseeable future as businesses continue to shift away from conventional manufacturing processes towards additive manufacturing for end-use parts. Our turnkey and volume production solutions are designed to empower businesses to realize the full benefits of additive manufacturing at-scale, including geometric and design flexibility, mass customization and supply chain engineering, among others. The degree to which potential and current customers recognize these benefits and invest in our solutions will affect our financial results.

Pricing, Product Cost and Margins

We offer customers a range of additive manufacturing solutions spanning multiple price points, materials, throughput levels, operating environments and technologies to enable them to find the solution that achieves their specific goals. Our product portfolio continues to expand with new releases and we have a variety of new products in development. Pricing for these products may vary by region due to market-specific supply and demand dynamics and product lifecycles, and sales of certain products have, or are expected to have, higher gross margins than others. As a result, our financial performance depends, in part, on the mix of products we sell during a given period. In addition, we are subject to price competition, and our ability to compete in key markets will depend on the success of our investments in new technologies and cost improvements as well as our ability to efficiently and reliability introduce cost-effective additive manufacturing solutions for our customers.

Continued Investment and Innovation

We believe that we are a leader in mass production and turnkey additive manufacturing solutions, offering breakthrough technologies that enable high throughput and ease-of-use through our broad product portfolio. Our performance is significantly dependent on the investment we make in our research and development efforts and on our ability to be at the forefront of the additive manufacturing industry. It is essential that we continually identify and respond to rapidly evolving customer requirements, develop and introduce innovative new products, enhance existing products and generate customer demand for our solutions. We believe that investment in our additive manufacturing solutions will contribute to long-term revenue growth, but it may adversely affect our near-term profitability.

Commercial Launch of Products

We continually invest in the development of new products and enhancements to existing products to meet constantly evolving customer demands. Prior to commercialization of new products, we must complete final testing, procurement and manufacturing ramp up of these products in-house or at our third-party contract manufacturers, as applicable. Any delays in successful completion of these steps may impact our ability to generate revenue from these products.

Acquisitions and Transaction-Related Costs

As part of our growth strategy, we have acquired or made investments in other business, patents, technologies, products or services, and may continue to do so. Our growth relies heavily on the successful integration of acquired companies, including our ability to realize the anticipated business opportunities from combining operations in an efficient and effective manner. We expect that the results of our operations will fluctuate as we continue to integrate these businesses, and the technologies, products, and services that they offer. Additionally, our results of operations will be impacted by non-recurring transaction-related costs, including integration costs, associated with these acquisitions.

Macroeconomic Conditions

The current macroeconomic environment is impacting our customers financially and operationally. Customers and potential customers are facing significant financial pressure as supply chain constraints and inflation drive up operating costs and rising interest rates make access to credit more expensive. In recent months, the consumer price index has increased substantially. In addition, during inflationary periods, interest rates have historically increased. In March 2022, the Federal Reserve began, and is expected to continue, to raise interest rates in an effort to curb inflation. As a consequence of these financial pressures, some customers may be lowering their capital investment plans and tightening their operational budgets, which may result in extended sales cycles, delayed purchasing decisions, and pricing pressure for our solutions. Higher interest rates may also impact our ability to obtain debt financing at attractive rates. While we reported revenue growth during 2022, we experienced less revenue growth than we expected, due to the negative impact of customers delaying purchase decisions amidst an uncertain macroeconomic backdrop.

Components of Results of Operations

Revenue

The majority of our revenue results from the sales of products, including our additive manufacturing systems and related consumables. Product revenue is recognized upon transfer of control to the customer, which generally takes place at the point of shipment or acceptance. If we cannot objectively determine that the product provided to the customer is in accordance with agreed-upon specifications, revenue is not recognized until customer acceptance is received. We also generate a portion of our revenue from software and support services. Software revenue is recognized (i) in the case of on-device software, upon transfer of control to the customer, which generally takes place upon shipment, and (ii) in the case of cloud-based software, which is primarily sold through one-year annual contracts, ratably over the term of the agreement. Revenue from support services for our additive manufacturing systems is primarily generated through one-year annual contracts and is recognized ratably over the term of the agreement. In certain circumstances, we generate revenue through leases of machinery and equipment to customers. These leases are classified as either operating or sales-type leases based on an analysis of their underlying terms and conditions and generally have lease terms ranging from one to five years.

We generate revenue and deliver products and services through direct sales to end users utilizing both our inside sales and external partners. We also generate revenue from sales to resellers, who purchase and resell our products and also provide installation and support services for our additive manufacturing solutions to end-users.

Cost of Sales

Our cost of sales consists of the cost of products and cost of services. Cost of products includes the manufacturing cost of our additive manufacturing systems and consumables, which primarily consists of amounts paid to our third-party contract manufacturers and suppliers and personnel-related costs directly associated with manufacturing operations. It also includes cost of labor, materials and overhead for our produced parts offerings. Cost of services includes personnel-related costs directly associated with the provision

of support services to our customers, which include engineers dedicated to remote support as well as, training, support and the associated travel costs. Our cost of revenues also includes depreciation and amortization, cost of spare or replacement parts, warranty costs, excess and obsolete inventory and shipping costs, and an allocated portion of overhead costs. We expect 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 revenues. 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 that may impact our pricing;
- Product mix changes between established products and new products;
- Growth in our installed customer base or changes in customer utilization of our additive manufacturing systems, which affects sales of our consumable materials and may result in excess or obsolete inventories; and
- Our cost structure for manufacturing operations, including contract manufacturers, relative to volume, and our product support obligations.

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 technologies, new product platforms and consumables, as well as activities that enhance the capabilities of our existing product platforms. Our research and development expenses consist primarily of employee-related personnel expenses, prototypes, design expenses, consulting and contractor costs and an allocated portion of overhead costs. We expect research and development costs will increase on an absolute dollar basis over time as we continue to invest in advancing our portfolio of additive manufacturing solutions.

Sales and Marketing

Sales and marketing expenses consist primarily of employee-related costs for individuals working in our sales and marketing departments, third party commissions, costs related to trade shows and events and an allocated portion of overhead costs. We expect our sales and marketing costs will increase on an absolute dollar basis as we expand our headcount, initiate new marketing campaigns and launch new product platforms.

General and Administrative

General and administrative expenses consist primarily of personnel-related expenses associated with our executive, finance, legal, information technology and human resources functions, as well as professional fees for legal, audit, accounting and other consulting services, and an allocated portion of overhead costs. We expect our general and administrative expenses will increase on an absolute dollar basis as a result of operating as a public company, including expenses necessary to comply with the rules and regulations applicable to companies listed on a national securities exchange and related to compliance and reporting obligations pursuant to the rules and regulations of the SEC, as well as increased expenses for general and director and officer insurance, investor relations, and other administrative and professional services. In addition, we expect to incur additional costs as we hire additional personnel and enhance our infrastructure to support the anticipated growth of the business.

In-Process Research and Development

In-process research and development expense consists of acquired assets that are deemed to have no future or alternative use, therefore, the acquisition costs are expensed under Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC Topic 730, Research and Development. We expect in-process research and development to fluctuate depending on our acquisition strategy and targets we acquire.

Goodwill Impairment

Goodwill impairment represents an impairment charge to write down the carrying amount of goodwill to fair value.

Change in Fair Value of Warrant Liability

Change in fair value of warrant liability consists of the change in fair value of the Private Placement Warrants issued in connection with the Business Combination. The fair value of the warrant liability is calculated using the Black-Scholes model. We do not expect any further changes to the fair value of the warrant liability because all outstanding Private Placement Warrants have been exercised.

Interest Expense

Interest expense includes cash interest related to our term loan as well as amortization of deferred financing fees and costs.

Interest and Other (Expense) Income, Net

Interest and other (expense) income, net includes interest earned on deposits and short-term investments and gains and losses on investments.

Income Taxes

Our income tax provision consists of an estimate for U.S. federal and state and foreign income taxes based on enacted rates, as adjusted for allowable credits, deductions, uncertain tax positions, 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., state and foreign deferred tax assets.

Results of Operations

Comparison of the years ended December 31, 2022 and 2021

Revenue

The following table presents the revenue of each of our revenue streams, as well as the percentage of total revenue and change from the prior year.

	For the Years Ended December 31,					
	2022		2021		Change in Revenues	
(Dollars in thousands)	Revenue	% of Total	Revenue	% of Total	$	%
Products Revenue	$ 190,248	91 %	$ 105,994	94 %	$ 84,254	79 %
Services Revenue	18,775	9 %	6,414	6 %	12,361	193 %
Total Revenue	**$ 209,023**	**100 %**	**$ 112,408**	**100 %**	**$ 96,615**	**86 %**

Total revenue for the years ended December 31, 2022 and 2021 was $209.0 million and $112.4 million, respectively, an increase of $96.6 million, or 86%. The increase in total revenue was attributable to an increase in revenue from both products and services.

We sold more products during the year ended December 31, 2022 as compared to the year ended December 31, 2021, leading to an approximately 79% increase in product revenue. This was primarily the result of an increase in unit shipments across a more varied

product mix during the year and additional revenue from acquired companies during the year ended December 31, 2022 compared to the same period in 2021.

Service revenue increased during the year ended December 31, 2022, as compared to the year ended December 31, 2021, primarily due to an increase in support and installation revenue from increased shipments during the period and additional revenue in connection with acquisitions.

The following table presents revenue by geographic region, as well as the percentage of total revenue and change from the prior period.

	For the Years Ended December 31,					
	2022		2021		Change in Revenues	
(Dollars in thousands)	Revenue	% of Total	Revenue	% of Total	$	%
Americas	$ 136,102	65 %	$ 75,962	68 %	$ 60,140	79 %
EMEA (Europe, the Middle East and Africa)	55,140	26 %	24,097	21 %	31,043	129 %
APAC (Asia-Pacific)	17,781	9 %	12,349	11 %	5,432	44 %
Total Revenue	**$ 209,023**	**100 %**	**$ 112,408**	**100 %**	**$ 96,615**	**86 %**

Total revenue increased during the year ended December 31, 2022 compared to the year ended December 31, 2021, due to an increase in unit shipments in all regions across a more varied product mix and additional revenue in connection with acquisitions. Overall, there was an increased customer demand during the year ended December 31, 2022.

Cost of Sales

Total cost of sales during the years ended December 31, 2022 and 2021 was $194.0 million and $94.1 million, respectively, an increase of $99.9 million or 106%. The increase in total cost of sales was driven primarily by an increase in product cost of sales, which resulted from greater product sales, as well as $3.3 million of restructuring costs in connection with the Initiative described above. Cost of sales increased in 2022 along with the increase in revenue from acquired companies.

Gross Profit and Gross Margin

The following table presents gross profit by revenue stream, as well as change in gross profit dollars from the prior period.

	December 31,		Change in Gross Profit	
	2022	2021		
	Gross Profit			
(Dollars in thousands)			$	%
Products	$ 11,296	$ 18,544	$ (7,248)	39 %
Services	3,775	(251)	4,026	1,604 %
Total	**$ 15,071**	**$ 18,293**	**$ (3,222)**	**18 %**

Total gross profit during the years ended December 31, 2022 and 2021 was $15.1 million and $18.3 million, respectively. The decrease in gross profit of ($3.2) million is driven primarily by the decrease in products gross profit, which is due to an inventory write-off of $3.1 million related to the Initiative described above. Additionally, we incurred $1.5 million of additional facility costs to support new product launches. This was partially offset by an increase in services gross margin due to increased services revenues along with a reduction in fixed costs as a result of the Initiative described above.

The following table presents gross margin by revenue stream, as well as the change in gross margin from the prior period.

	December 31,		Margin	
	2022	2021	Percentage Points	%
	Gross Margin			
Products	6 %	17 %	(0.11)	65 %
Services	20 %	(4)%	0.24	603 %
Total	**7** %	**16 %**	**(0.09)**	**55 %**

Total gross margin for the years ended December 31, 2022 and 2021, was 7% and 16%, respectively. The decrease in total gross margin was primarily due to the decrease in gross margin from our products revenue, which resulted from a higher product cost for units shipped in 2022 as compared to 2021. The decrease in total gross margin was partially offset by an increase in services gross margin, driven by increased services revenues along with a reduction in fixed costs as a result of the Initiative described above.

Research and Development

Research and development expenses during the years ended December 31, 2022 and 2021 were $96.9 million and $68.1 million, respectively, an increase of $28.8 million, or 42%. Stock compensation costs increased $5.1 million due to headcount growth at the end of 2021. Payroll costs increased $9.4 million, of which $4.2 million was due to additional headcount added at the end of 2021 to support new product development and existing product improvements, and $5.2 million was related to acquired entities. Additionally, engineering consulting costs, which were lowered during the year ended December 31, 2021 due to the COVID-19 pandemic, increased by $2.0 million in support of new product development efforts. Finally, we incurred $8.5 million in costs associated with restructuring activities in connection with the Initiative described above, including $7.3 million of expense related to accelerated restricted stock units in connection with employee terminations.

Sales and Marketing

Sales and marketing expenses during the years ended December 31, 2022 and 2021 were $68.1 million and $48.0 million, respectively, an increase of $20.1 million, or 42%. The increase in sales and marketing expenses was primarily due to increased payroll costs, with $3.1 million in additional payroll due to headcount growth and higher commission expenses commensurate with the increase in sales and $7.6 million due to acquired entities. In addition, amortization of acquired intangible assets increased by $10.9 million and there was growth of $3.3 million in marketing program spend driven primarily by the commercialization of new products and related marketing efforts. Finally, we incurred $1.1 million in costs associated with restructuring activities in connection with the Initiative described above.

General and Administrative

General and administrative expenses during the years ended December 31, 2022 and 2021, were $83.1 million and $78.0 million, respectively, an increase of $5.1 million, or 7%. The increase in general and administrative expenses was primarily due to increased payroll costs in 2022 of $6.0 million, of which $4.6 million relates to acquired entities, as well as an increase in stock compensation expense of $5.8 million. In addition, facilities costs increased by $4.3 million, of which $2.7 million relates to additional facilities from acquired entities. Amortization of acquired intangible assets increased by $1.4 million. Finally, we incurred $1.0 million in costs associated with restructuring activities in connection with the Initiative described above. These increases to general and administrative expenses were partially offset by a decrease of $16.1 million in professional services costs which were incurred in 2021 as a result of merger and acquisition activity, but decreased in 2022 with no acquisition activity.

In-Process Research and Development Assets Acquired

We did not incur any costs related to in-process research and development assets acquired during the year ended December 31, 2022, compared to $25.6 million expense for in-process research and development assets acquired during the year ended December 31, 2021. The cost during the year ended December 31, 2021 was attributable to the Beacon Bio and Meta Additive acquisitions in 2021, in which the company paid $25.6 million in cash and share consideration, inclusive of transaction costs. As the acquired in-process research and development assets were deemed to have no current or alternative future use, the entire amount was recognized as expense in the consolidated statement of operations for the year ended December 31, 2021.

Goodwill Impairment

The goodwill impairment charge of $498.8 million during the year ended December 31, 2022, represents an impairment charge to write down the carrying amount of goodwill. There was no goodwill impairment charge recorded during the year ended December 31, 2021.

Change in Fair Value of Warrant Liability

There was no change in fair value of warrant liability during the year ended December 31, 2022, and a change in fair value of warrant liability of $56.6 million during the year ended December 31, 2021. The change in fair value is the result of the remeasurement of the Private Placement Warrant liability prior to the cashless exercise of the Private Placement Warrants. The warrant liability increased $56.6 million as a result of the remeasurement, which resulted in the $56.6 million loss. As of March 2, 2021, all Private Placement Warrants were exercised and there was no outstanding warrant liability.

Interest Expense

Interest expense during the years ended December 31, 2022 and 2021 was $1.7 million and $0.1 million, respectively, an increase of $1.6 million, or 1600%. Interest expense increased primarily due to $4.4 million of interest expense on the 2027 Notes, partially offset by $3.1 million of interest income on short-term investments.

Interest and Other (Expense) Income, Net

Interest and other (expense) income, net during the years ended December 31, 2022 and 2021 was ($8.3) million and ($11.8) million, respectively, a decrease of ($3.5) million, or 30%. The decrease is primarily due to a smaller unrealized loss of $6.3 million on the investment in equity security in 2022 compared to the unrealized loss of $12.6 million in 2021. This was partially offset by an unrealized loss on other investments of $1.6 million recorded in 2022.

Income Taxes

We recorded an income tax benefit of $1.5 million during the year ended December 31, 2022 compared to $29.7 million income tax benefit during the year ended December 31, 2021. The increase was due to the partial release of the valuation allowance related to the deferred tax liabilities acquired in various acquisitions in 2021.

We have provided a valuation allowance for various jurisdictions as a result of our historical net losses. We continue to assess our future taxable income by jurisdiction based on our recent historical operating results, the expected timing of reversal of temporary differences, various tax planning strategies that we may be able to implement, the impact of potential operating changes on our business and our forecast results from operations in future periods based on available information at the end of each reporting period. To the extent that we are able to reach the conclusion that deferred tax assets are realizable based on any combination of the above factors in a single, or multiple, taxing jurisdictions, a reversal of the related portion of our existing valuation allowances may occur.

Comparison of the years ended December 31, 2021 and 2020

Revenue

The following table presents the revenue of each of our revenue streams, as well as the percentage of total revenue and change from the prior year.

	For the Years Ended December 31,				Change in Revenues	
	2021		2020			
(Dollars in thousands)	Revenue	% of Total	Revenue	% of Total	$	%
Products Revenue	$ 105,994	94 %	$ 13,718	83 %	$ 92,276	673 %
Services Revenue	6,414	6 %	2,752	17 %	3,662	133 %
Total Revenue	**$ 112,408**	**100 %**	**$ 16,470**	**100 %**	**$ 95,938**	**583 %**

Total revenue for the years ended December 31, 2021 and 2020 was $112.4 million and $16.5 million, respectively, an increase of $95.9 million, or583%. The increase in total revenue was attributable to an increase in revenue from both products and services.

We sold more products during the year ended December 31, 2021 as compared to the year ended December 31, 2020, leading to an approximately 673% increase in product revenue. This was primarily the result of an increase in unit shipments across a more varied product mix during the year and additional revenue in connection with acquisitions during the year ended December 31, 2021 compared to the same period in 2020.

Service revenue increased during the year ended December 31, 2021, as compared to the year ended December 31, 2020, primarily due to an increase in support and installation revenue from increased shipments during the period and additional revenue in connection with acquisitions.

The following table presents revenue by geographic region, as well as the percentage of total revenue and change from the prior period.

	For the Years Ended December 31,					
	2021		2020		Change in Revenues	
(Dollars in thousands)	Revenue	% of Total	Revenue	% of Total	$	%
Americas	$ 75,962	68 %	$ 6,665	40 %	$ 69,297	1,040 %
EMEA (Europe, the Middle East and Africa)	24,097	21 %	7,788	47 %	16,309	209 %
APAC (Asia-Pacific)	12,349	11 %	2,017	12 %	10,332	512 %
Total Revenue	**$ 112,408**	**100 %**	**$ 16,470**	**100 %**	**$ 95,938**	**583 %**

Total revenue increased during the year ended December 31, 2021 compared to the year ended December 31, 2020, due to an increase in unit shipments in all regions across a more varied product mix and additional revenue in connection with acquisitions. Overall, there was an increased customer demand during the year ended December 31, 2021 During the year ended December 31, 2020, customer demand was lower as a result of the COVID-19 pandemic.

Cost of Sales

Total cost of sales during the years ended December 31, 2021 and 2020 was $94.1 million and $31.5 million, respectively, an increase of $62.6 million or 199%. The increase in total cost of sales was driven primarily by an increase in product cost of sales, which resulted from greater product sales. The increase was partially offset by a decrease in obsolescence-related charges in 2021, compared to 2020. During 2020, we recognized a $2.9 million obsolescence inventory charge related to product redesigns implemented to reduce costs and enhance performance and functionality. Additionally, cost of sales increased in 2021 by $8.9 million due to amortization from intangible assets acquired and $2.2 million due to inventory step-up adjustments associated with acquisitions, both of which were recognized in cost of sales.

Gross Loss and Gross Margin

The following table presents gross profit (loss) by revenue stream, as well as change in gross loss dollars from the prior period.

	For the Years Ended December 31,		Change in Gross Profit (Loss)	
	2021	2020		
(Dollars in thousands)	Gross Profit (Loss)		$	%
Products	$ 18,544	$ (13,227)	$ 31,771	240 %
Services	(251)	(1,822)	1,571	86 %
Total	**$ 18,293**	**$ (15,049)**	**$ 33,342**	**222 %**

Total gross profit (loss) during the years ended December 31, 2021 and 2020 was $18.3 million and ($15.0) million, respectively. The increase in gross profit of $33.3 million is driven by increased revenue compared to fixed costs and a more favorable product mix sold, including products in connection with acquisitions, during the year ended December 31, 2021, as compared to the year ended December 31, 2020.

The following table presents gross margin by revenue stream, as well as the change in gross margin from the prior period.

	For the Years Ended December 31,		Change in Gross Margin	
	2021	2021	Percentage	
(Dollars in thousands)	Gross Margin		Points	%
Products	17 %	(96)%	1.14	118 %
Services	(4)%	(66)%	0.62	94 %
Total	**16** %	**(91)** %	**1.08**	**118** %

Total gross margin for the years ended December 31, 2021 and 2020, was 16% and (91)%, respectively. The increase in total gross margin was primarily due to the increase in gross margin from our product revenue, which resulted from a lower product cost for units shipped in 2021 as compared to 2020. The increase in gross margin was offset by a one-time acquisition accounting impact of inventory fair value step up being recognized through earnings, which decreased gross margin by 2%.

Research and Development

Research and development expenses during the years ended December 31, 2021 and 2020 were $68.1 million and $43.1 million, respectively, an increase of $25.0 million, or 58%. The increase in research and development expenses was due in part to increased expense related to acquired entities of $10.0 million. In addition, compensation costs increased $12.6 million due to headcount growth, of which $8.2 million relates to equity compensation and $4.4 million relates to payroll costs, to support new product development and existing product improvements. Additionally, engineering consulting costs, which were lowered during the year ended December 31, 2020 due to the COVID-19 pandemic, increased by $0.8 million in support of new product development efforts.

Sales and Marketing

Sales and marketing expenses during the years ended December 31, 2021 and 2020 were $48.0 million and $13.1 million, respectively, an increase of $34.9 million, or 265%. The increase in sales and marketing expenses was primarily due to increased expense related to acquired entities of $15.7 million. In addition, compensation costs increased $11.9 million, of which $3.7 million relates to equity compensation costs and $8.2 million relates to payroll costs, due to headcount growth and higher commission expenses commensurate with the increase in sales. Additionally, there was growth of $5.6 million in marketing program spend driven primarily by the commercialization of new products and related marketing efforts.

General and Administrative

General and administrative expenses during the years ended December 31, 2021 and 2020, were $78.0 million and $20.7 million, respectively, an increase of $57.3 million, or 276%. The increase in general and administrative expenses was primarily due to an increase of $18.5 million of professional fees incurred as a result of merger and acquisition activity and related integration costs. General and administrative expenses also increased by $17.2 million attributable to entities acquired in 2021. In addition, compensation costs increased by $14.5 million, of which $7.5 million relates to equity compensation and $7.0 million relates to payroll costs, due to headcount growth to support public company requirements. Director and officer insurance increased by $4.0 million as a public company.

In-Process Research and Development Assets Acquired

In-process research and development assets acquired during the year ended December 31, 2021 were $25.6 million, compared to no expense for in-process research and development assets acquired during the year ended December 31, 2020. The increase is attributable to the Beacon Bio and Meta Additive acquisitions, in which the company paid $25.6 million in cash and share consideration, inclusive of transaction costs. As the acquired in-process research and development assets were deemed to have no current or alternative future use, the entire amount was recognized as expense in the consolidated statement of operations for the year ended December 31, 2021.

Change in Fair Value of Warrant Liability

Change in fair value of warrant liability during the years ended December 31, 2021 and 2020, was a $56.6 million loss and $56.4 million gain, respectively. The increase in fair value is the result of the remeasurement of the Private Placement Warrant liability prior to the cashless exercise of the Private Placement Warrants. The warrant liability increased $56.6 million as a result of the remeasurement, which resulted in the $56.6 million loss. As of March 2, 2021, all Private Placement Warrants were exercised and there was no outstanding warrant liability.

Interest Expense

Interest expense during the years ended December 31, 2021 and 2020 was $0.1 million and $0.3 million, respectively, a decrease of $0.2 million, or 55%. Interest expense decreased primarily due to the payoff of the term loan in June 2021.

Interest and Other (Expense) Income, Net

Interest and other (expense) income, net during the years ended December 31, 2021 and 2020 was ($11.8) million and $1.0 million, respectively, a decrease of $12.8 million, or 1282%. The decrease is primarily due to an unrealized loss on equity investment of $12.5 million during the year ended December 31, 2021.

Income Taxes

We recorded an income tax benefit of $29.7 million during the year ended December 31, 2021 compared to $0.9 million income tax benefit during the year ended December 31, 2020. The increase was due to the partial release of the valuation allowance related to the deferred tax liabilities acquired in various acquisitions in 2021.

We have provided a valuation allowance for various jurisdictions as a result of our historical net losses. We continue to assess our future taxable income by jurisdiction based on our recent historical operating results, the expected timing of reversal of temporary differences, various tax planning strategies that we may be able to implement, the impact of potential operating changes on our business and our forecast results from operations in future periods based on available information at the end of each reporting period. To the extent that we are able to reach the conclusion that deferred tax assets are realizable based on any combination of the above factors in a single, or multiple, taxing jurisdictions, a reversal of the related portion of our existing valuation allowances may occur.

Non-GAAP Financial Information

In addition to our results determined in accordance with GAAP, we believe that Non-GAAP Gross Margin, Non-GAAP Operating Loss, Non-GAAP net loss, Non-GAAP Operating Expenses, EBITDA and Adjusted EBITDA, each non-GAAP financial measures, are useful in evaluating our operational performance. We use this non-GAAP financial information to evaluate our ongoing operations and for internal planning and forecasting purposes. We believe that this non-GAAP financial information, when taken collectively, may be helpful to investors in assessing our operating performance.

The non-GAAP financial information excludes, as applicable, stock-based compensation expense, amortization of acquired intangible assets, acquisition-related and other transactional charges, inventory step-up, in-process research and development assets acquired, change in fair value of investments and change in fair value of warrant liability. These items are normally included in the comparable measures calculated and presented in accordance with GAAP. Our management excludes these items when evaluating our ongoing performance and/or evaluating earnings potential, and therefore excludes them when presenting non-GAAP financial measures. Management uses non-GAAP financial measures to supplement our GAAP results.

Stock-based compensation is a non-cash expense relating to stock-based awards issued to executive officers, employees, and outside directors, consisting of options and restricted stock units. We exclude this expense because it is a non-cash expense and we assess our internal operations excluding this expense and believe it facilitates comparisons to the performance of other companies in our industry.

Amortization of acquired intangible assets is a non-cash expense that is impacted by the timing and magnitude of our acquisitions. We believe the assessment of our operations excluding these costs is relevant to our assessment of internal operations and to comparisons with the performance of other companies in our industry.

Restructuring expenses are costs related to strategic integration and cost optimization initiatives which include global workforce reductions, facilities consolidation, and other operational savings measures. We believe the assessment of our operations excluding these costs is relevant to an understanding of internal operations and to comparisons with the performance of other companies in our industry.

Acquisition-related and integration costs are direct costs related to potential and completed acquisitions, including transaction fees, due diligence costs, severance, professional fees, and integration activities. Other transactional charges include third-party costs related to structuring unusual transactions. The occurrence and amount of these costs will vary depending on the timing and size of acquisitions. We believe excluding acquisition-related costs facilitates the comparison of our financial results to our historical operating results and to other companies in our industry.

Inventory step-up are adjustments related to recording the inventory of acquired business at fair value on the date of acquisition. These adjustments are booked cost of sales. The occurrence and amount of these adjustments will vary depending on the timing and size of acquisitions. We believe excluding inventory step-up adjustments facilitates the comparison of our financial results to our historical operating results and to other companies in our industry.

In-process research and development assets acquired are direct costs related to assets acquisitions where the intangible assets acquired were determined to have no alternative future use. This is a non-recurring expense and we believe excluding acquired in-process research and development facilitates the comparison of our financial results to our historical operating results and to other companies in our industry.

Goodwill impairment is a non-cash charge to write down the carrying amount of goodwill following a quantitative impairment assessment where it was determined that the estimated fair value of the reporting unit was less than its carrying amount. We believe the assessment of our operations excluding this charge is relevant to an understanding of internal operations and to comparisons with the performance of other companies in our industry.

Change in fair value of investments is a non-cash gain or loss impacted by the change in fair value of convertible debt instruments and the equity investment. We believe the assessment of our operations excluding this activity is relevant to our assessment of internal operations and to comparisons with the performance of other companies in our industry.

Change in fair value of warrant liability is a non-cash gain or loss impacted by the fair value of the Private Placement Warrants. We believe the assessment of our operations excluding this activity is relevant to our assessment of internal operations and to comparisons with the performance of other companies in our industry.

We use the below non-GAAP financial measures, and we believe that they assist our investors, to make period-to-period comparisons of our operational performance because they provide a view of our operating results without items that are not, in our view, indicative of our core operating results. We believe that these non-GAAP financial measures help illustrate underlying trends in our business, and we use the measures to establish budgets and operational goals for managing our business and evaluating our performance. We believe that providing non-GAAP financial measures also affords investors a view of our operating results that may be more easily compared to the results of other companies in our industry that use similar financial measures to supplement their GAAP results.

The items excluded from the non-GAAP financial measures often have a material impact on our financial results and such items often recur. Accordingly, the non-GAAP financial measures included in this Annual Report on Form 10-K should be considered in addition to, and not as a substitute for, the comparable measures prepared in accordance with GAAP. The following tables reconcile each of these non-GAAP financial measures to its most closely comparable GAAP measure in our financial statements for the years ended December 31, 2022 and 2021 and 2020, respectively:

	For the Year Ended December 31,		
(Dollars in thousands)	**2022**	**2021**	**2020**
GAAP gross margin	$ 15,071	$ 18,293	$ (15,049)
Stock-based compensation included in cost of sales[1]	2,257	1,018	290
Amortization of acquired intangible assets included in cost of sales	23,707	8,467	—
Restructuring expense in cost of sales	3,273	—	—
Acquisition-related and integration costs included in cost of sales	1,148	—	—
Inventory step-up adjustment in cost of sales	1,496	2,194	—
Non-GAAP gross margin	**$ 46,952**	**$ 29,972**	**$ (14,759)**
GAAP operating loss	$ (731,763)	$ (201,455)	$ (92,055)
Stock-based compensation[2],[3]	48,785	28,778	8,006
Amortization of acquired intangible assets	38,662	17,581	758
Restructuring expense	6,574	—	—
Inventory step-up adjustment in cost of sales	1,496	2,194	—
Acquisition-related and integration costs	6,766	23,788	1,101
In-process research and development assets acquired	—	25,581	—
Goodwill impairment	498,800	—	—
Non-GAAP operating loss	**$ (130,680)**	**$ (103,533)**	**$ (82,190)**
GAAP net loss	$ (740,343)	$ (240,334)	$ (34,015)
Stock-based compensation[2],[3]	48,785	28,778	8,006
Amortization of acquired intangible assets	38,662	17,581	758
Restructuring expense	6,957	—	—
Inventory step-up adjustment in cost of sales	1,496	2,194	—
Acquisition-related and integration costs	6,766	23,788	1,101
In-process research and development assets acquired	—	25,581	—
Goodwill impairment	498,800	—	—
Change in fair value of investments	8,164	12,475	—
Change in fair value of warrant liability	—	56,576	(56,417)
Warrant expense	—	—	1,915
Non-GAAP net loss	**$ (130,713)**	**$ (73,361)**	**$ (78,652)**

[1] Includes $0.1 million of liability-award stock-based compensation associated with bonuses granted in dollar amounts and paid out in RSUs under our bonus plan (“liability-award stock-based compensation”) for the year ended December 31, 2022.
[2] Includes $7.3 million of stock-based compensation expense associated with the Initiative for the year ended December 31, 2022.
[3] Includes $1.0 million of liability-award stock-based compensation for the year ended December 31, 2022.

(Dollars in thousands)	For the Year Ended December 31, 2022	2021	2020
GAAP operating expenses	$ 746,834	$ 219,748	$ 77,006
Stock-based compensation included in operating expenses[1],[2]	(46,528)	(27,760)	(7,716)
Amortization of acquired intangible assets included in operating expenses	(14,955)	(9,114)	(758)
Restructuring expense included in operating expenses	(3,301)	—	—
Acquisition-related and integration costs included in operating expenses	(5,618)	(23,788)	(1,101)
In-process research and development assets acquired	—	(25,581)	—
Goodwill impairment	(498,800)	—	—
Non-GAAP operating expenses	**$ 177,632**	**$ 133,505**	**$ 67,431**

[1] Includes $7.3 million of stock-based compensation expense associated with the Initiative for the year ended December 31, 2022.
[2] Includes $0.9 million of liability-award stock-based compensation for the year ended December 31, 2022.

We define "EBITDA" as net loss plus net interest income, provision for income taxes, depreciation and amortization expense and in-process research and development assets acquired.

We define "Adjusted EBITDA" as EBITDA adjusted for change in fair value of warrant liability, change in fair value of investments, inventory step-up adjustments, stock-based compensation expense, warrant expense and transaction costs associated with acquisitions.

We believe that the use of EBITDA and Adjusted EBITDA provides an additional tool for investors to use in evaluating ongoing operating results and trends because it eliminates the effect of financing, capital expenditures, and non-cash expenses such as stock-based compensation and warrants, and provides investors with a means to compare our financial measures with those of comparable companies, which may present similar non-GAAP financial measures to investors. However, you should be aware that when evaluating EBITDA and Adjusted EBITDA we may incur future expenses similar to those excluded when calculating these measures. In addition, our presentation of these measures should not be construed as an inference that our future results will be unaffected by unusual or non-recurring items. Our computation of these measures, especially Adjusted EBITDA, may not be comparable to other similarly titled measures computed by other companies because not all companies calculate these measures in the same fashion.

Because of these limitations, EBITDA and Adjusted EBITDA should not be considered in isolation or as a substitute for performance measures calculated in accordance with GAAP. We compensate for these limitations by relying primarily on our GAAP results and using EBITDA and Adjusted EBITDA on a supplemental basis. You should review the reconciliation of net loss to EBITDA and Adjusted EBITDA below and not rely on any single financial measure to evaluate our business.

The following table reconciles net loss to EBITDA and Adjusted EBITDA during the years ended December 31, 2022 and 2021 and 2020, respectively:

(Dollars in thousands)	For the Years Ended December 31, 2022	2021	2020
Net loss attributable to common stockholders	$ (740,343)	$ (240,334)	$ (34,015)
Interest (income) expense, net	1,743	(334)	(610)
Income tax expense (benefit)	(1,498)	(29,668)	(940)
Depreciation and amortization	50,767	24,854	8,589
In-process research and development assets acquired	—	25,581	—
EBITDA	**(689,331)**	**(219,901)**	**(26,976)**
Change in fair value of warrant liability	—	56,576	(56,417)
Change in fair value of investments	8,164	12,475	—
Inventory step-up adjustment	1,496	2,194	—
Stock-based compensation expense[(1),(2)]	48,785	28,778	8,006
Restructuring expense	6,957	—	—
Goodwill impairment	498,800	—	—
Acquisition-related and integration costs	6,766	23,788	—
Warrant expense	—	—	1,915
Adjusted EBITDA	**$ (118,363)**	**$ (96,090)**	**$ (73,472)**

(1) Includes $7.3 million of stock-based compensation expense associated with the Initiative for the year ended December 31, 2022.
(2) Includes $1.0 million of liability-award stock-based compensation for the year ended December 31, 2022.

Liquidity and Capital Resources

We have incurred a net loss in each of our annual periods since our inception. We incurred net losses of $740.3 million and $240.3 million during the years ended December 31, 2022 and 2021, respectively. As of December 31, 2022, we had $184.5 million in cash, cash equivalents, and short-term investments.

Since inception, we have received cumulative net proceeds from the Business Combination and the sale of our preferred and common stock for proceeds of $973.4 million and the sale of our 2027 Notes for proceeds of $111.4 million to fund our operations. As of December 31, 2022, our principal sources of liquidity were our cash, cash equivalents, and short-term investments of $184.5 million which are principally invested in money market funds and fixed income instruments.

In May 2022, we issued $115.0 million principal amount of our 6.0% Convertible Senior Notes due 2027 (“2027 Notes”). The 2027 Notes were issued pursuant to, and are governed by, an indenture, dated as of May 13, 2022, between us and U.S. Bank Trust Company, National Association, as trustee. Pursuant to the purchase agreement between us and the initial purchasers of the Notes, we granted the initial purchasers an option to purchase up to an additional $15.0 million principal amount of 2027 Notes, which was exercised on May 19, 2022. We received aggregate net proceeds of $111.4 million from the sale of the 2027 Notes.

Our material cash requirements have consisted of operating activities, research and development costs, purchase price for acquisitions, transaction costs and capital expenditures. We expect our cash expenditures to increase in connection with our ongoing activities, particularly as we continue to develop and launch new products. As of December 31, 2022, we had purchase commitments of $61.0 million, with the majority payable within 12 months. In addition, as of December 31, 2022, we had lease payment obligations of $23.6 million, with $5.7 million payable within 12 months.

Capital expenditures for the year ended December 31, 2022 totaled $11.5 million and consisted primarily of lab equipment and leasehold improvements. As of December 31, 2022, we had capital expenditure commitments of $0.1 million, all payable within 12 months. As of December 31, 2022, we had $76.3 million in cash and cash equivalents, and $108.2 million in short term liquid investments. This liquid asset balance significantly exceeds our current liabilities of $83.4 million as of the same date. Our future cash requirements will depend on many factors including our revenue, research and development efforts, investments in, or acquisitions of, complementary or enhancing technologies or businesses, the impacts of the COVID-19 pandemic, the timing and extent of additional capital expenditures to invest in existing and new facilities, the expansion of sales and marketing and the introduction of new products.

We expect to continue to incur net losses and negative cash flows from operations, particularly as we continue to invest in commercialization and new product development. Additionally, we may engage in future acquisitions which may require additional capital, and we may also dispose of assets or certain of our businesses. We believe that our existing capital resources will be sufficient to support our operating plan and cash commitments for at least the next 12 months. This belief is based on assumptions that may change as a result of many factors currently unknown to us; however, we expect that we may need to further increase our capital resources by issuing additional shares of our capital stock or offering debt or other equity securities, including senior or subordinated notes, debt securities convertible into equity, or shares of preferred stock. There is no assurance that sources of financing will be available on a timely basis, or on satisfactory terms, or at all. If we are unable to raise additional funds or reduce costs when needed, we may be required to delay, reduce, or terminate our product development and commercialization efforts, or forego attractive acquisition opportunities.

We have, and intend to continue to, enact cost savings measures to preserve capital. In June 2022, we announced a strategic integration and cost optimization initiative that includes a global workforce reduction, facilities consolidation, and other operational savings measures (the “Initiative”). We have commenced workforce reductions in the United States and other countries and are reviewing additional workforce changes, the timing of which will vary according to local regulatory requirements. On January 31, 2023, we committed to additional actions to continue and expand the Initiative. These additional actions include closing and consolidating select locations in the United States and Canada and reducing our workforce by an additional 15%., prioritizing investments and operations in line with near-term revenue generation, positioning us to achieve our long-term financial goals. We are currently evaluating other potential specific initiatives we may undertake to reduce our operating expenses and manage our cash flows. These initiatives could include disposing of certain of our assets, rationalizing our product portfolio, workforce adjustments based on changes to the business, manufacturing consolidation, improving our supply chain and logistics, improving our inventory management and consolidating certain of our facilities.

We expect to incur $19.6 million to $26.0 million of costs in the near term in connection with the Initiatives, including severance costs, lease termination costs and other costs to invest in operational improvements. These initiatives may not be successful, and they may not generate the cost savings we expect. Certain future events, such as a global recession, a material supply chain disruption or other events outside our control, may occur and could negatively impact our operating results and cash position and may require us to use our existing capital resources more quickly than we currently anticipate. These events may cause us to undertake additional cost savings measures or seek additional sources of financing.

Cash Flows

Since inception, we have primarily used proceeds from the Business Combination, issuances of preferred stock and debt instruments to fund our operations. The following table sets forth a summary of cash flows for the periods presented:

	For the Years Ended December 31,		
(Dollars in thousands)	**2022**	**2021**	**2020**
Net cash used in operating activities	$ (181,531)	$ (155,048)	$ (80,575)
Net cash provided by (used in) investing activities	81,567	(427,294)	(36,983)
Net cash provided by financing activities	113,786	166,550	534,922
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(167)	(87)	—
Net change in cash, cash equivalents, and restricted cash	$ 13,655	$ (415,879)	$ 417,364

Cash Flows for the years ended December 31, 2022 and 2021

Operating Activities

Net cash used in operating activities was $181.5 million for the year ended December 31, 2022, primarily consisting of $740.3 million of net losses, adjusted for non-cash items, which primarily included goodwill impairment of $498.8 million, depreciation and amortization expense of $50.8 million and stock-based compensation expense of $48.0 million, as well as a $41.2 million increase in cash consumed by working capital.

Net cash used in operating activities was $80.6 million for the year ended December 31, 2021, primarily consisting of $240.3 million of net losses, adjusted for non-cash items, which primarily included loss on change in fair value of warrant liability of $56.6 million, depreciation and amortization expense of $24.9 million, stock-based compensation expense of $28.8 million, as well as $36.7 million increase in cash consumed by working capital.

Net cash used in operating activities was $80.6 million for the year ended December 31, 2020, primarily consisting of $34.0 million of net losses, adjusted for non-cash items, which primarily included gain on change in fair value of warrant liability of $56.4 million, depreciation and amortization expense of $8.6 million, stock-based compensation expense of $8.0 million, and warrant expense of $1.9 million, as well as a $7.9 million increase in cash consumed by working capital.

Investing Activities

Net cash provided by investing activities was $81.6 million for the year ended December 31, 2022, primarily consisting of proceeds from sales and maturities of marketable securities of $248.2 million, partially offset by purchases of marketable securities of $158.4 million. We also purchased $11.5 million of property and equipment, and received proceeds from other investments of $3.2 million.

Net cash used in investing activities was $427.3 million for the year ended December 31, 2021, primarily consisting of purchases of marketable securities of $330.9 million, offset by proceeds from sales and maturities of marketable securities of $243.3 million. We also paid $287.6 million, net of cash acquired, for acquisitions, and $21.2 million, net of cash acquired, to acquire in-process research and development. We made a $20.0 million investment in equity securities, invested $3.6 million in other investments, and purchased $7.7 million of property and equipment.

Net cash used in investing activities was $37.0 million for the year ended December 31, 2020, primarily consisting of purchases of marketable securities of $136.3 million, offset by proceeds from sales and maturities of marketable securities of $109.0 million. We also paid $5.3 million, net of cash acquired, for acquisitions, made an investment in a privately held company in the form of convertible debt in the amount of $3.0 million, and purchased $1.4 million of property and equipment.

Financing Activities

Net cash provided by financing activities was $113.8 million for the year ended December 31, 2022, consisting primarily of $115.0 million of proceeds from the issuance of the 2027 Notes, partially offset by $3.6 million of convertible note costs incurred in connection with the issuance of the 2027 Notes. We also received $3.2 million in proceeds from the exercise of stock options.

Net cash provided by financing activities was $166.5 million for the year ended December 31, 2021, consisting primarily of $170.7 million in proceeds from the exercise of public warrants and $6.4 million in proceeds from the exercise of stock options, offset by the repayment of the term loan of $10.0 million.

Net cash provided by financing activities was $534.9 million for the year ended December 31, 2020, consisting primarily of proceeds from the Business Combination and the private placement of shares of our Class A common stock pursuant to subscription agreements in connection with the Business Combination, or the PIPE financing.

Off-Balance Sheet Arrangements

In the normal course of operations, ExOne’s German subsidiary, ExOne GmbH, issues short-term financial guarantees and letters of credit to third parties in connection with certain commercial transactions requiring security through a credit facility with a German bank. At December 31, 2022, total outstanding financial guarantees and letters of credit issued were $3.9 million. For further discussion related to financial guarantees and letters of credit, refer to Note 17 to the consolidated financial statements in Part II, Item 8 of this Annual Report on Form 10-K.

We have no other off-balance sheet arrangements and do not utilize any “structured debt,” “special purpose” or similar unconsolidated entities for liquidity or financing purposes.

Critical Accounting Policies and Significant Estimates

Our discussion and analysis of financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. Certain of our accounting policies require the application of judgment in selecting the appropriate assumptions for calculating financial estimates. By their nature, these judgments are subject to an inherent degree of uncertainty. We periodically evaluate the judgments and estimates used for our critical accounting policies to ensure that such judgments and estimates are reasonable for our interim and year-end reporting requirements. These judgments and estimates are based on our historical experience (where available), current trends and information available from other sources, as appropriate. If different conditions result from those assumptions used in our judgments, the results could be materially different from our estimates. We believe the following critical accounting policy requires significant judgments and estimates in the preparation of our consolidated financial statements:

Revenue Recognition

We recognize revenue from sale of products upon transfer of control, which is generally at the point of shipment. If we cannot objectively determine that the product provided to the customer is in accordance with agreed-upon specifications, revenue is not recognized until customer acceptance is received. Revenue from sale of services may be recognized over the life of the associated service contract or as services are performed, depending on the nature of the services being provided. In certain circumstances, we generate revenue through leases of machinery and equipment to customers, which are classified as either operating or sales-type leases and generally have lease terms ranging from one to five years.

Our contracts with customers often include promises to transfer multiple products and services to the customer. Judgment is required to determine the separate performance obligations present in a given contract, which we have concluded are generally capable of being distinct and accounted for as separate performance obligations. We use standalone selling price, or SSP, to allocate revenue to each performance obligation. Significant judgment is required to determine the SSP for each distinct performance obligation in a contract.

We generally use our stand-alone sales price as our SSP, and we use our best estimate for the performance obligations where we do not have stand-alone sales. The absence of observable prices resulting from our relatively short period of revenue generation requires us to estimate the SSPs of distinct performance obligations in a given contract.

We determine SSP using market conditions and other observable inputs. We typically have more than one SSP for individual products and services due to the stratification of our customers. The SSP generally varies by size of the customer. Our determination of SSP may change in the future as standalone sales of products and services occur, providing observable prices.

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, technology migration curves, the customer attrition rate, 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 Impairment

We review our goodwill for impairment as of October 1 every year, or whenever adverse events or changes in circumstances indicate a possible impairment. If it is determined that it is more likely than not that the fair value is greater than the carrying value of a reporting unit then a qualitative assessment may be used for the annual impairment test. Otherwise, a one-step process is used, which requires estimating the fair value the reporting unit compared to the carrying value. If the carrying value exceeds the estimated fair value, goodwill impairment will be the amount by which the reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. We have one reporting unit, therefore the assessment for goodwill impairment is performed at the enterprise level.

The determination of the fair value of the reporting unit and corresponding goodwill require us to make significant judgments and estimates and are subject to a considerable degree of uncertainty. We believe that the assumptions and estimates in our review of goodwill for impairment are reasonable. However, different assumptions could materially affect our conclusions on this matter.

We determine the fair value of our reporting unit using a combination of the income and market approaches. The results from each of these approaches are weighted appropriately taking into account the relevance and availability of data at the time we perform the valuation.

Under the income approach, the fair value is determined using a discounted cash flow model, which requires the use of various assumptions in developing the present values of projected cash flows, the following of which are significant to our analysis:

Projected future cash flows: The expected future cash flows and growth rates are based upon assumptions of our future revenue growth and operating costs.

Discount rate: Our reporting unit's future cash flows are discounted at a rate that is consistent with our average weighted cost of capital that is likely to be used by market participants. The weighted-average cost of capital is our estimate of the overall returns required by both debt and equity investors, weighted by their respective contributions of capital. We use discount rates that are commensurate with the risks and uncertainty inherent in our business and in our internally-developed forecasts.

Terminal growth rate: The long-term growth rate represents the rate at which our single reporting unit's earnings are expected to grow or losses are expected to decrease. Our assumed long-term growth rate was based on projected long-term inflation and gross domestic product growth estimates for the countries in which we operate and a long-term growth estimate for our business and the industry in which we operate. The long-term growth rate selected was 3.0%.

Under the market approach, the fair value is determined using a combination of the guideline public company and the guideline merger and acquisition transaction methods, which require the use of various assumptions, the following of which are significant to our analysis:

Comparable public companies: The selection of comparable businesses requires judgment and is based on the markets in which we operate giving consideration to, amongst other things, risk profiles, size and geography.

Comparable transactions: The selection of comparable transactions requires judgment is based on a review of targets that operated in comparable industries or markets facing similar risks.

Control premium: The control premium is based on premiums on recent merger and acquisition activity within our industry, refined for comparability.

Due to sustained declines in our stock price and the stock prices of comparable companies, we performed interim quantitative assessments as of June 30, 2022 and December 31, 2022, utilizing a combination of the income and market approaches. The results of

the quantitative analysis performed indicated that the carrying value of the reporting unit exceeded the fair value. As such, $498.8 million of goodwill impairment charges was recorded during the year ended December 31, 2022.

Recent Accounting Pronouncements

Information regarding recent accounting pronouncements is included in "Note 2. Summary of Significant Accounting Policies" to our consolidated financial statements in this Annual Report on Form 10-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to market risks from fluctuations in interest rates and foreign currency translation, which may adversely affect our results of operations and financial condition. We seek to minimize these risks through regular operating and financing activities and, if we consider it to be appropriate, through the use of derivative financial instruments. We do not purchase, hold or sell derivative financial instruments for trading or speculative purposes.

Interest Rate Risk

Our exposure to market risk for changes in interest rates relates primarily to our cash, cash equivalents and short-term investment portfolio. Our investment strategy is focused on preserving capital and supporting our liquidity requirements, while earning a reasonable market return. We invest in a variety of U.S. government securities, corporate debt securities, asset-backed securities, and commercial paper. The market value of our marketable securities may decline if current market interest rates rise. As of December 31, 2022, the fair value of our cash, cash equivalents, and short-term investments was $184.5 million. A 10% change in interest rates would have an immaterial impact on the fair value of our investment portfolio. Our marketable securities are recorded at fair value, and gains and losses from these securities are recognized within other comprehensive income as they occur.

Foreign Currency Risk

The majority of our operations in Europe and Asia use the local currency as the functional currency. We translate the financial statements of our operations in Europe and Asia to United States dollars and as such we are exposed to foreign currency risk. Currently, we do not use foreign currency forward contracts to manage exchange rate risk, as the amount subject to foreign currency risk is not material to our overall operations and results.

Item 8. Financial Statements and Supplementary Data

This information is incorporated by reference beginning on page F-1 of this report.

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

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Under the supervision of our Chief Executive Officer and Chief Financial Officer, our management has evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15(d)-15(e) under the Exchange Act) as of December 31, 2022. As described below, we identified material weaknesses in our internal control over financial reporting. As a result of these material weaknesses, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures are not effective to provide reasonable assurance that information required to be disclosed in the reports we file and submit under the Securities and Exchange Act is recorded, processed, summarized and reported as and when required.

Notwithstanding these material weaknesses noted above, our management, including our Chief Executive Officer and Chief Financial Officer, has concluded that our financial statements included in this Annual Report on Form 10-K present fairly, in all material respects, our financial position, results of operations, and cash flows for the periods presented in accordance with accounting principles generally accepted in the United States of America.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act, as a process designed by, or under the supervision of, our principal executive and principal financial officers and effected by our board of directors, management and other personnel 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. Our internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records, that in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets

- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and

- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluations of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2022 using the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework (2013 framework). Based on the assessment, we have concluded that we have material weaknesses in each of the following areas:

Control Environment, Risk Assessment, Control Activities, Information and Communication, and Monitoring

Control Environment - control deficiencies constituting material weaknesses, either individually or in the aggregate, relating to: (i) an insufficient number of personnel with an appropriate level of Generally Accepted Accounting Principles ("GAAP") knowledge and experience to create the proper environment for effective internal control over financial reporting and to ensure that (a) there were adequate processes for oversight, (b) there was accountability for the performance of internal control over financial reporting responsibilities, and (c) corrective activities were appropriately applied, prioritized, and implemented in a timely manner, and (ii) oversight processes and procedures that guide individuals in applying internal control over financial reporting were not adequate such that there is a reasonable possibility that a material misstatement of our financial statements will not be prevented or detected on a timely basis.

Risk Assessment - control deficiencies constituting material weaknesses, either individually or in the aggregate, relating to: (i) identifying, assessing, and communicating appropriate objectives, (ii) identifying and analyzing risks to achieve these objectives, and (iii) identifying and assessing changes in the business that could impact the system of internal controls.

Control Activities - control deficiencies constituting material weaknesses, either individually or in the aggregate, relating to: (i) addressing relevant risks, (ii) providing evidence of performance, (iii) providing appropriate segregation of duties, or (iv) operation at a level of precision to identify all potentially material errors.

Information and Communication - control deficiencies constituting material weaknesses, either individually or in the aggregate, relating to communicating accurate information internally and externally, including providing information pursuant to objectives, responsibilities, and functions of internal control.

Monitoring - control deficiencies constituting material weaknesses, either individually or in the aggregate, relating to monitoring activities to ascertain whether the components of internal control are present and functioning.

Deloitte & Touche LLP, our independent registered public accounting firm that audited the consolidated financial statements, has issued an audit report on our internal control over financial reporting as of December 31, 2022, which is included in Item 8 of this Annual Report on Form 10-K.

Remediation of Material Weakness in Internal Control Over Financial Reporting

Management has been actively engaged in remediation efforts to address the material weaknesses throughout 2021 and 2022 and these efforts will continue into fiscal year 2023. We made enhancements to our control environment by improving guidance, communication of expectations and importance of internal controls. In addition, we made improvements to the level of detail in our risk assessment and clarity of the linkage between risks and internal controls. We will continue to improve upon our risk assessment procedures and the timeliness of those procedures in 2023. We have made progress towards addressing the weaknesses in information and communication beginning the process to better identify, document, and assess systems and information used when performing internal controls and will continue this effort in 2023. We implemented enhanced monitoring procedures to allow for more effective monitoring of compliance with established accounting policies, procedures and controls. The remediation efforts also include:

- hiring additional qualified accounting, finance and legal personnel, to provide additional capacity and expertise to enhance our accounting and reporting review procedures;

- adding supervisory reviews performed by our financial management team and enhancing the level of precision that would sufficiently detect material misstatements;

- engaging consultants to provide additional technical accounting expertise;

- integrating financial and other systems across subsidiaries and departments to centralize reporting;

- implementing a new ERP system in a phased rollout to reduce resource constraints, automate certain processes that are currently being performed manually, and facilitate segregation of duties to ensure roles and responsibilities are appropriately segregated;

- engaging third-party specialists to assist with testing and validating the operating effectiveness of certain controls over financial reporting to gain assurance that such controls are present and operating as designed, as well as to help review and update existing documentation of our internal controls for compliance with the Sarbanes-Oxley Act of 2002, including commencing design and documentation of controls over financial reporting at subsidiaries that enhance our ability to manage our business as it has evolved; and

- reporting on progress of internal control remediation efforts to the audit committee regularly during 2022.

The controls that were designed and implemented in 2022 were not in all cases in place for a sufficient period of time to demonstrate operating effectiveness as of December 31, 2022. While we believe progress was made in 2022 to enhance and strengthen our internal control over financial reporting, management has concluded that the material weaknesses were not remediated as of December 31, 2022.

The measures we are implementing are subject to continued management review supported by confirmation and testing, as well as audit committee oversight. Management remains committed to the implementation of remediation efforts to address these material weaknesses. We will continue to implement measures to remedy our internal control deficiencies, though there can be no assurance that our efforts will be successful or avoid potential future material weaknesses. In addition, until remediation steps have been completed and are operating for a certain period of time, and subsequent evaluation of their effectiveness is completed, the material

weaknesses previously disclosed, and as described above, will continue to exist. We are committed to the continuous improvement of our internal control over financial reporting and will continue to review the internal controls over financial reporting.

Changes in Internal Control Over Financial Reporting

During the year ended December 31, 2022, we implemented certain internal controls in connection with our remediation efforts described above. Except as noted in the preceding paragraphs, there were no changes to our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) that occurred during the year ended December 31, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Limitations on Effectiveness of Internal Controls

Our management, including our Chief Executive Officer and Chief Financial Officer, does not expect that our disclosure controls and procedures or internal control over financial reporting will prevent all errors and all fraud. A control system, no matter how well designed and implemented, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Due to the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues, errors and instances of fraud, if any, within the company have been or will be detected.

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item will be included in our Proxy Statement for the 2023 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2022, and is incorporated herein by reference.

We have adopted a code of ethics, called the Code of Business Conduct and Ethics, which applies to our officers, including our principal executive, financial and accounting officers, and our directors and employees. We have posted the Code of Business Conduct and Ethics on our website at ir.desktopmetal.com under the "Governance Documents" section. We intend to make all required disclosures concerning any amendments to, or waivers from, the Code of Business Conduct and Ethics on our website.

Item 11. Executive Compensation

The information required by this item will be included in our Proxy Statement for the 2023 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2022, and is incorporated herein by reference.

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

The information required by this item will be included in our Proxy Statement for the 2023 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2022, and is incorporated herein by reference.

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

The information required by this item will be included in our Proxy Statement for the 2023 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2022, and is incorporated herein by reference.

Item 14. Principal Accountant's Fees and Services

The information required by this item will be included in our Proxy Statement for the 2023 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2022, and is incorporated herein by reference.

Part IV

Item 15. Exhibits and Financial Statement Schedules

(a) We have filed the following documents filed as part of this Annual Report on Form 10-K:

(1) Financial Statements

Reference is made to the Index to Financial Statements beginning on page F-1, which is incorporated into this item by reference.

(2) Financial Statement Schedules

All financial statement schedules have been omitted because they are not applicable, or the required information is shown on the financial statements or notes thereto.

(3) Exhibits

The exhibits listed in the Exhibit Index are filed as part of this Annual Report on Form 10-K and are incorporated herein by reference.

(b) Exhibits

Refer to (a)(3) above.

(c) Additional Financial Statement Schedules

All financial statement schedules have been omitted because they are not applicable, or the required information is shown on the financial statements or notes thereto.

Item 16. Form 10-K Summary

None

EXHIBIT INDEX

Exhibit		Incorporated by Reference		
		Form	Exhibit	Filing Date
2.1	Agreement and Plan of Merger, dated as of August 26, 2020, by and among the Company, Sparrow Merger Sub, Inc. and Legacy Desktop Metal	10-K	2.1	3/15/2021
2.2	Amendment No. 1 to Agreement and Plan of Merger, dated as of September 11, 2020, by and among the Company, Sparrow Merger Sub, Inc. and Legacy Desktop Metal	10-K	2.2	3/15/2021
2.3	Purchase Agreement and Plan of Merger, dated as of January 15, 2021, by and among the Company, EnvisionTEC Merger Sub, Inc., EnvisionTEC US LLC, EnvisionTEC, Inc., Gulf Filtration Systems, Inc., 3dbotics, Inc. and Ali El Siblani	8-K	2.1	1/15/2021
2.4	Agreement and Plan of Merger, dated as of August 11, 202, by and among Desktop Metal, Inc., Texas Merger Sub I, Inc., Texas Merger Sub II, Inc., and The ExOne Company	8-K	2.1	8/12/2021
3.1	Second Amended and Restated Certificate of Incorporation	8-K	3.2	12/14/2020
3.2	Amended and Restated By-laws of the Registrant	8-K	3.3	12/14/2020
4.1	Specimen Class A Common Stock Certificate	S-1	4.2	3/8/2019
4.2	Description of Capital Stock of Desktop Metal, Inc.			*
4.3	Indenture, dated as of May 13, 2022, between Desktop Metal, Inc. and U.S. Bank Trust Company, National Association, as trustee	8-K	4.1	5/13/2022
4.4	Form of note representing the 6.0% Convertible Senior Notes due 2027 (included as Exhibit A to Exhibit 4.3)	8-K	4.2	5/13/2022
10.1	Stockholders Agreement, dated as of August 26, 2020, by and between the Company and Trine Sponsor IH, LLC	S-4	10.10	9/15/2020
10.2	Form of Director and Officer Indemnification Agreement	S-4	10.13	9/15/2020
10.3**	Non-Employee Director Compensation Program	S-1	10.13	12/23/2020
10.4**	2015 Stock Incentive Plan	S-4	10.14	10/15/2020
10.5**	Form of Incentive Stock Option Agreement under the 2015 Stock Incentive Plan	S-4	10.15	10/15/2020
10.6**	Form of RSU Agreement under the 2015 Stock Incentive Plan	S-4	10.17	10/15/2020
10.7**	2020 Incentive Award Plan	10-K	10.11	3/15/2021
10.8**	Form of Stock Option Agreement under the 2020 Incentive Award Plan	S-4	10.20	9/15/2020
10.9**	Form of RSU Agreement under the 2020 Incentive Award Plan	S-4	10.21	9/15/2020
10.10**	Form of Restricted Stock Agreement under the 2020 Incentive Award Plan	S-4	10.22	9/15/2020
10.11**	Form of Performance RSU Agreement under the 2020 Incentive Award Plan			*
10.12**	Restricted Stock Agreement, dated as of September 18, 2015 by and between Desktop Metal and Ric Fulop	S-4	10.18	10/15/2020
10.13**	Separation Agreement, dated as of April 30, 2022, by and between Desktop Metal and Ilya Mirman	10-Q	10.2	5/10/2022
10.14**	Separation Agreement, dated as of July 11, 2022, by and between Desktop Metal and James Haley	8-K	10.1	7/12/2022
10.15**†	Separation Agreement, dated as of August 22, 2022, by and between Desktop Metal and Michael Jafar	10-Q	10.1	11/9/2022
10.16**	Offer Letter, dated as of October 21, 2022, by and between Desktop Metal and Jason Cole	8-K	10.1	10/26/2022
10.17**	Separation Agreement, dated as of November 6, 2022, by and between Desktop Metal and Arjun Aggarwal	10-Q	10.3	11/9/2022

10.18	Northwest Park Office Lease, dated as of September 28, 2021, by and between NWP Building 24 LLC and Desktop Metal	10-K	10.19	3/15/22
10.19†	BGO 500 Lease, dated as of October 7, 2021, by and between BGO 500 Research Owner LLC and Desktop Metal	10-K	10.20	3/15/22
10.20	Lease Agreement for Commercial Premises, dated December 10, 2019, between ExOne GmbH and Solidas Immobilien and Grundbesitz GmbH	10-Q	10.3	5/10/2022
10.21	Addendum No. 1 to Lease Agreement for commercial Premises, dated December 10, 2019, between ExOne GmbH and Solidas Immobilien and Grundbesitz GmbH	10-Q	10.4	5/10/2022
10.22**	Form of Restrictive Covenant Agreement			*
21.1	Subsidiaries of the Company			*
23.1	Consent of Deloitte & Touche LLP			*
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a)			*
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a)			*
32.1	Certification of Chief Executive Officer and Chief Financial Officer of Periodic Report Pursuant to 18 U.S.C. Section 1350			*
101.INS	Inline XBRL Instance Document			*
101.SCH	Inline XBRL Taxonomy Extension Schema Document			*
101.CAL	Inline XBRL Taxonomy Calculation Linkbase Document			*
101.DEF	Inline XBRL Taxonomy 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 (formatted as inline XBRL and contained in Exhibit 101)			*

* Filed with this Annual Report on Form 10-K.

** Management contract or compensatory plan or arrangement.

† Portions of this exhibit (indicated by asterisks) have been redacted in compliance with Regulation S-K Item 601(b)(10)(iv).

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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, on March 1, 2023.

DESKTOP METAL, INC.

By: /s/ Ric Fulop
Ric Fulop
Chief Executive Officer
(Principal Executive Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities indicated:

Signature	Title	Date
/s/ Ric Fulop Ric Fulop	Chief Executive Officer (Principal Executive Officer)	March 1, 2023
/s/ Jason Cole Jason Cole	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 1, 2023
/s/ Scott Dussault Scott Dussault	Director	March 1, 2023
/s/ James Eisenstein James Eisenstein	Director	March 1, 2023
/s/ Dayna Grayson Dayna Grayson	Director	March 1, 2023
/s/ Wen Hsieh Wen Hsieh	Director	March 1, 2023
/s/ Jeff Immelt Jeff Immelt	Director	March 1, 2023
/s/ Stephen Nigro Stephen Nigro	Director	March 1, 2023
/s/ Steve Papa Steve Papa	Director	March 1, 2023
/s/ Bilal Zuberi Bilal Zuberi	Director	March 1, 2023

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Desktop Metal, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Desktop Metal, Inc., and subsidiaries (the "Company") as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows, for each of the three years in the period ended December 31, 2022, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 1, 2023, expressed an adverse opinion on the Company's internal control over financial reporting because of material weaknesses identified.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current-period audit of the financial statements that were communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Goodwill - Impairment Assessment - Refer to Note 11 to the financial statements

Critical Audit Matter Description

The Company identified triggering events during the year ended December 31, 2022 requiring an evaluation of goodwill for impairment. The Company's evaluation of goodwill for impairment involves the comparison of the fair value of the Company's sole reporting unit to its carrying value. The Company used the discounted cash flow method under the income approach, as well as the guideline public company method and guideline transaction company method under the market approach to estimate fair value. These two approaches require management to make significant estimates and assumptions related to forecasts of future revenues, earnings

before interest, taxes, depreciation, and amortization ("EBITDA") margins, discount rate, terminal growth rate, and the selection of guideline peer companies as well as guideline transactions. Changes in these assumptions could have a significant impact on the fair value of the reporting unit and the amount of any goodwill impairment recognized. Furthermore, the Company used professional judgment to arrive at a control premium based on guideline transactions. This control premium was then applied to the minority value indicated under the guideline public company method. As a result of this evaluation, the reporting unit's carrying value exceeded its fair value and, therefore, an impairment charge of $498.8 million was recognized on the consolidated statement of operations for the twelve months ended December 31, 2022. The carrying value of goodwill was $113.0 million as of December 31, 2022 after recognition of the impairment charge and the impacts of foreign currency.

Given the significant judgments made by management to estimate the fair value of the single reporting unit and the sensitivity of operations to changes in demand and other market factors, performing audit procedures to evaluate the reasonableness of management's estimates and assumptions related to forecasts of future revenues and EBITDA margins, estimation of the discount rate, and selection of the terminal growth rate, control premium and guideline peer companies and guideline transactions for the Company required a high degree of auditor judgment and an increased extent of effort, including the need to involve our fair value specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the forecasts of future revenues and EBITDA margins, estimation of discount rate, and selection of the terminal growth rate, control premium and guideline peer companies and guideline transactions for the reporting unit subject to the fair value analysis included the following, among others:

- Evaluated the design and implementation of management’s determination of the fair value of the company, including controls related to management’s forecasts of future revenues and EBITDA margins, estimation of discount rate, and selection of the terminal growth rate, control premium, guideline peer companies and guideline transactions.

- Evaluated the reasonableness of management's forecasts including revenue and EBITDA margin assumptions by comparing the forecasts to (1) historical results, (2) internal communications to management and the Board of Directors, (3) information included in analyst and industry reports, and (4) relevant data for peer group companies.

- With the assistance of our fair value specialists:

  - We evaluated the discount rate and terminal growth rate, including testing the underlying source information and the mathematical accuracy of the calculations, and developing a range of independent estimates and comparing those to the assumptions selected by management.

  - We evaluated the control premium utilized in the guideline company market approach, including testing the underlying source information and mathematical accuracy of the calculations, and comparing the control premium selected by management to the range observed for the guideline transactions.

  - We evaluated the selection of guideline companies and guideline transactions utilized in the market approach, as well as the selected multiples.

/s/ Deloitte & Touche LLP

Boston, Massachusetts

March 1, 2023

We have served as the Company's auditor since 2016.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Desktop Metal, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Desktop Metal, Inc. and subsidiaries (the "Company") as of December 31, 2022, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, because of the effect of the material weaknesses identified below on the achievement of the objectives of the control criteria, the Company has not maintained effective internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control — Integrated Framework (2013) issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2022, of the Company and our report dated March 1, 2023, expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed 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. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Material Weaknesses

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 the company's annual or interim financial statements will not be prevented or detected on a timely basis. The following material weaknesses have been identified and included in management's assessment:

Control Environment - control deficiencies constituting material weaknesses, either individually or in the aggregate, relating to: (i) an insufficient number of personnel with an appropriate level of Generally Accepted Accounting Principles (“GAAP”) knowledge and experience to create the proper environment for effective internal control over financial reporting and to ensure that (a) there were adequate processes for oversight, (b) there was accountability for the performance of internal control over financial reporting responsibilities, and (c) corrective activities were appropriately applied, prioritized, and implemented in a timely manner, and (ii) oversight processes and procedures that guide individuals in applying internal control over financial reporting were not adequate such that there is a reasonable possibility that a material misstatement of the Company’s financial statements will not be prevented or detected on a timely basis.

Risk Assessment - control deficiencies constituting material weaknesses, either individually or in the aggregate, relating to: (i) identifying, assessing, and communicating appropriate objectives, (ii) identifying and analyzing risks to achieve these objectives, and (iii) identifying and assessing changes in the business that could impact the system of internal controls.

Control Activities - control deficiencies constituting material weaknesses, either individually or in the aggregate, relating to: (i) addressing relevant risks, (ii) providing evidence of performance, (iii) providing appropriate segregation of duties, or (iv) operation at a level of precision to identify all potentially material errors.

Information and Communication - control deficiencies constituting material weaknesses, either individually or in the aggregate, relating to communicating accurate information internally and externally, including providing information pursuant to objectives, responsibilities, and functions of internal control.

Monitoring - control deficiencies constituting material weaknesses, either individually or in the aggregate, relating to monitoring activities to ascertain whether the components of internal control are present and functioning.

These material weaknesses were considered in determining the nature, timing, and extent of audit tests applied in our audit of the consolidated financial statements as of and for the year ended December 31, 2022, of the Company, and this report does not affect our report on such financial statements.

/s/ Deloitte & Touche LLP

Boston, Massachusetts

March 1, 2023

DESKTOP METAL, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share amounts)

	December 31,	
	2022	**2021**
Assets		
Current assets:		
Cash and cash equivalents	$ 76,291	$ 65,017
Current portion of restricted cash	4,510	2,129
Short-term investments	108,243	204,569
Accounts receivable	38,481	46,687
Inventory	91,736	65,399
Prepaid expenses and other current assets	17,155	18,208
Total current assets	336,416	402,009
Restricted cash, net of current portion	1,112	1,112
Property and equipment, net	56,271	58,710
Goodwill	112,955	639,301
Intangible assets, net	219,830	261,984
Other noncurrent assets	27,763	25,480
Total Assets	$ 754,347	$ 1,388,596
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 25,105	$ 31,558
Customer deposits	11,526	14,137
Current portion of lease liability	5,730	5,527
Accrued expenses and other current liabilities	26,723	33,829
Current portion of deferred revenue	13,719	18,189
Current portion of long-term debt, net of deferred financing costs	584	825
Total current liabilities	83,387	104,065
Long-term debt, net of current portion	311	548
Convertible notes	111,834	—
Contingent consideration, net of current portion	—	4,183
Lease liability, net of current portion	17,860	13,077
Deferred revenue, net of current portion	3,664	4,508
Deferred tax liability	8,430	10,695
Other noncurrent liabilities	1,359	3,170
Total liabilities	226,845	140,246
Commitments and Contingencies (Note 17)		
Stockholders' Equity		
Preferred Stock, $0.0001 par value—authorized, 50,000,000 shares; no shares issued and outstanding at December 31, 2022 and December 31, 2021, respectively	—	—
Common Stock, $0.0001 par value—500,000,000 shares authorized; 318,235,106 and 311,737,858 shares issued at December 31, 2022 and December 31, 2021, respectively, 318,133,434 and 311,473,950 shares outstanding at December 31, 2022 and December 31, 2021, respectively	32	31
Additional paid-in capital	1,874,792	1,823,344
Accumulated deficit	(1,308,954)	(568,611)
Accumulated other comprehensive loss	(38,368)	(6,414)
Total Stockholders' Equity	527,502	1,248,350
Total Liabilities and Stockholders' Equity	$ 754,347	$ 1,388,596

See notes to consolidated financial statements.

DESKTOP METAL, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share amounts)

	Years Ended December 31,		
	2022	**2021**	**2020**
Revenues			
Products	$ 190,248	$ 105,994	$ 13,718
Services	18,775	6,414	2,752
Total revenues	209,023	112,408	16,470
Cost of sales			
Products	178,952	87,450	26,945
Services	15,000	6,665	4,574
Total cost of sales	193,952	94,115	31,519
Gross profit (loss)	15,071	18,293	(15,049)
Operating expenses			
Research and development	96,878	68,131	43,136
Sales and marketing	68,091	47,995	13,136
General and administrative	83,065	78,041	20,734
In-process research and development assets acquired	—	25,581	—
Goodwill impairment	498,800	—	—
Total operating expenses	746,834	219,748	77,006
Loss from operations	(731,763)	(201,455)	(92,055)
Change in fair value of warrant liability	—	(56,576)	56,417
Interest expense	(1,743)	(149)	(328)
Interest and other (expense) income, net	(8,335)	(11,822)	1,011
Loss before income taxes	(741,841)	(270,002)	(34,955)
Income tax benefit	1,498	29,668	940
Net loss	$ (740,343)	$ (240,334)	$ (34,015)
Net loss per share—basic and diluted	$ (2.35)	$ (0.92)	$ (0.22)
Weighted average shares outstanding, basic and diluted	314,817	260,770	157,906

See notes to consolidated financial statements.

DESKTOP METAL, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	Years Ended December 31,		
	2022	2021	2020
Net loss	$ (740,343)	$ (240,334)	$ (34,015)
Other comprehensive (loss) income, net of taxes:			
Unrealized gain (loss) on available-for-sale marketable securities, net	(290)	(40)	(84)
Foreign currency translation adjustment	(31,664)	(6,365)	—
Total comprehensive (loss) income, net of taxes of $0	$ (772,297)	$ (246,739)	$ (34,099)

See notes to consolidated financial statements.

DESKTOP METAL, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands, except share amounts)

	Legacy Convertible Preferred Stock		Common Stock		Additional Paid-in	Accumulated	Accumulated Other Comprehensive (Loss)	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital	Deficit	Income	Equity
BALANCE—January 1, 2020	100,038,109	$ 436,553	26,813,113	$ 3	$ 16,722	$ (294,262)	$ 75	$ (277,462)
Retroactive application of recapitalization (Note 1)	(100,038,109)	(436,553)	128,100,821	13	436,520	—	—	436,533
Adjusted balance, beginning of period	—	—	154,913,934	16	453,242	(294,262)	75	159,071
Exercise of Common Stock options	—	—	521,925	—	325	—	—	325
Vesting of restricted Common Stock	—	—	5,307,357	1	6	—	—	7
Issuance of Common Stock in connection with acquisitions	—	—	61,060	—	500	—	—	500
Repurchase of shares for employee tax withholdings	—	—	(9,308)	—	(101)	—	—	(101)
Stock-based compensation expense	—	—	—	—	8,006	—	—	8,006
Common Stock warrants issued and exercised	—	—	692,366	—	1,915	—	—	1,915
Reverse recapitalization, net of transaction costs	—	—	63,139,263	6	380,295	—	—	380,301
Net loss	—	—	—	—	—	(34,015)	—	(34,015)
Other comprehensive income	—	—	—	—	—	—	(84)	(84)
BALANCE—December 31, 2020	—	$ —	224,626,597	$ 23	$ 844,188	$ (328,277)	$ (9)	$ 515,925
Exercise of Common Stock options	—	—	5,732,247	1	6,425	—	—	6,426
Vesting of restricted Common Stock	—	—	491,293	—	—	—	—	—
Repurchase of shares for employee tax withholdings - RSA	—	—	(109,150)	—	(958)	—	—	(958)
Vesting of restricted share units	—	—	650,777	—	—	—	—	—
Repurchase of shares for employee tax withholdings - RSU	—	—	(61,498)	—	(541)	—	—	(541)
Issuance of Common Stock in connection with acquisitions	—	—	57,267,401	5	620,585	—	—	620,590
Issuance of Common Stock in connection with acquired in-process research and development	—	—	334,370	—	4,300	—	—	4,300
Stock-based compensation expense	—	—	—	—	28,778	—	—	28,778
Vesting of Trine Founder Shares	—	—	1,850,938	—	—	—	—	—
Common Stock issued in connection with warrants exercised	—	—	20,690,975	2	320,567	—	—	320,569
Net loss	—	—	—	—	—	(240,334)	—	(240,334)
Other comprehensive loss	—	—	—	—	—	—	(6,405)	(6,405)
BALANCE—December 31, 2021	—	$ —	311,473,950	$ 31	$ 1,823,344	$ (568,611)	$ (6,414)	$ 1,248,350
Exercise of Common Stock options	—	—	2,310,931	—	3,190	—	—	3,190
Vesting of restricted Common Stock	—	—	157,131	—	—	—	—	—
Vesting of restricted share units	—	—	4,153,939	1	—	—	—	1
Repurchase of shares for employee tax withholdings - RSU	—	—	(74,719)	—	(243)	—	—	(243)
Issuance of common stock related to settlement of contingent consideration			112,202	—	500	—	—	500
Stock-based compensation expense	—	—	—	—	48,001	—	—	48,001
Net loss	—	—	—	—	—	(740,343)	—	(740,343)
Other comprehensive loss	—	—	—	—	—	—	(31,954)	(31,954)
BALANCE—December 31, 2022	—	$ —	318,133,434	$ 32	$ 1,874,792	$ (1,308,954)	$ (38,368)	$ 527,502

See notes to consolidated financial statements.

DESKTOP METAL, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Years Ended December 31,		
	2022	2021	2020
Cash flows from operating activities:			
Net loss	$ (740,343)	$ (240,334)	$ (34,015)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	50,767	24,854	8,589
Stock-based compensation	48,001	28,778	8,006
Goodwill impairment	498,800	—	—
Change in fair value of warrant liability	—	56,576	(56,417)
Change in fair value of subscription agreement	—	2,920	—
Expense related to Common Stock warrants issued	—	—	1,915
Amortization (accretion) of discount on investments	(888)	3,021	75
Amortization of debt financing cost	—	9	19
Amortization of deferred costs on convertible notes	453	—	—
Provision for bad debt	975	447	377
Provision for slow-moving, obsolete, and lower of cost or net realizable value inventories, net	(45)	—	—
Acquired in-process research and development	—	25,581	—
Loss on disposal of property and equipment	224	74	18
Foreign exchange (gains) losses on intercompany transactions, net	259	182	—
Net increase (decrease) in accrued interest related to marketable securities	847	(819)	(3)
Net unrealized (gain) loss on equity investment	6,332	9,660	—
Net unrealized (gain) loss on other investments	1,595	(130)	—
Deferred tax benefit	(1,498)	(29,668)	(940)
Change in fair value of contingent consideration	(1,567)	(429)	—
Foreign currency transaction (gain) loss	44	7	—
Changes in operating assets and liabilities:			
Accounts receivable	6,737	(18,299)	(2,370)
Inventory	(28,183)	(16,962)	(1,303)
Prepaid expenses and other current assets	1,787	(8,937)	901
Other assets	2,505	(3)	—
Accounts payable	(6,595)	12,797	(2,637)
Accrued expenses and other current liabilities	(10,613)	(8,761)	(2,391)
Customer deposits	(2,037)	(2,569)	(845)
Current portion of deferred revenue	(4,749)	5,989	774
Change in right of use assets and lease liabilities, net	(4,298)	(641)	(328)
Other liabilities	(41)	1,609	—
Net cash used in operating activities	(181,531)	(155,048)	(80,575)
Cash flows from investing activities:			
Purchases of property and equipment	(11,517)	(7,683)	(1,429)
Purchase of other investments	—	(3,620)	(3,000)
Proceeds from other investments	3,155	—	—
Purchase of equity investment	—	(20,000)	—
Proceeds from sale of property and equipment	6	44	—
Proceeds from policy buyout	—	333	—
Purchase of marketable securities	(158,404)	(330,873)	(136,286)
Proceeds from sales and maturities of marketable securities	248,150	243,349	109,016
Proceeds from capital grant	200	—	—
Cash paid to acquire in-process research and development	—	(21,220)	—
Cash paid for acquisitions, net of cash acquired	(23)	(287,624)	(5,284)
Net cash provided by (used in) investing activities	81,567	(427,294)	(36,983)
Cash flows from financing activities:			
Proceeds from reverse recapitalization, net of issuance costs	—	—	534,597
Proceeds from the exercise of stock options	3,190	6,426	325
Proceeds from the exercise of stock warrants	—	170,665	—
Payment of taxes related to net share settlement upon vesting of restricted stock units	(243)	(541)	—
Repayment of loans	(542)	—	—
Proceeds from issuance of convertible notes	115,000	—	—
Costs incurred in connection with the issuance of convertible notes	(3,619)	—	—
Proceeds from PPP loan	—	—	5,379
Repayment of PPP loan	—	—	(5,379)

Repayment of term loan	—	(10,000)	—
Net cash provided by financing activities	113,786	166,550	534,922
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(167)	(87)	—
Net increase (decrease) in cash, cash equivalents, and restricted cash	13,655	(415,879)	417,364
Cash, cash equivalents, and restricted cash at beginning of period	68,258	484,137	66,773
Cash, cash equivalents, and restricted cash at end of period	$ 81,913	$ 68,258	$ 484,137
Supplemental disclosures of cash flow information			
Reconciliation of cash, cash equivalents and restricted cash reported within the condensed consolidated balance sheets that sum to the total shown in the condensed consolidated statements of cash flows:			
Cash and cash equivalents	$ 76,291	$ 65,017	$ 483,525
Restricted cash included in other current assets	4,510	2,129	—
Restricted cash included in other noncurrent assets	1,112	1,112	612
Total cash, cash equivalents and restricted cash shown in the condensed consolidated statements of cash flows	$ 81,913	$ 68,258	$ 484,137
Supplemental cash flow information:			
Interest paid	$ 3,488	$ 148	$ 322
Taxes paid	$ —	$ 150	$ —
Non-cash investing and financing activities:			
Net liabilities assumed from Trine Business Combination	$ —	$ —	$ 152,395
Accrued reverse recapitalization transaction costs	$ —	$ —	$ 1,901
Net unrealized (gain) loss on investments	$ 290	$ 40	$ —
Exercise of private placement warrants	$ —	$ 149,904	$ —
Common Stock issued for acquisitions	$ —	$ 620,590	$ 500
Common Stock issued for acquisition of in-process research and development	$ —	$ 4,300	$ —
Common Stock issued for settlement of contingent consideration	$ 500	$ —	$ —
Accrued purchase price related to acquisitions	$ —	$ 1,800	$ 200
Additions to right of use assets and lease liabilities	$ 10,812	$ 5,582	$ —
Purchase of property and equipment included in accounts payable	$ 516	$ 90	$ —
Purchase of property and equipment included in accrued expense	$ —	$ 38	$ —
Transfers from property and equipment to inventory	$ 4,993	$ 1,068	$ —
Transfers from inventory to property and equipment	$ 4,513	$ 1,435	$ —
Accrued contingent consideration in connection with acquisitions	$ —	$ 6,083	$ —
Taxes related to net share settlement upon vesting of restricted stock awards in accrued expense	$ —	$ 958	$ —
Tax liabilities related to withholdings on Common Stock issued in connection with acquisitions	$ —	$ —	$ 102
Deferred contract costs	$ 1,341	$ —	$ —
Equipment financing	$ 175	$ —	$ —

See notes to consolidated financial statements.

DESKTOP METAL, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. ORGANIZATION, NATURE OF BUSINESS, AND RISK AND UNCERTAINTIES

Organization and Nature of Business

Desktop Metal, Inc. is a Delaware corporation headquartered in Burlington, Massachusetts. The company was founded in 2015 and is accelerating the transformation of manufacturing with 3D printing solutions for engineers, designers, and manufacturers. The Company designs, produces and markets 3D printing systems to a variety of end customers.

On December 9, 2020 (the "Closing Date"), Trine Acquisition Corp. ("Trine") consummated the previously announced merger pursuant to the Agreement and Plan of Merger, dated August 26, 2020, by and among Trine, Desktop Metal, Inc. and Sparrow Merger Sub, Inc., pursuant to which Sparrow Merger Sub, Inc. merged with and into Desktop Metal, Inc., with Desktop Metal, Inc. becoming our wholly owned subsidiary (the "Business Combination"). Upon the closing of the Business Combination, Trine changed its name to Desktop Metal, Inc. and Desktop Metal, Inc. changed its name to Desktop Metal Operating, Inc.

Unless otherwise indicated or the context otherwise requires, references in this Annual Report on Form 10-K to the "Company" and "Desktop Metal" refer to the consolidated operations of Desktop Metal, Inc. and its subsidiaries. References to "Trine" refer to the company prior to the consummation of the Business Combination and references to "Legacy Desktop Metal" refer to Desktop Metal Operating, Inc. prior to the consummation of the Business Combination.

Legacy Desktop Metal was deemed the accounting acquirer in the Business Combination based on an analysis of the criteria outlined in Accounting Standards Codification ("ASC") 805. This determination was primarily based on Legacy Desktop Metal's stockholders prior to the Business Combination having a majority of the voting power in the combined company, Legacy Desktop Metal having the ability to appoint a majority of the Board of Directors of the combined company, Legacy Desktop Metal's existing management comprising the senior management of the combined company, Legacy Desktop Metal comprising the ongoing operations of the combined company, Legacy Desktop Metal being the larger entity based on historical revenues and business operations, and the combined company assuming Legacy Desktop Metal's name. Accordingly, for accounting purposes, the Business Combination was treated as the equivalent of Legacy Desktop Metal issuing stock for the net assets of Trine, accompanied by a recapitalization. The net assets of Trine are stated at historical cost, with no goodwill or other intangible assets recorded.

While Trine was the legal acquirer in the Business Combination, because Legacy Desktop Metal was deemed the accounting acquirer, the historical financial statements of Legacy Desktop Metal became the historical financial statements of the combined company upon the consummation of the Business Combination. As a result, the financial statements included in this report reflect (i) the historical operating results of Legacy Desktop Metal prior to the Business Combination; (ii) the combined results of Trine and Legacy Desktop Metal following the close of the Business Combination; (iii) the assets and liabilities of Legacy Desktop Metal at their historical cost; and (iv) the Company's equity structure for all periods presented.

In accordance with guidance applicable to these circumstances, the equity structure has been restated in all comparative periods up to the Closing Date to reflect the number of shares of the Company's common stock, $0.0001 par value per share, issued to Legacy Desktop Metal's stockholders in connection with the Business Combination. As such, the shares and corresponding capital amounts and earnings per share related to Legacy Desktop Metal convertible preferred stock and Legacy Desktop Metal common stock prior to the Business Combination have been retroactively restated as shares reflecting the exchange ratio of 1.22122 established in the Business Combination. Legacy Desktop Metal's convertible preferred stock previously classified as mezzanine was retroactively adjusted, converted into Common Stock, and reclassified to permanent as a result of the reverse recapitalization.

Risks and Uncertainties

The Company is subject to a number of risks similar to those of other companies of similar size in its industry, including, but not limited to, the need for successful development of products, the need for additional funding, competition from substitute products and services from larger companies, protection of proprietary technology, patent litigation, dependence on key individuals, and risks associated with changes in information technology. The Company has financed its operations to date primarily with proceeds from the sale of preferred stock and the Business Combination. The Company's long-term success is dependent upon its ability to successfully

market its products and services; generate revenue; maintain or reduce its operating costs and expenses; meet its obligations; obtain additional capital when needed; and, ultimately, achieve profitable operations. Management believes that existing cash and investments as of December 31, 2022 will be sufficient to fund operating and capital expenditure requirements through at least twelve months from the date of issuance of these consolidated financial statements.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation

The 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 regulations of the U.S Securities and Exchange Commission ("SEC").

Principles of Consolidation

The accompanying consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. The functional currency of all wholly owned subsidiaries is U.S. Dollars. All intercompany transactions and balances have been eliminated in consolidation.

COVID-19 Pandemic

In March 2020, the World Health Organization declared the outbreak of a disease caused by a novel strain of the coronavirus ("COVID-19") to be a pandemic. As of December 31, 2022, the impact of the COVID-19 pandemic continues to unfold and there has been uncertainty and disruption in the global economy and financial markets. The Company has considered the COVID-19 pandemic related impacts on its estimates, as appropriate, within its consolidated financial statements and there may be changes to those estimates in future periods.

The COVID-19 pandemic, as well as the response to mitigate the spread and effects of COVID-19, may impact the Company and its customers, as well as the demand for its products and services. The impact of COVID-19 on the Company's operational results in subsequent periods will largely depend on future developments, and cannot be accurately predicted. These developments may include, but are not limited to, new information concerning the severity of COVID-19, the degree of success of actions take to contain or treat COVID-19, the severity and impact of new variants of COVID-19, and the reactions by consumers, companies, governmental entities, and capital markets to such actions.

Foreign Currency Translation

The Company translates assets and liabilities of its foreign subsidiaries from their respective functional currencies to U.S. Dollars at the appropriate spot rates as of the balance sheet date. The functional currency of most wholly owned subsidiaries is U.S. Dollars, except for certain international subsidiaries, for which it is Euros, British Pound Sterling, or Japanese Yen, depending on the subsidiary's location. The results of operations are translated into U.S. Dollars at a monthly average rate, calculated using daily exchange rates.

Differences arising from the translation of opening balance sheets of these entities to the rate at the end of the fiscal period are recognized in accumulated other comprehensive (loss) income. The differences arising from the translation of foreign results at the average rate are also recognized in accumulated other comprehensive (loss) income. Such translation differences are recognized as income or expense in the period in which the Company disposes of the operations.

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

DESKTOP METAL, INC.
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Use of Estimates

The preparation of the consolidated financial statements in conformity with GAAP requires the Company's management to make judgements, estimates and assumptions regarding uncertainties that affect the reported amounts of assets, liabilities and related disclosures of contingent assets and liabilities at the date of the consolidated financial statements, and the reported amounts of revenues and expenses during the reporting period. Significant estimates and assumptions reflected in these consolidated financial statements include, but are not limited to, revenue recognition, realizability of inventory, goodwill, intangibles, stock-based compensation, and fair values of common stock. The Company bases its estimates on historical experience and various other factors believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities. The Company assesses estimates on an ongoing basis; however, actual results could materially differ from those estimates.

Cash and Cash Equivalents

Cash and cash equivalents consist of standard checking accounts, money market accounts and certain investments.The Company classifies any marketable security with an original maturity date of 90 days or less at the time of purchase as a cash equivalent.

Short-Term Investments

The Company invests its excess cash in fixed income instruments denominated and payable in U.S. dollars including U.S. treasury securities, commercial paper, corporate bonds, government bonds, and asset-backed securities in accordance with the Company's investment policy that primarily seeks to maintain adequate liquidity and preserve capital. Short-term investments represent holdings of available-for-sale marketable securities in accordance with the Company's investment policy and cash management strategy. Investments in marketable securities are recorded at fair value, with any unrealized gains and losses reported within accumulated other comprehensive income as a separate component of stockholders' equity until realized or until a determination is made that an other-than-temporary decline in market value has occurred. When such reductions occur, the cost of the investment is adjusted to fair value through recording a loss on investments in the consolidated statements of operations. All investments in marketable securities mature within one year.

The Company also invests in equity securities which are carried at fair value based upon quoted prices in active markets. The Company's recognizes unrealized gains (losses) on equity securities in interest and other (expense) income, net in the consolidated statements of operations.

Restricted Cash

Restricted cash represents cash and cash equivalents that are restricted to withdrawal or use as of the reporting date. Restricted cash typically relates to deposits to secure letters of credit, cash the Company is contractually obligated to maintain related to acquisitions, as well as contractually required security deposits.

Financial Instruments

The Company's financial instruments are comprised of cash and cash equivalents, short-term investments, restricted cash, accounts receivable and accounts payable. The Company's other current financial assets and current financial liabilities have fair values that approximate their carrying values due to the short maturity of these balances.

Products Revenue and Services Revenue

Products revenue include sales of the Company's additive manufacturing systems, along with the sale of related accessories and consumables, as well as produced parts. Consumables are primarily comprised of materials, which are used by the 3D printers during the printing process to produce parts, as well as replacement parts for items consumed during system operations. Certain on-device software is embedded with the hardware and sold with the product bundle and is included within product revenue. Revenue from

products is recognized upon transfer of control, which is generally at the point of shipment. If the Company cannot objectively determine that the product provided to the customer is in accordance with agreed-upon specifications, revenue is not recognized until customer acceptance is received.

Services revenue consists of installation, training, and post-installation hardware and software support, as well as various software solutions the Company offers to facilitate the operation of the Company's products. The Company offers multiple software products, which are licensed through either a cloud-based solution and/or on-device software, depending on the product. For the cloud-based solution, which the customer does not have the right to take possession of, the Company typically provides an annual subscription for customer access which is renewable at expiration. The revenue from the cloud-based solution is recognized ratably over the annual term as the Company considers the services provided under the cloud-based solution to be a series of distinct performance obligations, as the Company provides continuous daily access to the cloud solution. For on-device software subscriptions, the Company typically recognizes revenue once the customer has been given access to the software. When the Company enters into development contracts, control of the development service is transferred over time, and the related revenue is recognized as services are performed.

For certain products, the Company offers customers an optional extended warranty beyond the initial warranty period. The optional extended warranty is accounted for as a service-type warranty. Extended warranty revenue is deferred and recognized on a straight-line basis over the service-type warranty period of the contract and the associated costs are recognized as incurred. For certain deferred maintenance contracts where sufficient historical evidence indicates that the costs of performing the related services under the contract are not incurred on a straight-line basis, the associated revenue is recognized at a point in time in proportion to the costs expected to be incurred.

The Company generates certain revenues through the sale of research and development services. Revenue under research and development service contracts is generally recognized over time where progress is measured in a manner that reflects the transfer of control of the promised goods or services to the customer. Depending on the facts and circumstances surrounding each research and development service contract, revenue is recognized over time using either an input measure (based on the entity's direct costs incurred in an effort to satisfy the performance obligations) or an output measure (specifically units or parts delivered, based upon certain customer acceptance and delivery requirements).

In certain circumstances, the Company generates revenue through leases of machinery and equipment to customers. These leases are classified as either operating or sales-type leases and generally have lease terms ranging from one to five years.

Revenue Recognition

Revenue is measured as the amount of consideration expected to be received in exchange for transferring goods or providing services. The amount of consideration is typically a fixed price at the contract inception. Consideration from shipping and handling is recorded on a gross basis within product revenue.

The Company determines revenue recognition through the following steps:

- Identification of the contract, or contracts, with a customer
- Identification of the performance obligations in the contract
- Determination of the transaction price
- Allocation of the transaction price to the performance obligations in the contract
- Recognition of revenue when, or as, the Company satisfies a performance obligation

DESKTOP METAL, INC.
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Nature of Products and Services

The Company sells its products through authorized resellers, independent sales agents, and its own sales force. Revenue from hardware, consumables, and produced parts is recognized upon transfer of control, which is generally at the point of shipment. If the Company cannot objectively determine that the products provided to the customer are in accordance with agreed-upon specifications, revenue is not recognized until customer acceptance is received.

The Company's post-installation support is primarily sold through one-year annual contracts and such revenue is recognized ratably over the term of the agreement. For certain maintenance contracts, there is a detail of specified maintenance which is performed at predetermined intervals and is recognized when the professional services are performed. Service revenue from installation and training is recognized as performed.

The Company's terms of sale generally provide payment terms that are customary in the countries where the Company transacts business. To reduce credit risk in connection with certain sales, the Company may, depending upon the circumstances, require significant deposits or payment in full prior to shipment. When the Company has a noncancelable contract and the right to invoice prior to shipment based on payment terms, the Company records the receivable and related customer deposits in the consolidated balance sheets.

Due to the short-term nature of the Company's contracts, substantially all of the outstanding performance obligations are recognized within one year.

Shipping and handling activities that occur after control over a product has transferred to a customer are accounted for as fulfillment activities rather than performance obligations, as allowed under a practical expedient provided by ASC 606. The shipping and handling fees charged to customers are recognized as revenue and the related costs are included in cost of revenue at the point in time when ownership of the product is transferred to the customer. Sales taxes and value added taxes collected concurrently with revenue generating activities are excluded from revenue.

Significant Judgements

The Company enters into contracts with customers that can include various combinations of hardware products, software licenses, and services, which are distinct and accounted for as separate performance obligations. Products or services that are promised to a customer can be considered distinct if both of the following criteria are met: (i) the customer can benefit from the products or services either on its own or together with other readily available resources and (ii) the Company's promise to transfer the products, software, or services to the customer is separately identifiable from other promises in the contract. Determining whether products and services are considered distinct performance obligations that should be accounted for separately versus together may require significant judgement.

Judgement is required to determine the standalone selling price ("SSP"). The transaction price is allocated to each distinct performance obligation on a relative standalone selling price basis and revenue is recognized for each performance obligation when control has passed. In most cases, the Company is able to establish SSP based on historical transaction data of the observable prices of hardware products and consumables sold separately in comparable circumstances to similar customers, observable renewal rates for software and post-installation support, and the Company's best estimate of the selling price at which the Company would have sold the product regularly on a stand-alone basis for training and installation. The Company reassesses the SSP on a periodic basis or when facts and circumstances change.

Contract Balances

The timing of revenue recognition, billings and cash collections results in billed accounts receivable, customer deposits and deferred revenues (contract liabilities) on the consolidated balance sheets. Timing of revenue recognition may differ from the timing of invoicing to customers. The Company records a receivable at the time of invoicing. For most contracts, customers are invoiced a substantive portion of the arrangement prior to shipment of products or performance of services. The Company will typically bill in advance for post-installation support and cloud-based software licenses, resulting in deferred revenue.

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When products have been delivered, but the product revenue associated with the arrangement has been deferred the Company includes the costs for the delivered items in inventory on the consolidated balance sheets until recognition of the related revenue occurs, at which time it is recognized in cost of sales.

The Company's contracts are primarily one year or less, and as such, most of the deferred revenue outstanding at the end of the fiscal year is recognized during the following year. Purchases of post-installation customer support and maintenance may range from one to five years, and as such, revenue for these transactions are recognized over periods greater than one year.

The Company sells products directly to end-users as well as through a reseller network. Under the reseller arrangement, the reseller is determined to be the Company's customer, and revenue is recognized based on the amounts the Company is entitled to, reduced by any payments owed to the resellers. On certain contracts, the Company utilizes external partners and an internal sales team to sell direct to the end user. The Company acts as a principal in the contracts with users when utilizing external partners because the Company controls the product, establishes the price, and bears the risk of nonperformance, until it is transferred to the end user. The Company records the revenue on a gross basis and commissions are recorded as a sales and marketing expense in the statement of operations. The Company recognizes its commission expense as a point-in-time expense as contract obligations are primarily completed within a one-year contract period.

Allowance for Doubtful Accounts

In evaluating the collectability of accounts receivable, the Company assesses a number of factors, including specific customers' abilities to meet their financial obligations, the length of time receivables are past due, and historical collection experience. If circumstances related to specific customers change, or economic conditions deteriorate such that past collection experience is no longer relevant, the Company's estimate of the recoverability of accounts receivable could be further reduced from the levels provided for in the consolidated financial statements.

The Company evaluates specific accounts for which it is believed a customer may have an inability to meet their financial obligations. In these cases, judgment is applied, based on available facts and circumstances, and a specific reserve is recorded for that customer to reduce the receivable to an amount expected to be collected. These specific reserves are reevaluated and adjusted as additional information is received that impacts the amount reserved.

Remaining Performance Obligations

Remaining performance obligations are the aggregate amount of total contract transaction price that is unsatisfied or partially unsatisfied. The Company has elected to apply the practical expedient associated with incremental costs of obtaining a contract, and as such, sales commission expense is generally expensed when incurred because the amortization period would be one year or less. These costs are recorded within sales and marketing expense in the consolidated statements of operations.

Net Loss Per Share

The Company presents basic and diluted loss per share amounts. Basic loss per share is calculated by dividing net loss available to holders of Common Stock by the weighted average number of shares of Common Stock outstanding during the applicable period.

The denominator for diluted earnings per share is a computation of the weighted-average number of ordinary shares and the potential dilutive ordinary shares outstanding during the period. Potential dilutive shares outstanding include the dilutive effect of in-the-money options, unvested Restricted Stock Awards ("RSAs"), and unvested Restricted Stock Units ("RSUs") using the treasury stock method. In periods in which the Company reports a net loss, diluted net loss per share is the same as basic net loss per share because dilutive shares are not assumed to have been issued if their effect is anti-dilutive.

DESKTOP METAL, INC.
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Grants

The Company recognizes grants or subsidies from governments and other organizations when there is reasonable assurance that the Company will comply with any conditions attached to the grant arrangement and the grant will be received. The Company evaluates the conditions of the grant as of each reporting period to ensure that the Company has reached reasonable assurance of meeting the conditions of each grant arrangement and that it is expected that the grant will be received as a result of meeting the necessary conditions. Grants are recognized in the consolidated statements of operations on a systematic basis over the periods in which the Company recognized the related costs for which the grant is intended to compensate. Specifically, when government grants are related to reimbursements for operating expenses, the grants are recognized as a reduction of the related expense in the consolidated statements of operations. During the years ended December 31, 2022 and 2021, the Company recognized $0.4 million and $1.0 million, respectively, related to grants in the research and development line within the consolidated statements of operations. During the year ended December 31, 2020, the Company did not recognize any research and development grants.

The Company records grant receivables in the consolidated balance sheets in prepaid expenses and other current assets or other non-current assets, depending on when the amounts are expected to be received from the government agency. Proceeds received from grants prior to expenditures being incurred are recorded as restricted cash and other current liabilities or other long-term liabilities, depending on when the Company expects to use the proceeds.

Warranty Reserve

Substantially all of the Company's hardware and software products are covered by a standard assurance warranty ofone year within the United States and 13 months internationally, and estimated warranty obligations are recorded as an expense at the time of revenue recognition. In the event of a failure of hardware product or software covered by this warranty, the Company will repair or replace the software or hardware product. For certain products, the Company offers customers an optional extended warranty after the initial warranty period. The optional extended warranty is accounted for as a service-type warranty; therefore, costs are recognized as incurred and revenue is recognized over the service-type warranty period.

The Company's warranty reserve reflects estimated material and labor costs for potential or actual product issues in its installed base for which the Company expects to incur an obligation. The Company periodically assesses the adequacy of the warranty reserve and adjusts the amount as necessary. If the data used to calculate the adequacy of the warranty reserve is not indicative of future requirements, additional or reduced warranty reserves may be required.

Substantially all of the Company's produced parts are covered by standard warranties ofone to five years, depending on the product. In the event a product does not meet the requested specifications or has a defect in materials or workmanship, the Company will remake or adjust the product at no additional cost within the specified warranty period. The Company's produced parts warranty reserve is accounted for based on historical cost of rework.

Inventory

Inventory is stated at the lower of cost or net realizable value, approximating a first-in, first-out basis.

The Company provides for inventory losses based on obsolescence and levels in excess of forecasted demand. Inventory is reduced to the estimated net realizable value based on historical usage and expected demand. Inventory provisions based on obsolescence and inventory in excess of forecasted demand are recorded through cost of sales in the consolidated statements of operations.

Concentrations of Credit Risk and Off-Balance-Sheet Risk

In the normal course of operations, ExOne GmbH issues short-term financial guarantees and letters of credit to third parties in connection with certain commercial transactions requiring security through a credit facility with a German bank. At December 31, 2022, total outstanding financial guarantees and letters of credit issued were $3.9 million.

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The Company has no other significant off-balance-sheet risk, such as foreign exchange contracts, option contracts, or other foreign hedging arrangements. Financial instruments that potentially expose the Company to concentrations of credit risk consist mainly of cash and cash equivalents. The Company maintains its cash and cash equivalents principally with accredited financial institutions of high-credit standing.

As of December 31, 2022, 2021, and 2020,no single customer accounted for more than 10% of revenue. As of December 31, 2022,no single customer accounted for more than 10% of total accounts receivable. As of December 31, 2021,one customer accounted for 24% of total accounts receivable.

Customer Deposits

Payments received from customers who have placed reservations or purchase orders in advance of shipment are refundable upon cancellation or non-delivery by the Company and are included within customer deposits on the consolidated balance sheets.

Other Investments

The Company periodically makes investments in companies within the additive manufacturing industry. The Company monitors events or changes in circumstances that may have a significant effect on the fair value of investments, either due to impairment or based on observable price changes, and records necessary adjustments in interest and other (expense) income, net in the consolidated statements of operations.

Property and Equipment

Property and equipment is stated at cost. Expenditures for repairs and maintenance are expensed as incurred. When assets are retired or disposed of, the assets and related accumulated depreciation are eliminated from the accounts and any resulting gain or loss is included in the determination of net income or loss.

Depreciation is expensed using the straight-line method over the estimated useful lives of the assets as follows:

Asset Classification	Useful Life
Equipment	2 - 20 years
Buildings	6 - 50 years
Automobiles	2 - 7 years
Furniture and fixtures	2 - 10 years
Computer equipment	2 - 7 years
Tooling	3 years
Software	2 - 5 years
Leasehold improvements	Shorter of asset’s useful life or remaining life of the lease

Leases

For lease arrangements in which the Company is the lessee, the Company determines if an arrangement is a lease at inception. The Company typically only includes an initial lease term in its assessment of a lease arrangement. Options to renew a lease are not included in the Company’s assessment unless there is reasonable certainty that the Company will renew. The Company assesses it plans to renew its material leases on an annual basis. Operating leases are included in other assets, current portion of lease liability, and lease liability, net of current portion on the Company’s consolidated balance sheets.

Right of use (“ROU”) assets and lease liabilities are recognized based on the present value of the future minimum lease payments over the expected remaining lease term. As the interest rate implicit in the Company’s leases is typically not readily determinable, the Company uses its incremental borrowing rate for a similar term of lease payments based on the information available at commencement date in determining the present value of future payments.

DESKTOP METAL, INC.
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The Company elected the short-term lease recognition practical expedient and therefore, the Company does not recognize right of use assets or lease liabilities for leases with less than a twelve-month duration. The Company also elected the practical expedient to account for lease agreements which contain both lease and non-lease components as a single lease component.

For lease arrangements in which the Company is the lessor, the Company determines whether the lease arrangement is classified as an operating lease or sales-type lease at inception. The Company's operating lease arrangements have initial terms generally ranging from one to five years, certain of which may contain extension or termination clauses, or both. Such operating lease arrangements also generally include a purchase option to acquire the related machinery and equipment at the end of the lease term for either a fixed amount as determined at inception, or a subsequently negotiated fair market value.

The Company's sales-type lease arrangements generally include transfer of ownership at the end of the lease term, and as such, the Company's net investment in sales-type lease arrangements presented in the consolidated balance sheets generally does not include an amount of unguaranteed residual value.

For certain of the arrangements, the Company separates and allocates certain non-lease components (principally maintenance services) from non-lease components. Sales, value add, and other taxes collected from customers and remitted to governmental authorities are accounted for on a net (excluded from lease income) basis. In determination of the lease term, the Company considers the likelihood of lease renewal options and lease termination provisions.

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 (as of the first day of the fourth quarter) or as circumstances indicate the value may no longer be recoverable. To assess if goodwill is impaired, the Company performs a qualitative assessment to determine whether further impairment testing is necessary. The Company then compares the carrying amount of the single reporting unit to the fair value of the reporting unit. An excess carrying value over fair value would indicate that goodwill may be impaired. Due to sustained declines in the Company's stock price and the stock prices of comparable companies, we performed interim quantitative assessments as of June 30, 2022 and December 31, 2022, utilizing a combination of the income and market approaches. The results of the quantitative analysis performed indicated that the carrying value of the reporting unit exceeded the fair value. As such, $498.8 million of goodwill impairment charges was recorded during the year ended December 31, 2022.

Intangible Assets

Intangible assets consist of identifiable intangible assets, including developed technology, trade names, and customer relationships, resulting from the Company's acquisitions. The Company evaluates definite-lived intangible assets for impairment when events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. 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 beenno impairments of intangible assets. Intangible assets are amortized over their useful life.

Asset Acquisitions

Acquisitions of assets or a group of assets that do not meet the definition of a business are accounted for as asset acquisitions using the cost accumulation method, whereby the cost of the acquisition, including certain transaction costs, is allocated to the assets acquired on the basis of relative fair values. No goodwill is recognized in an asset acquisition. Intangible assets that are acquired in an asset acquisition for use in research and development activities which have an alternative future use are capitalized as in-process research and development ("IPR&D"). Acquired IPR&D which has no alternative future use is recorded as in-process research and development expense at acquisition.

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 revision or that the carrying value of these assets may be impaired. The Company does not believe that any events have occurred through December 31, 2022, that would indicate its long-lived assets are impaired.

Contingent Consideration

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 revenue metrics is estimated using a Monte Carlo simulation in a risk-neutral framework. Under this approach, the value of contingent consideration related to revenue metrics is calculated as the average present value of contingent consideration payments over all simulated paths. The fair value of contingent consideration related to technical developments 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 technical 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 revenue or technical 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 reflected within research and development expenses in the Company's consolidated statements of operations.

Research and Development

Research and development costs are expensed as incurred. Research and development expense includes costs, primarily related to salaries and benefits for employees, prototypes and design expenses, incurred to develop intellectual property and is charged to expense as incurred.

Capitalized Software

Costs incurred internally in researching and developing a software product to be sold to customers are charged to expense until technological feasibility has been established for the product. Once technological feasibility is established, costs incurred during the application development phase are capitalized only when the Company believes it is probable the development will result in new or additional functionality, and such software costs are capitalized until the product is available for general release to customers. Judgment is required in determining when technological feasibility of a product is established. The Company has determined that technological feasibility for software products is reached after all high-risk development issues have been resolved through coding and testing. Generally, this occurs shortly before the products are released, such that there are no material costs to capitalize. The Company capitalizes certain costs related to the development of software within Intangible assets in the consolidated balance sheets and amortizes the costs on a straight-line basis over the estimated useful life of the asset, which is typically 3 years.

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The Company also capitalizes certain costs related to the implementation of cloud computing software within prepaid and other current assets and other noncurrent assets in the consolidated balance sheets. The types of costs capitalized during the application development phase include employee compensation, as well as consulting fees for third-party developers working on these projects. If a renewal option is included in the contract, the Company estimates the contractual term based on the renewal period. The capitalized costs are amortized on a straight-line basis over the estimated useful life of the asset, including any estimated renewal period.

Stock-Based Compensation

The Company's stock-based compensation cost is measured at the grant date based on the fair value of the award and is recognized as an expense over the requisite service period.

The Company accounts for all stock options granted to employees and nonemployees using a fair value method. The fair value of options on the date of grant is calculated using the Black-Scholes option pricing model based on key assumptions such as stock price, expected volatility and expected term. The Company's estimates of these assumptions are primarily based on the fair value of the Company's stock, historical data, peer company data and judgment regarding future trends and factors.

For awards with service conditions only, the Company recognizes stock-based compensation expense on a straight-line basis over the requisite service period. For awards with service and performance-based conditions, the Company recognizes stock-based compensation expense using the graded vesting method over the requisite service period. Estimates of stock-based compensation expense for an award with performance conditions are based on the probable outcome of the performance conditions and the cumulative effect of any changes in the probability outcomes are recorded in the period in which the changes occur. For awards with service and market-based conditions, the Company recognizes stock-based compensation expense on a straight-line based over the requisite service period for each tranche. Stock-based compensation expense for awards with a market condition is calculated using a Monte Carlo valuation approach.

The Company estimates forfeitures that will occur based on a historical forfeiture rate in their determination of the expense recorded.

Restructuring Charges

The Company incurs restructuring charges in connection with workforce reductions, facility closures or consolidations, inventory write-offs and other actions. Such costs include employee severance, benefits and related costs, termination of contractual obligations, non-cash asset charges, and other direct incremental costs.

The Company records employee termination liabilities at the time the relevant employees are notified, unless the employees will be retained to render service beyond a minimum retention period for transition purposes, in which case the liability is recognized ratably over the future service period. Other costs associated with a restructuring plan, such as consulting or professional fees, facility exit costs, accelerated depreciation or asset impairments associated with a restructuring plan, are recognized in the period in which the liability is incurred or the asset is impaired.

Income Taxes

The Company accounts for income taxes under the asset and liability method; under this method, deferred tax assets and liabilities are determined based on differences between financial reporting bases of assets and liabilities and are measured using enacted tax rates and laws that are expected to be in effect when the differences are expected to reverse. Realization of deferred tax assets is dependent upon future earnings, the timing and amount of which are uncertain.

The Company utilizes a two-step approach to recognize and measure uncertain tax positions. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained upon tax authority examination, including resolution of related appeals or litigation processes, if any. The second step is

to measure the tax benefit as the largest amount that is more than 50% likely of being realized upon ultimate settlement. The Company also recognizes accrued interest and penalties related to unrecognized tax benefits in the provision for income taxes.

Comprehensive Loss

The Company's comprehensive loss consists of its net loss, unrealized gain and loss from investments in debt securities, and foreign currency translation adjustments.

Recently Issued Accounting Standards

Recently Adopted Accounting Guidance

In August 2020, the FASB issued ASU 2020-06, Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity ("ASU 2020-06"), which reduced the number of models used to account for convertible instruments, amends the accounting for certain contracts in an entity's own equity that would have previously been accounted for as derivatives and modified the diluted earnings per share calculations for convertible instruments. The Company adopted ASU 2020-06 on January 1, 2022. As a result of the adoption of ASU 2020-06, the convertible notes issued in May 2022 were considered to be debt with no allocation to equity.

In June 2016, the FASB issued ASU 2016 13, Financial Instruments—Credit Losses. This ASU added a new impairment model (known as the current expected credit loss ("CECL") model) that is based on expected losses rather than incurred losses. Under the new guidance, an entity recognizes as an allowance its estimate of expected credit losses. The CECL model applies to most debt instruments, trade receivables, lease receivables, financial guarantee contracts, and other loan commitments. The CECL 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. The Company adopted the ASU as of January 1, 2022, which did not have a material effect on the Company's condensed consolidated financial statements.

3. REVENUE RECOGNITION

Contract Balances

The Company's deferred revenue balance was $17.4 million and $22.7 million as of December 31, 2022 and 2021, respectively. The company acquired $0.0 and $16.8 million in deferred revenue through acquisitions during the years ended December 31, 2022 and 2021, respectively. During the year ended December 31, 2022, the Company recognized $14.3 million of existing deferred revenue from 2021. During the year ended December 31, 2021, the Company recognized $2.5 million of existing deferred revenue from 2020 and recognized $8.5 million of acquired deferred revenue. The deferred revenue consists of billed post-installation customer support and maintenance, cloud-based software licenses that are recognized ratably over the term of the agreement, and contracts that have outstanding performance obligations or contracts that have acceptance terms that have not yet been fulfilled.

Contract assets were not significant during the years ended December 31, 2022 and 2021.

Remaining Performance Obligations

At December 31, 2022, the Company had $17.4 million of remaining performance obligations, also referred to as backlog, of which approximately $13.7 million is expected to be fulfilled over the next 12 months, notwithstanding uncertainty related to customer site readiness and unanticipated economic events, which could have an adverse effect on the timing of delivery and installation of products and/or services to customers. In addition, the Company also had customer deposits of $11.5 million and $14.1 million as of December 31, 2022 and 2021.

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4. ACQUISITIONS

2021 Acquisitions

Acquisition of EnvisionTEC

On February 16, 2021, the Company acquired EnvisionTEC, Inc. and its subsidiaries ("EnvisionTEC") pursuant to a Purchase Agreement and Plan of Merger dated January 15, 2021. This acquisition added a comprehensive portfolio in additive manufacturing across metals, polymers and composites and grew distribution channels both in quantity and through the addition of a vertically-focused channel. The total purchase price was $303.6 million, consisting of $143.8 million paid in cash and 5,036,142 shares of the Company's Common Stock with a fair value of $159.8 million as of the close of business on the transaction date.

The acquisition is accounted for as a business combination using the acquisition method of accounting. The total purchase price was allocated to the identifiable assets acquired and liabilities assumed based on the Company's estimates of their fair values on the acquisition date.

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

	Total Acquisition Date Fair Value
Cash consideration	$ 143,795
Equity consideration	159,847
Total consideration transferred	$ 303,642

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

	At February 16, 2021	
Assets acquired:		
Cash and cash equivalents	$	859
Restricted cash		5,004
Accounts receivable		2,982
Inventory		7,668
Prepaid expenses and other current assets		1,081
Restricted cash - noncurrent		285
Property and equipment		1,540
Intangible assets		137,300
Other noncurrent assets		1,801
Total assets acquired	$	158,520
Liabilities assumed:		
Accounts payable	$	1,442
Customer deposits		2,460
Current portion of lease liability		605
Accrued expenses and other current liabilities		13,706
Liability for income taxes		480
Deferred revenue		492
Current portion of long-term debt		898
Long-term debt		285
Deferred tax liability		29,009
Lease liability, net of current portion		1,189
Total liabilities assumed	$	50,566
Net assets acquired	$	107,954
Goodwill	$	195,688
Total net assets acquired	$	303,642

Subsequent to the acquisition date, the Company made certain measurement period adjustments to the preliminary purchase price allocation, which resulted in decrease to goodwill of $3.4 million. The decrease was primarily due to an increase in deferred income tax liabilities of $4.1 million, partially offset by a decrease in deferred revenue of $0.2 million related to the adoption of ASU 2021-08 and a decrease in inventory of $1.0 million related to obsolete inventory. Additionally, the Company recorded a measurement period adjustment of $0.3 million related to certain assets acquired and liabilities assumed due to clarification of information utilized to determine fair value during the measurement period.

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

	Gross Value		Estimated Life
Acquired technology	$	77,800	7 – 14 years
Trade name		8,600	14 years
Customer relationships		50,900	12 years
Total intangible assets	$	137,300	

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The goodwill resulting from the purchase price allocation is attributable to the workforce of the acquired business (which is not eligible for separate recognition as an identifiable intangible asset) and the expected synergistic benefits of expanding the combined companies' target markets both geographically and across industries. $16.4 million of the goodwill recognized is deductible for income tax purposes. The Company incurred $4.8 million of acquisition-related and other transactional charges related to this acquisition, which are included in general and administrative expenses in the consolidated statements of operations.

EnvisionTEC's results are included in the Company's consolidated results for the period from February 16, 2021 to December 31, 2021. For this period, EnvisionTEC's net revenues were approximately $33.3 million and net loss was approximately $11.1 million.

Acquisition of Adaptive 3D

On May 7, 2021, the Company acquired Adaptive 3D Holdings, Inc. and its affiliates ("Adaptive 3D") pursuant to a Purchase Agreement and Plan of Merger dated as of May 7, 2021. This acquisition expanded the Company's materials library to include photopolymer elastomers for use in the production of end use parts. The total purchase price was $61.8 million, consisting of $24.1 million paid in cash and 3,133,276 shares of the Company's Common Stock with a fair value of $37.7 million as of the close of business on the transaction date.

The acquisition is accounted for as a business combination using the acquisition method of accounting. The total purchase price was allocated to the identifiable assets acquired and liabilities assumed based on the Company's estimates of their fair values on the acquisition date.

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

	Total Acquisition Date Fair Value
Cash consideration	$ 24,083
Equity consideration	37,693
Total consideration transferred	$ 61,776

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

		At May 7, 2021
Assets acquired:		
Cash and cash equivalents	$	2,852
Accounts receivable		504
Inventory		305
Prepaid expenses and other current assets		462
Property and equipment		558
Intangible assets		27,300
Other noncurrent assets		654
Total assets acquired	$	32,635
Liabilities assumed:		
Accounts payable	$	280
Current portion of lease liability		151
Accrued expenses and other current liabilities		100
PPP loan payable		311
Deferred revenue		12
Lease liability, net of current portion		502
Deferred tax liability		4,616
Total liabilities assumed	$	5,972
Net assets acquired	$	26,663
Goodwill	$	35,113
Total net assets acquired	$	61,776

Subsequent to the acquisition date, the Company made a measurement period adjustment to the preliminary purchase price allocation, which resulted in a decrease to goodwill of $0.2 million. The decrease was due to a decrease in deferred income tax liabilities of $0.2 million.

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

		Gross Value	Estimated Life
Acquired technology	$	27,000	14 years
Trade name		300	5 years
Total intangible assets	$	27,300	

The goodwill resulting from the purchase price allocation is attributable to the workforce of the acquired business (which is not eligible for separate recognition as an identifiable intangible asset) and the expected synergistic benefits of expanding the combined companies' target markets both geographically and across industries. The goodwill recognized is not deductible for income tax purposes. The Company incurred $0.3 million of acquisition-related and other transactional charges related to this acquisition, which are included in general and administrative expenses in the consolidated statements of operations.

Adaptive 3D's results are included in the Company's consolidated results for the period from May 7, 2021 to December 31, 2021. For this period, Adaptive 3D's revenues were approximately $1.1 million, and its net loss was approximately $4.9 million.

Acquisition of Aerosint

On June 24, 2021, the Company acquired all outstanding securities of Aerosint SA and its affiliates ("Aerosint"), which expanded the Company's portfolio of technologies with the addition of multi-material printing capabilities. The total purchase price was $23.8 million, consisting of $6.2 million paid in cash, 879,922 shares of the Company's Common Stock with a fair value of $11.5 million as of the close of business on the transaction date, and contingent consideration with a fair value of $6.1 million as of the acquisition date. The Company may be required to pay this contingent consideration based on the achievement of revenue metrics and technical milestones over the three-year period following the transaction date.

The acquisition is accounted for as a business combination using the acquisition method of accounting. The total purchase price was allocated to the identifiable assets acquired and liabilities assumed based on the Company's estimates of their fair values on the acquisition date.

The acquisition included contingent consideration related to revenue metrics and technical milestones, with a fair value of $6.1 million as of the date of acquisition and a fair value of $2.6 million as of December 31, 2022. The Company will pay up to $5.5 million of contingent consideration based on stated revenue metrics, which had a fair value of $4.6 million as of the date of acquisition. During the year ended December 31, 2022, based on the relevant revenues earned during the first year of the three-year contingent consideration period, the Company paid $1.0 million in cash and $0.5 million in shares to Aerosint shareholders, resulting in a reduction of the contingent consideration liability, which has a remaining fair value of $1.1 million as of December 31, 2022. If Aerosint reaches certain product mass production technical milestones, the Company will pay out a maximum of $2.0 million in contingent consideration, which had a fair value of $1.5 million as of the date of acquisition, and a fair value of $1.5 million as of December 31, 2022. As of the date of acquisition, the fair value of the short-term liability was $1.4 million, and the long-term liability was $4.7 million, which the Company recorded in accrued expenses and other current liabilities and in contingent consideration, net of current portion, on the consolidated balance sheets. As of December 31, 2022, contingent consideration is recorded in accrued expenses and other current liabilities, in the consolidated balance sheets.

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

	Total Acquisition Date Fair Value
Cash consideration	$ 6,220
Equity consideration	11,448
Contingent consideration	6,083
Total consideration transferred	$ 23,751

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

	At June 24, 2021
Assets acquired:	
Cash and cash equivalents	$ 419
Accounts receivable	34
Inventory	166
Prepaid expenses and other current assets	697
Property and equipment	369
Intangible assets	11,726
Other noncurrent assets	336
Total assets acquired	$ 13,747
Liabilities assumed:	
Accounts payable	$ 58
Customer deposits	283
Current portion of lease liability	100
Accrued expenses and other current liabilities	169
Deferred revenue	810
Lease liability, net of current portion	226
Deferred tax liability	2,931
Total liabilities assumed	$ 4,577
Net assets acquired	$ 9,170
Goodwill	$ 14,581
Total net assets acquired	$ 23,751

Subsequent to the acquisition date, the Company made a measurement period adjustment to the preliminary purchase price allocation, which resulted in a decrease to goodwill of $0.6 million. The decrease was due to a decrease in deferred income tax liabilities.

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

	Gross Value	Estimated Life
Acquired technology	$ 11,547	11.5 years
Trade name	179	4.5 years
Total intangible assets	$ 11,726	

The goodwill resulting from the purchase price allocation is attributable to the workforce of the acquired business (which is not eligible for separate recognition as an identifiable intangible asset) and the expected synergistic benefits of expanding the combined companies' target markets both geographically and across industries. The goodwill recognized is not deductible for income tax purposes. The Company incurred $0.9 million of acquisition-related and other transactional charges related to this acquisition, which are included in general and administrative expenses in the consolidated statements of operations.

Aerosint's results are included in the Company's consolidated results for the period from June 24, 2021 to December 31, 2021. For this period, Aerosint's revenues were $0.6 million and net loss was $0.4 million.

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Acquisition of Dental Arts Labs

On July 30, 2021, the Company acquired Dental Arts Laboratories, Inc., ("Dental Arts Labs"), which expanded the Company's portfolio in additive and conventional manufacturing within the healthcare industry. The purchase price was $26.0 million paid in cash. The Company also issued1,190,468 restricted stock units with a grant date fair value of $11.0 million, which are subject to a four-year vesting period and continuing employment. The Company will recognize compensation expense for these restricted stock units over the vesting period.

The acquisition is accounted for as a business combination using the acquisition method of accounting. The total purchase price was allocated to the identifiable assets acquired and liabilities assumed based on the Company's estimates of their fair values on the acquisition date.

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

	Total Acquisition Date Fair Value
Cash consideration	$ 26,042
Total consideration transferred	$ 26,042

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

	At July 30, 2021
Assets acquired:	
Cash and cash equivalents	$ 858
Accounts receivable	3,707
Inventory	2,438
Prepaid expenses and other current assets	3,853
Property and equipment	8,643
Intangible assets	5,000
Other noncurrent assets	4,636
Total assets acquired	$ 29,135
Liabilities assumed:	
Accounts payable	$ 1,949
Current portion of lease liability	535
Accrued expenses and other current liabilities	1,795
Current portion of long-term debt	3,888
Long-term debt	3
Lease liability, net of current portion	3,762
Total liabilities assumed	$ 11,932
Net assets acquired	$ 17,203
Goodwill	$ 8,839
Total net assets acquired	$ 26,042

Subsequent to the acquisition date, the Company made a working capital adjustment to the preliminary purchase price allocation, which resulted in decrease to goodwill of $0.3 million.

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

	Gross Value	Estimated Life
Trade name	$ 1,300	8.5 years
Customer relationships	3,700	9.5 years
Total intangible assets	$ 5,000	

The goodwill resulting from the purchase price allocation is attributable to the workforce of the acquired business (which is not eligible for separate recognition as an identifiable intangible asset) and the expected synergistic benefits of expanding the combined companies' target markets both geographically and across industries. The goodwill recognized is deductible for income tax purposes. The Company incurred $0.6 million of acquisition-related and other transactional charges related to this acquisition, which are included in general and administrative expenses in the consolidated statements of operations.

Dental Arts Labs' results are included in the Company's consolidated results for the period from July 30, 2021 to December 31, 2021. For this period, Dental Arts Labs' revenues were $14.1 million and net loss was $0.3 million.

Acquisition of A.I.D.R.O.

On September 7, 2021, the Company purchased the entire corporate capital of A.I.D.R.O. Srl ("A.I.D.R.O."). This acquisition expanded the Company's parts production capabilities and application expertise in the hydraulics industry. The purchase price for the A.I.D.R.O. acquisition was $5.7 million paid in cash, of which $4.9 million was paid at closing and the remaining $0.8 million was deposited to an escrow account subsequent to December 31, 2022. The Company also issued 364,050 restricted stock units with a grant date fair value of $3.2 million, which are subject to a four-year vesting period and continuing employment. The Company will recognize compensation expense for these restricted stock units over the vesting period.

The acquisition is accounted for as a business combination using the acquisition method of accounting. The total purchase price was allocated to the identifiable assets acquired and liabilities assumed based on the Company's estimates of their fair values on the acquisition date.

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

	Total Acquisition Date Fair Value
Cash consideration	$ 5,683
Total consideration transferred	$ 5,683

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

	At September 7, 2021
Assets acquired:	
Cash and cash equivalents	$ 855
Accounts receivable	966
Inventory	906
Prepaid expenses and other current assets	412
Property and equipment	691
Intangible assets	1,080
Other noncurrent assets	1,100
Total assets acquired	$ 6,010
Liabilities assumed:	
Accounts payable	$ 1,307
Current portion of lease liability	72
Accrued expenses and other current liabilities	508
Current portion of long-term debt, net of deferred financing costs	138
Long-term debt	764
Lease liability, net of current portion	750
Deferred tax liability	75
Other noncurrent liabilities	228
Total liabilities assumed	$ 3,842
Net assets acquired	$ 2,168
Goodwill	$ 3,515
Total net assets acquired	$ 5,683

Subsequent to the acquisition date, the Company made a working capital adjustment to the preliminary purchase price allocation, which resulted in an immaterial decrease to goodwill.

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

	Gross Value	Estimated Life
Trade name	$ 142	4 years
Customer relationships	938	15 years
Total intangible assets	$ 1,080	

The goodwill resulting from the purchase price allocation is attributable to the workforce of the acquired business (which is not eligible for separate recognition as an identifiable intangible asset) and the expected synergistic benefits of expanding the combined companies' target markets both geographically and across industries. The goodwill recognized is not deductible for income tax purposes. The Company incurred $0.4 million of acquisition-related and other transactional charges related to this acquisition, which are included in general and administrative expenses in the consolidated statements of operations.

A.I.D.R.O.'s results are included in the Company's consolidated results for the period from September 7, 2021 to December 31, 2021. For this period, A.I.D.R.O.'s revenues were $1.7 million and net loss was $0.2 million.

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Acquisition of Brewer Dental

On October 14, 2021, the Company acquired Larry Brewer Dental Lab, Inc. ("Brewer Dental"), which expanded the Company's portfolio in additive manufacturing within the healthcare and dental industry. The purchase price was $7.6 million paid in cash, of which $7.0 million was paid at closing and the remaining $0.5 million will be paid 24 months after closing. The Company also issued252,096 restricted stock units with a grant date fair value of $l.8 million, which are subject to a four-year vesting period and continuing employment. The Company will recognize compensation expense for these restricted stock units over the vesting period.

The acquisition is accounted for as a business combination using the acquisition method of accounting. The total purchase price was allocated to the identifiable assets acquired and liabilities assumed based on the Company's estimates of their fair values on the acquisition date.

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

	Total Acquisition Date Fair Value
Cash consideration	$ 7,613
Total consideration transferred	$ 7,613

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

	At October 14, 2021
Assets acquired:	
Cash and cash equivalents	$ 1,574
Accounts receivable	524
Inventory	226
Property and equipment	375
Intangible assets	2,630
Other noncurrent assets	706
Total assets acquired	$ 6,035
Liabilities assumed:	
Accounts payable	$ 34
Current portion of lease liability	87
Accrued expenses and other current liabilities	145
Lease liability, net of current portion	619
Total liabilities assumed	$ 885
Net assets acquired	$ 5,150
Goodwill	$ 2,463
Total net assets acquired	$ 7,613

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

	Gross Value	Estimated Life
Trade name	$ 230	8 years
Customer relationships	2,400	8 years
Total intangible assets	$ 2,630	

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The goodwill resulting from the purchase price allocation is attributable to the workforce of the acquired business (which is not eligible for separate recognition as an identifiable intangible asset) and the expected synergistic benefits of expanding the combined companies' target markets both geographically and across industries. The goodwill recognized is deductible for income tax purposes. The Company incurred immaterial acquisition-related and other transactional charges related to this acquisition, which are included in general and administrative expenses in the consolidated statements of operations.

Brewer Dental's results are included in the Company's consolidated results for the period from October 14, 2021 to December 31, 2021. For this period, Brewer Dental's revenues were $1.4 million and net income was $0.1 million.

Acquisition of May Dental

On October 29, 2021, the Company acquired May Dental Lab, Inc. ("May Dental"), which expanded the Company's portfolio in additive manufacturing within the healthcare and dental industry. The aggregate purchase price was $12.5 million paid in cash, of which $11.8 million was paid at closing and the remaining $0.8 million will be paid 24 months after closing, subject to the Limited Liability Interest Purchase Agreement. The Company also issued 357,642 restricted stock units with a grant date fair value of $2.5 million, which are subject to a four-year vesting period and continuing employment. The Company will recognize compensation expense for these restricted stock units over the vesting period.

The acquisition is accounted for as a business combination using the acquisition method of accounting. The total purchase price was allocated to the identifiable assets acquired and liabilities assumed based on the Company's estimates of their fair values on the acquisition date.

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

	Total Acquisition Date Fair Value
Cash consideration	$ 12,522
Total consideration transferred	$ 12,522

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

		At October 29, 2021
Assets acquired:		
Cash and cash equivalents	$	230
Accounts receivable		677
Inventory		343
Prepaid expenses and other current assets		98
Property and equipment		495
Intangible assets		4,340
Other noncurrent assets		1,416
Total assets acquired	$	7,599
Liabilities assumed:		
Accounts payable	$	209
Current portion of lease liability		201
Accrued expenses and other current liabilities		255
Lease liability, net of current portion		1,216
Total liabilities assumed	$	1,881
Net assets acquired	$	5,718
Goodwill	$	6,804
Total net assets acquired	$	12,522

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

		Gross Value	Estimated Life
Trade name	$	3,900	9 years
Customer relationships		440	10 years
Total intangible assets	$	4,340	

The goodwill resulting from the purchase price allocation is attributable to the workforce of the acquired business (which is not eligible for separate recognition as an identifiable intangible asset) and the expected synergistic benefits of expanding the combined companies' target markets both geographically and across industries. The goodwill recognized is deductible for income tax purposes. The Company incurred immaterial acquisition-related and other transactional charges related to this acquisition, which are included in general and administrative expenses in the consolidated statements of operations.

May Dental's results are included in the Company's consolidated results for the period from October 29, 2021 to December 31, 2021. For this period, May Dental's revenues were $1.3 million and net loss was $0.1 million.

Acquisition of ExOne

On November 12, 2021, the Company acquired The ExOne Company and its affiliates ("ExOne"). The acquisition of ExOne extended the Company's product platforms with complementary solutions to create a comprehensive portfolio combining throughput, flexibility, and materials breadth while allowing customers to optimize production based on their specific application needs. The Company acquired all of ExOne's outstanding common stock for an aggregate purchase price of $613.0 million, consisting of $201.4 paid in cash and 48,218,063 shares of Common Stock with a fair value of $411.6 million as of the close of business on the transaction date. The Company also granted 86,020 incentive stock options with a weighted-average exercise price of $4.47 to certain employees of ExOne in exchange for unvested ExOne stock options.

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The acquisition is accounted for as a business combination using the acquisition method of accounting. The total purchase price was allocated to the identifiable assets acquired and liabilities assumed based on the Company's estimates of their fair values on the acquisition date.

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

	Total Acquisition Date Fair Value
Cash consideration	$ 201,399
Equity consideration	411,603
Total consideration transferred	$ 613,002

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

	At November 12, 2021
Assets acquired:	
Cash and cash equivalents	$ 119,068
Restricted cash - current	3,007
Accounts receivable	13,611
Inventory	27,200
Prepaid expenses and other current assets	5,165
Property and equipment	33,991
Intangible assets	82,100
Other noncurrent assets	2,734
Total assets acquired	$ 286,876
Liabilities assumed:	
Accounts payable	$ 5,830
Accrued expenses and other current liabilities	10,368
Current portion of deferred revenue	15,331
Customer deposits	10,168
Current portion of operating lease liability	1,919
Deferred tax liability	3,465
Lease liability, net of current portion	332
Deferred revenue, net of current portion	147
Other noncurrent liabilities	321
Total liabilities assumed	$ 47,881
Net assets acquired	$ 238,995
Goodwill	$ 374,007
Total net assets acquired	$ 613,002

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

	Gross Value	Estimated Life
Developed Technology	$ 72,900	8 years
Trade name	1,300	4 years
Customer relationships	7,900	12 years
Total intangible assets	$ 82,100	

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The goodwill resulting from the purchase price allocation is attributable to the workforce of the acquired business (which is not eligible for separate recognition as an identifiable intangible asset) and the expected synergistic benefits of expanding the combined companies' target markets both geographically and across industries. The goodwill recognized is not deductible for income tax purposes. The Company incurred $8.5 million of acquisition-related and other transactional charges related to this acquisition, which are included in general and administrative expenses in the consolidated statements of operations.

ExOne's results are included in the Company's consolidated results for the period from November 12, 2021 to December 31, 2021. For this period, ExOne's revenues were $15.5 million and net loss was $6.9 million.

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 acquisitions of EnvisionTEC, Adaptive 3D, Aerosint, Dental Arts Labs, A.I.D.R.O., Brewer Dental, May Dental, and ExOne had occurred on January 1, 2020 (in thousands):

	Year Ended December 31,	
	2021 (unaudited)	2020 (unaudited)
Net revenues	$ 207,688	$ 164,947
Net income (loss)	$ (273,319)	$ (138,346)

The unaudited pro forma financial information was computed by combining the historical financial information of the Company and EnvisionTEC, Adaptive 3D, Aerosint, Dental Arts, A.I.D.R.O., Brewer Dental, May Dental, and ExOne along with the effects of the acquisition method of accounting for business combinations as though the companies were combined on January 1, 2020. The unaudited pro forma information does not reflect the potential benefits of cost and funding synergies, opportunities to earn additional revenues, or other factors, 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.

2021 Asset Acquisitions

Acquisition of Beacon Bio

On June 10, 2021, the Company acquired Beacon Bio, Inc. ("Beacon Bio") pursuant to a Stock Purchase Agreement. The purchase price consisted of cash consideration of $6.1 million, including transaction costs of $0.2 million, and 334,370 shares of Common Stock with a fair value of $4.3 million as of the close of business on the transaction date. The cash consideration includes a simple agreement for future equity investment of $1.0 million made by the Company in advance of the acquisition that was settled in the acquisition. Beacon Bio is engaged in research and development of PhonoGraft technology. The Company concluded the arrangement did not result in the acquisition of a business, as substantially all of the fair value of the gross assets acquired was concentrated in in-process research and development for which there was no alternative future use. Therefore, the Company accounted for the arrangement as an asset acquisition. In connection with the acquisition, the Company issued additional restricted stock units to retain research and development employees and contractors of Beacon Bio through the expected term to complete the development, which vest over a service period of 3 years and are accounted for as post-combination expense.

The acquired in-process research and development asset consists of a license to commercialize the PhonoGraft technology. At the date of the acquisition, significant research, development, and risk related to the license remained, and it was deemed not yet probable that there was future economic benefit from this asset. Absent successful clinical results and regulatory approval for this asset, there was no alternative future use associated with this asset. Accordingly, the value of the asset was expensed in the consolidated statements of operations and no deferred tax liability has been recorded.

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Acquisition of Meta Additive

On September 9, 2021, the Company acquired Meta Additive Ltd ("Meta Additive"), pursuant to a Stock Purchase Agreement of the same date. Meta Additive is engaged in research and development of binder jet printing. The purchase price consisted of cash consideration of $15.2 million, including transaction costs of $0.2 million. The Company concluded the arrangement did not result in the acquisition of a business, as substantially all of the fair value of the gross assets acquired was concentrated in in-process research and development for which there was no alternative future use. The Company accounted for the arrangement as an asset acquisition. In connection with the acquisition, the Company issued 1,101,592 restricted stock units with a fair value of $9.0 million as of the acquisition date to retain key employees of Meta Additive through the expected term to complete the development, which vest over a service period of 4 years and are accounted for as post-combination expense. In June 2022, per the terms of the acquisition agreement, the Company accelerated 895,044 RSUs for certain key employees in connection with the Initiative described in *Note 24. Restructuring Charges.*

The acquired in-process research and development asset consists of the development of novel functional binders to provide advanced additive manufacturing solutions. Due to the stage of development of this technology at the date of the acquisition, significant research, development, and risk remained, and it was not yet probable that there was future economic benefit from this asset. Absent successful commercialization of this asset, there was no associated alternative future use. Accordingly, the value of the assets was expensed in the consolidated statements of operations and no deferred tax liability has been recorded.

2020 Acquisitions

Business Combination

On December 9, 2020, the Company and Trine consummated the Business Combination, with Legacy Desktop Metal surviving the merger as a wholly-owned subsidiary of Trine. Upon the consummation of the Business Combination, each share of Legacy Desktop Metal capital stock issued and outstanding was converted into the right to receive 1.22122 shares (the "Exchange Ratio") of the Company's common stock (the "Per Share Merger Consideration").

Upon the closing of the Business Combination, Trine's certificate of incorporation was amended and restated to, among other things, increase the total number of authorized shares of all classes of capital stock to 550,000,000 shares, of which 500,000,000 shares were designated common stock; $0.0001 par value per share, and of which 50,000,000 shares were designated preferred stock, $0.0001 par value per share.

In connection with the execution of the definitive agreement for the Business Combination, Trine entered into separate subscription agreements (each, a "Subscription Agreement") with a number of investors (each, a "Subscriber"), pursuant to which the Subscribers agreed to purchase, and Trine agreed to sell to the Subscribers, an aggregate of 27,497,500 shares of the Company's Common Stock, for a purchase price of $10.00 per share and an aggregate purchase price of $275 million, in a private placement pursuant to the subscription agreements (the "PIPE financing"). The PIPE financing closed simultaneously with the consummation of the Business Combination.

The Business Combination was accounted for as a reverse recapitalization in accordance with GAAP. Under this method of accounting, Trine was treated as the "acquired" company for financial reporting purposes. See Note 1 "Organization and Nature of Business" for further details. Accordingly, for accounting purposes, the Business Combination was treated as the equivalent of Desktop Metal issuing stock for the net assets of Trine, accompanied by a recapitalization. The net assets of Trine are stated at historical cost, with no goodwill or other intangible assets recorded.

Prior to the Business Combination, Legacy Desktop Metal and Trine filed separate standalone federal, state and local income tax returns. As a result of the Business Combination, structured as a reverse recapitalization for tax purposes, Desktop Metal, Inc. (f/k/a Trine Acquisition Corp.), became the parent of the consolidated filing group, with Desktop Metal Operating, Inc. (f/k/a Desktop Metal, Inc.) as a subsidiary.

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The following table reconciles the elements of the Business Combination to the consolidated statement of cash flows and the consolidated statement of changes in equity for the year ended December 31, 2020:

		Recapitalization
Cash – Trine's trust and cash (net of redemptions)	$	305,084,695
Cash – PIPE financing		274,975,000
Less: transaction costs and advisory fees paid		(45,463,074)
Net proceeds from reverse recapitalization		534,596,621
Plus: non-cash net liabilities assumed[1]		(152,394,714)
Less: accrued transaction costs and advisory fees		(1,900,793)
Net contributions from reverse recapitalization	$	380,301,114

The number of shares of common stock issued immediately following the consummation of the Business Combination:

	Number of Shares
Common stock, outstanding prior to Business Combination	30,015,000
Less: redemption of Trine shares	(26,049)
Common stock of Trine	29,988,951
Trine Founder Shares	5,552,812
Trine Director Shares	100,000
Shares issued in PIPE financing	27,497,500
Business Combination and PIPE financing shares	63,139,263
Legacy Desktop Metal shares[(1)]	161,487,334
Total shares of common stock immediately after Business Combination	224,626,597

[(1)] The number of Legacy Desktop Metal shares was determined from the shares of Legacy Desktop Metal shares outstanding immediately prior to the closing of the Business Combination converted at the Exchange Ratio of 1.22122. All fractional shares were rounded down.

In connection with the Business Combination, 7,403,750 Trine Founder Shares were issued. Pursuant to the Business Combination agreement, 75% of the Founder shares, or 5,552,812 shares, vested at the close of the Business Combination, with the remaining 25%, or 1,850,938 shares, vesting if the Company trades at $12.50 per share or higher for any 20 trading days within a 30-day window by the fifth anniversary of the Business Combination. As of December 31, 2020, 20 trading days had not yet passed since the date of the Business Combination, and the shares remained unvested and held in escrow. The vesting criteria was met on January 8, 2021.

2020 Asset Acquisitions

In December 2020, the Company acquired all issued and outstanding membership interests of Figur Machine Tools, LLC (“Figur”) for a total purchase price of $3.5 million. Figur is engaged in research and development of 3D metal forming for sheet metal. The Company concluded the arrangement did not result in the acquisition of a business, as substantially all of the fair value of the gross assets acquired was concentrated in a single acquired technology asset and the Company did not obtain any substantive processes in connection with this acquisition. Therefore, the Company accounted for the arrangement as an asset acquisition. The fair value attributable to the acquired assets was $3.5 million, which was recorded as intangible assets, net in the Company’s consolidated balance sheets.

In October 2020, the Company acquired all outstanding shares of Forust Corporation (“Forust”) for a total purchase price of $2.5 million. The purchase price consisted of cash consideration of $2.0 million and $0.5 million of consideration relating to 61,061 shares of Common Stock. The Company paid $1.8 million at closing and paid the additional $0.2 million one year after acquisition in accordance with the agreement. Forust is engaged in research and development of 3D printing of wood products using sawdust in the process of additive manufacturing. The Company concluded the arrangement did not result in the acquisition of a business, as

substantially all of the fair value of the gross assets acquired was concentrated in a single acquired technology asset and the Company did not obtain any substantive processes in connection with this acquisition. Therefore, the Company accounted for the arrangement as an asset acquisition. The fair value attributable to the acquired assets was $2.5 million, which was recorded as intangible assets, net in the Company's consolidated balance sheets. In connection with the acquisition, the Company issued additional restricted stock units to employees and contractors of Forust which vest over a service period of two years and are accounted for as post-combination expense.

5. CASH EQUIVALENTS AND SHORT-TERM INVESTMENTS

The Company's cash equivalents and short-term investments are invested in the following (in thousands):

	December 31, 2022			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Money market funds	$ 51,274	$ —	$ —	$ 51,274
Total cash equivalents	51,274	—	—	51,274
Commercial paper	39,781	—	—	39,781
Corporate bonds	28,970	—	(156)	28,814
U.S. Treasury securities	19,896	—	(78)	19,818
Government bonds	14,846	—	(102)	14,744
Asset-backed securities	4,000	—	(2)	3,998
Total short-term investments	107,493	—	(338)	107,155
Total cash equivalents and short-term investments	$ 158,767	$ —	$ (338)	$ 158,429

	December 31, 2021			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Money market funds	$ 46,521	$ —	$ —	$ 46,521
Total cash equivalents	46,521	—	—	46,521
Commercial paper	70,401	—	—	70,401
Corporate bonds	65,645	—	(28)	65,617
Government bonds	36,487	—	(11)	36,476
Asset-backed securities	24,665	—	(10)	24,655
Total short-term investments	197,198	—	(49)	197,149
Total cash equivalents and short-term investments	$ 243,719	$ —	$ (49)	$ 243,670

During the year ended December 31, 2021, the Company made a $20.0 million investment in equity securities of a publicly-traded company. The Company records this investment at fair value within short-term investments, which was $1.1 million and $7.4 million as of the years ended December 31, 2022 and 2021. Prior to the investment, the Company entered into a subscription agreement to purchase the investment, resulting in a subscription agreement liability which was derecognized upon investment. During the years ended December 31, 2022 and 2021, the Company recorded an unrealized loss due to the change in fair value of the equity securities of $6.3 million and an unrealized loss due to the change in fair value of equity securities and the related subscription liability of $12.6 million, respectively, in interest and other (expense) income, net in the consolidated statements of operations.

6. FAIR VALUE MEASUREMENTS

The Company uses the following three-tier fair value hierarchy, which prioritizes the inputs used in measuring the fair values for certain of its assets and liabilities:

Level 1 is based on observable inputs, such as quoted prices in active markets;

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Level 2 is based on inputs other than the quoted prices in active markets that are observable either directly or indirectly; and

Level 3 is based on unobservable inputs in which there is little or no market data, which requires the Company to develop its own assumptions.

This hierarchy requires the Company to use observable market data, when available, and to minimize the use of unobservable inputs when determining fair value. Items measured at fair value on a recurring basis include money market funds. The following fair value hierarchy table presents information about the Company's financial assets measured at fair value on a recurring basis and indicates the fair value hierarchy of the inputs the Company utilized to determine such fair value (in thousands):

	December 31, 2022			
	Quoted Prices in Active Markets for Identical Items (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Assets:				
Money market funds	$ 51,274	$ —	$ —	$ 51,274
Commercial paper	—	39,781	—	39,781
Corporate bonds	—	28,814	—	28,814
U.S. Treasury securities	—	19,818	—	19,818
Government bonds	—	14,744	—	14,744
Asset-backed securities	—	3,998	—	3,998
Equity securities	1,088	—	—	1,088
Other investments	—	—	2,000	2,000
Total assets	$ 52,362	$ 107,155	$ 2,000	$ 161,517
Liabilities:				
Contingent consideration	$ —	$ —	$ 2,587	$ 2,587
Total liabilities	$ —	$ —	$ 2,587	$ 2,587

	December 31, 2021			
	Quoted Prices in Active Markets for Identical Items (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Assets:				
Money market funds	$ 46,521	$ —	$ —	$ 46,521
Commercial paper	—	70,401	—	70,401
Corporate bonds	—	65,617	—	65,617
Government bonds	—	36,476	—	36,476
Asset-backed securities	—	24,655	—	24,655
Equity securities	7,420	—	—	7,420
Other investments	—	—	6,750	6,750
Total assets	$ 53,941	$ 197,149	$ 6,750	$ 257,840
Liabilities:				
Contingent consideration	$ —	$ —	$ 5,654	$ 5,654
Total liabilities	$ —	$ —	$ 5,654	$ 5,654

The Company has determined that the estimated fair value of its commercial paper, corporate bonds, U.S Treasury securities, government bonds, and asset-backed securities are reported as Level 2 financial assets as they are based on model-driven valuations in

which all significant inputs are observable, or can be derived from or corroborated by observable market data for substantially the full term of the asset.

The equity security is an investment made via a publicly traded security. The Company has determined that the estimated fair value of its equity security is reported as Level 1 financial assets as it is based on quoted market prices in active markets for identical assets. During the years ended December 31, 2022 and 2021, the Company recognized a loss on its equity security of $6.3 million and $9.7 million, respectively. Additionally, for the year ended December 31, 2021, the Company recorded an initial subscription agreement liability of $0.5 million related to this investment and recognized a loss on the subscription agreement liability of $2.4 million, for a total loss of $12.6 million on its equity security. The initial subscription liability was recorded as a Level 3 liability as a result of the discount for lack of marketability. Upon investment, the liability was derecognized and the investment was recorded as a Level 3 investment because the equity security was not registered for resale and a discount for lack of marketability was still applied. Subsequently, the security was registered and the investment was transferred from Level 3 to Level 1.

Other investments include investments made via convertible debt instruments totaling $2.0 million and $6.8 million for the years ended years ended December 31, 2022 and 2021. The other investments are reported as a Level 3 financial asset because the methodology used to develop the estimated fair values includes significant unobservable inputs reflecting management's own assumptions. Assumptions used in determining the fair value of convertible debt instruments include the rights and obligations of the notes the Company holds as well as the probability of a qualified financing event, acquisition, or change in control. During the years ended December 31, 2022 and 2021, the Company recognized a loss of $1.6 million and a gain of $0.1 million, respectively, on convertible debt instruments. During the year ended December 31, 2022, $3.1 million of the outstanding convertible debt instruments was repaid in full.

The contingent consideration liability is valued using a Monte Carlo simulation in a risk-neutral framework as well as a scenario-based approach (both special cases of the income approach), based on key inputs that are not all observable in the market and is classified as a Level 3 liability. The Company assesses the fair value of the contingent consideration liability at each reporting period, with any subsequent changes to the fair value of the liability reflected in the consolidated statement of operations until the liability is settled. During the years ended December 31, 2022 and 2021, the Company recognized a gain of $1.6 million and a gain of $0.4 million, respectively, on the fair value of contingent consideration.

The fair value of the Private Placement Warrants was estimated using the Black-Scholes option pricing model and was classified as a Level 3 financial instrument. The significant assumptions used in the model were the Company's stock price, exercise price, expected term, volatility, interest rate, and dividend yield. During the years ended December 31, 2021 and 2020, the Company recognized a loss of $56.6 million and a gain of $56.4 million, respectively, on the Private Placement Warrants. The Private Placement Warrants were all exercised as of March 2, 2021.

There were no transfers between fair value measure levels during the year ended December 31, 2022. There was one transfer between Level 3 and Level 1 during the year ended December 31, 2021. The following table presents information about the Company's movement in Level 3 assets measured at fair value (in thousands):

	Year Ended December 31,	
	2022	2021
Balance at beginning of period	$ 6,750	$ 3,000
Additions	—	23,620
Changes in fair value	(1,650)	(12,450)
Disposals	(3,100)	—
Transfers to Level 1	—	(7,420)
Balance at end of period	$ 2,000	$ 6,750

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The following table presents information about the Company's movement in Level 3 liabilities measured at fair value (in thousands):

	Year Ended December 31,	
	2022	2021
Balance at beginning of period	$ 5,654	$ 93,328
Payment of contingent consideration liability	(1,500)	—
Changes in fair value	(1,567)	58,592
Additions	—	6,558
Disposals	—	(2,920)
Foreign currency translation	—	—
Exercise of private placement warrants	—	(149,904)
Balance at end of period	$ 2,587	$ 5,654

7. ACCOUNTS RECEIVABLE

The components of accounts receivable are as follows (in thousands):

	December 31, 2022	December 31, 2021
Trade receivables	$ 40,121	$ 47,352
Allowance for doubtful accounts	(1,640)	(665)
Total accounts receivable	$ 38,481	$ 46,687

The following table summarizes activity in the allowance for doubtful accounts (in thousands):

	December 31, 2022	December 31, 2021
Balance at beginning of period	$ 665	$ 500
Provision for uncollectible accounts, net of recoveries	1,393	447
Uncollectible accounts written off	(418)	(282)
Balance at end of period	$ 1,640	$ 665

8. INVENTORY

Inventory consists of the following (in thousands):

	December 31, 2022	December 31, 2021
Raw materials	$ 41,971	$ 24,887
Work in process	11,936	8,875
Finished goods:		
Deferred cost of sales	3,602	6,999
Manufactured finished goods	34,227	24,638
Total finished goods	37,829	31,637
Total inventory	$ 91,736	$ 65,399

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9. PREPAID EXPENSES AND OTHER CURRENT ASSETS

Prepaid expenses and other current assets consists of the following (in thousands):

	December 31, 2022	December 31, 2021
Prepaid operating expenses	$ 5,705	$ 11,961
Prepaid dues and subscriptions	2,674	1,889
Property and equipment held for sale, net of accumulated depreciation	830	—
Prepaid insurance	798	492
Government grants receivable	429	226
Prepaid taxes	395	1,981
Prepaid rent	383	178
Other	5,941	1,481
Total prepaid expenses and other current assets	$ 17,155	$ 18,208

During the year ended December 31, 2022, as a result of consolidation and integration efforts, the Company approved a plan to sell a facility in Troy, Michigan, as well as related equipment in the facility. These assets have been classified as assets held for sale, with a carrying value at December 31, 2022 of $0.8 million, on the basis that management was committed to a plan to dispose of the building at the balance sheet date and considered the sale to be probable within one year.

10. PROPERTY AND EQUIPMENT

Property and equipment, net consists of the following (in thousands):

	December 31,	
	2022	2021
Equipment	$ 48,632	$ 42,892
Leasehold improvements	18,527	15,263
Land and buildings	15,893	17,214
Construction in process	5,008	4,185
Furniture and fixtures	2,396	1,844
Software	2,183	2,346
Tooling	2,145	2,000
Computer equipment	2,076	1,725
Automobiles	1,180	905
Property and equipment, gross	98,040	88,374
Less: accumulated depreciation	(41,769)	(29,664)
Total property and equipment, net	$ 56,271	$ 58,710

For the years ended years ended December 31, 2022, 2021 and 2020, depreciation expense was $12.1 million, $8.5 million, and $7.6 million, respectively.

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11. GOODWILL & INTANGIBLE ASSETS

The carrying amount of goodwill at December 31, 2022 and 2021 was $113.0 million and $639.3 million, respectively, and has been recorded in connection with the Company's acquisitions. The goodwill activity is as follows (in thousands):

	2022	2021
Balance, beginning of year	$ 639,301	$ 2,252
Goodwill impairment	(498,800)	—
Foreign currency translation adjustment	(26,940)	(4,568)
Measurement period adjustments[1]	(606)	—
Additions[2]	—	641,617
Balance, end of year	$ 112,955	$ 639,301

[1]Represents final measurement period adjustments related to the May Dental and ExOne acquisitions. Refer to *Note 4. Acquisitions* for further information.
[2]The additions to goodwill during fiscal year 2021 are related to the acquisitions of EnvisionTEC, Adaptive3D, Aerosint, Dental Arts Labs, A.I.D.R.O., Brewer Dental, May Dental, and ExOne. Refer to *Note 4. Acquisitions* for further information.

Due to sustained declines in the Company's stock price and the stock prices of comparable companies, we performed interim quantitative assessments as of June 30, 2022 and December 31, 2022, utilizing a combination of the income and market approaches. The results of the quantitative analysis performed indicated that the carrying value of the reporting unit exceeded the fair value. As such, $498.8 million of goodwill impairment charges was recorded during the year ended December 31, 2022.

The Company estimated the fair value using a weighted average of the income and market approaches. Specifically, the discounted cash flow method was used under the income approach and the guideline public company and guideline merged and acquired company methods were used under the market approach. The significant assumptions used under the income approach include management's forecasts of future revenues and EBITDA margins used to calculate projected future cash flows, discount rates, and the terminal growth rate. The terminal value is based on an exit revenue multiple which requires significant assumptions regarding the selections of appropriate multiples that consider relevant market trading data. The Company bases its estimates and assumptions on its knowledge of the additive manufacturing industry, recent performance, expectations of future performance and other assumptions the Company believes to be reasonable. The significant assumptions used under the market approach include the control premium and selection of comparable companies and comparable transactions. Comparable companies and transactions are chosen based on factors including industry classification, geographic region, product offerings, earnings growth and profitability.

The Company determined that the estimated fair value of the reporting unit was less than its carrying amount. During the year ended December 31, 2022, the Company recorded goodwill impairment charges of $498.8 million, in the condensed consolidated statements of operations. The Company did not record any goodwill impairment charges during the years ended December 31, 2021 and 2020.

The following table sets forth the major categories of intangible assets and the weighted-average remaining useful lives for those assets that are not already fully amortized (in thousands):

		December 31, 2022			December 31, 2021		
	Weighted Average Remaining Useful Lives (in years)	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Acquired technology	8.4	$ 196,367	$ 36,919	$ 159,448	$ 198,631	$ 11,421	$ 187,210
Trade name	10.3	12,459	2,374	10,085	12,475	684	11,791
Customer relationships	9.8	67,915	17,663	50,252	69,127	6,296	62,831
Capitalized software	0.5	518	473	45	518	366	152
Total intangible assets		$ 277,259	$ 57,429	$ 219,830	$ 280,751	$ 18,767	$ 261,984

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The Company recognized amortization expense for years ended December 31, 2022, 2021 and 2020, respectively, as follows (in thousands):

Category	Statement of Operations Line Item	Year Ended December 31, 2022	2021	2020
Acquired technology	Cost of Sales	$ 23,707	$ 8,569	$ 114
Acquired technology	Research and Development	1,748	1,761	646
Trade name	General and Administrative	1,688	685	—
Customer relationships	Sales and Marketing	11,412	6,339	—
Capitalized software	Research and Development	107	161	128
		$ 38,662	$ 17,515	$ 888

The Company expects to recognize the following amortization expense (in thousands):

	Amortization Expense
2023	$ 41,659
2024	41,722
2025	39,229
2026	29,215
2027	21,005
2028 and after	47,000
Total intangible amortization	$ 219,830

12. OTHER NONCURRENT ASSETS

The following table summarizes the Company's components of other noncurrent assets (in thousands):

	December 31, 2022	December 31, 2021
Right of use asset	$ 22,147	$ 17,794
Other investments	2,000	6,750
Long-term deposits	573	390
Other	3,043	546
Total other noncurrent assets	$ 27,763	$ 25,480

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13. ACCRUED EXPENSES AND OTHER CURRENT LIABILITIES

The following table summarizes the Company's components of accrued expenses and other current liabilities (in thousands):

	December 31,	
	2022	2021
Compensation and benefits related	$ 8,058	$ 17,124
Warranty reserve	4,301	4,048
Current portion of contingent consideration	2,587	1,471
Current portion of acquisition consideration	1,750	—
Franchise and royalty fees	1,448	2,035
Inventory purchases	925	1,072
Professional services	917	2,659
2027 Notes Interest	901	—
Commissions	897	849
Income tax payable	761	233
Sales and use and franchise taxes	286	274
Other	3,892	4,064
Total accrued expenses and other current liabilities	$ 26,723	$ 33,829

The Company recorded warranty reserve for the years ended December 31, 2022, 2021 and 2020, respectively, as follows (in thousands):

	Years Ended December 31,		
	2022	2021	2020
Warranty reserve, at the beginning of the period	$ 4,048	$ 1,553	$ 1,491
Warranty reserve assumed in acquisition	—	1,389	—
Additions to warranty reserve	4,484	2,576	346
Claims fulfilled	(4,231)	(1,470)	(284)
Warranty reserve, at the end of the period	$ 4,301	$ 4,048	$ 1,553

14. DEBT

2027 Convertible Notes—In May 2022, the Company issued an aggregate of $115.0 million principal amount of convertible senior notes due in 2027 in a private offering to qualified institutional buyers pursuant to Rule 144A under the Securities Act of 1933, as amended (the "Securities Act"). The 2027 Notes consisted of $100.0 million initial placement and an over-allotment option that provided the initial purchasers of the 2027 Notes with the option to purchase an additional $15.0 million aggregate principal amount of the 2027 Notes, which was fully exercised. The 2027 Notes were issued pursuant to an indenture dated May 13, 2022. The net proceeds from the issuance of the 2027 Notes were $111.4 million, after deducting the initial purchasers' discounts and commissions and our estimated offering expenses. The issuance costs will be treated as a debt discount for accounting purposes, which will be amortized into interest expense using the effective interest rate method over the term of the 2027 Notes.

The 2027 Notes are senior unsecured obligations. The 2027 Notes accrue interest at a rate of 6.0% per annum, payable semi-annually in arrears on May 15 and November 15 of each year, beginning on November 15, 2022. The 2027 Notes will mature on May 15, 2027, unless earlier repurchased, redeemed or converted in accordance with their terms prior to such date.

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Before November 15, 2026, holders of the 2027 Notes will have the right to convert their 2027 Notes only upon the occurrence of certain events and during specified periods, including:

- if the last reported sale price per share of the Company's Common Stock, par value $0.0001 per share exceeds 130% of the conversion price for each of at least 20 trading days during the 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter;
- if during the five consecutive business days immediately after any 10 consecutive trading day period (such 10 consecutive trading day period, the "measurement period") in which the trading price per $1,000 principal amount of 2027 Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price per share of the Company's Common Stock on such trading day and the conversion rate on such trading day;
- upon the occurrence of certain corporate events or distributions on the Company's Class A common stock; or
- if the Company calls the 2027 Notes for redemption.

From and after November 15, 2026, holders of the 2027 Notes may convert their 2027 Notes at any time at their election until the close of business on the second scheduled trading day immediately before the maturity date. The Company will settle conversions by paying or delivering cash and, if applicable, shares of its Class A common stock.

The initial conversion rate is 601.5038 shares of Class A common stock per $1,000 principal amount of 2027 Notes, which represents an initial conversion price of approximately $1.66 per share of Class A common stock. The conversion rate is subject to customary adjustments for certain events as described in the indenture governing the 2027 Notes. In addition, if certain corporate events that constitute a "Make-Whole Fundamental Change" (as defined in the indenture governing the 2027 Notes) occur, then the conversion rate will, in certain circumstances, be increased for a specified period of time.

The Company may redeem for cash all or any portion of the 2027 Notes, at the Company's option, on or after May 20, 2025, and on or before the 40th scheduled trading day immediately before the maturity date, but only if certain liquidity conditions are satisfied and the last reported sales price of the Company's Class A common stock exceeds 130% of the conversion price then in effect on (i) each of at least 20 trading days, whether or not consecutive, during the 30 consecutive trading days ending on, and including, the trading day immediately before the date the Company sends the related redemption notice and (ii) the trading day immediately before the date the Company sends such notice.

However, the Company may not redeem less than all of the outstanding 2027 Notes unless at least $100.0 million aggregate principal amount of 2027 Notes are outstanding and not called for redemption as of the time the Company sends the related redemption notice. The redemption price will be a cash amount equal to the principal amount of the 2027 Notes to be redeemed, plus accrued and unpaid interest, if any, to, but excluding, the redemption date. In addition, calling any 2027 Note for redemption will constitute a Make-Whole Fundamental Change with respect to that 2027 Note, in which case the conversion rate applicable to the conversion of that 2027 Note will be increased in certain circumstances if it is converted after it is called for redemption.

If certain corporate events that constitute a "Fundamental Change" (as defined in the indenture governing the 2027 Notes) occur, then, subject to a limited exception for certain cash mergers, holders of the 2027 Notes may require the Company to repurchase their 2027 Notes at a cash repurchase price equal to the principal amount of the 2027 Notes to be repurchased, plus accrued and unpaid interest, if any, to, but excluding, the fundamental change repurchase date. The definition of Fundamental Change includes certain business combination transactions involving the Company and certain de-listing events with respect to the Company's Class A common stock.

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The 2027 Notes are valued as a single liability measured at amortized cost, which approximates fair value, as no other features require bifurcation and recognition as derivatives. The following table presents the outstanding principal amount and carrying value of the 2027 Notes as of the date indicated (in thousands):

	December 31, 2022
Principal	$ 115,000
Unamortized debt discount	(2,502)
Unamortized debt issuance costs	(664)
Net carrying value	$ 111,834

The annual effective interest rate for the 2027 Notes was approximately6.1%. Interest expense related to the 2027 Notes for the periods presented below are as follows (in thousands):

	Year Ended December 31, 2022
Coupon interest	$ 4,389
Amortization of debt discount	358
Amortization of transaction costs	95
Total interest expense	$ 4,842

Term Loan—In June 2018, the Company entered into a $20 million term loan for 36 months. The loan provided $10 million immediately funded with the additional $10 million available to be drawn in up tothree draws of not less than $2 million for 12 months from close of the facility. The loan was interest-only for the full 36 months with the principal due at maturity in June 2021. The outstanding loan was paid in full in June 2021.

PPP Loans— In connection with the acquisition of EnvisionTEC, the Company acquired $1.2 million in Paycheck Protection Program (the "PPP") loans. The PPP, established as part of the Coronavirus Aid, Relief and Economic Security Act, provided for loans to qualifying businesses. Under the terms of the CARES Act, PPP loan recipients could apply for forgiveness for all or a portion of the loan which is dependent upon the Company having initially qualified for the loan. Furthermore, the loan was subject to forgiveness to the extent loan proceeds are used for payroll costs, certain rents, utilities, and mortgage interest expense. The PPP loan had a maturity date of April 3, 2022 and an interest rate of 1%. On May 14, 2021, the outstanding loan balances were forgiven and the restricted cash that was held back from the initial purchase price in the event the loan was not forgiven was released to the seller. There is no outstanding PPP loan balance for EnvisionTEC as of December 31, 2021.

Bank Debt—In connection with the acquisition of A.I.D.R.O., the Company acquired three loans ("Bank Loans") totaling $1.1 million in aggregate. The Bank Loans have a term of 4.5 years and mature from September 2024 through September 2025, with interest rates ranging from1.70% to 2.10%. Payments of principal and interest are made quarterly. During the year ended December 31, 2022, the Company paid $0.3 million and $0.6 million remains outstanding, and as of December 31, 2022, $0.3 million of the outstanding debt is recorded within current portion of long-term debt, net of deferred financing costs, and $0.3 million is recorded within long-term debt, net of current portion, in the consolidated balance sheets.

Equipment Financing Agreement—In connection with the acquisition of Dental Arts Labs, the Company acquired a thirteen-month equipment financing agreement ("Financing Agreement") in the amount of $0.5 million. The Financing Agreement provided for an advance payment of $0.5 million to secure equipment for the Company. Payments are made monthly under the Financing Agreement upon acceptance, which had not yet occurred as of December 31, 2021. Subsequent to December 31, 2021, the Company executed a delivery and acceptance certificate which commences payment. The financing agreement balance of $0.2 million is

recorded in current portion of long-term debt, net of deferred financing costs, in the consolidated balance sheets. The Financing Agreement will mature in June 2023.

15. OTHER NONCURRENT LIABILITIES

The following table summarizes the Company's components of other noncurrent liabilities (in thousands):

	December 31, 2022	December 31, 2021
Taxes payable	$ 1,034	$ 1,034
Acquisition consideration	—	1,750
Other	325	386
Total other noncurrent liabilities	$ 1,359	$ 3,170

16. LEASES

Lessee

At December 31, 2022, the Company recorded $22.1 million as a right of use asset and $23.6 million as an operating lease liability. At December 31, 2021, the Company recorded $17.8 million as a right of use asset and $17.8 million as an operating lease liability. The Company assesses its right of use asset and other lease-related assets for impairment. There were no impairments recorded related to these assets during the years ended December 31, 2022 and 2021.

The Company reviews all supplier, vendor, and service provider contracts to determine whether any service arrangements contain a lease component. The Company identified two service agreements that contain an embedded lease. The agreements do not contain fixed or minimum payments, and the variable lease expense was immaterial during the years ended December 31, 2022 and 2021.

Information about other lease-related balances is as follows (in thousands):

	Years Ended December 31,	
	2022	2021
Lease cost		
Operating lease cost	$ 5,718	$ 2,572
Short-term lease cost	292	129
Variable lease cost	245	178
Finance lease cost	92	6
Total lease cost	$ 6,347	$ 2,885
Other Information		
Operating cash flows used in operating leases	$ 6,352	$ 2,862
Operating cash flows used in finance leases	81	8
Weighted-average remaining lease term—operating leases (years)	5.0	5.1
Weighted-average remaining lease term—finance leases (years)	7.8	7.6
Weighted-average discount rate—operating leases	4.3 %	4.3 %
Weighted-average discount rate—finance leases	3.1 %	1.5 %

The rate implicit in the lease is not readily determinable in most of the Company's leases, and therefore the Company uses its incremental borrowing rate as the discount rate when measuring operating lease liabilities. The incremental borrowing rate represents an estimate of the interest rate the Company would incur at lease commencement to borrow an amount equal to the lease payments on a collateralized basis over the term of the lease.

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Future minimum lease payments under noncancelable operating leases at December 31, 2022, are as follows (in thousands):

	Operating Leases	Finance Leases
2023	$ 6,516	$ 81
2024	4,934	77
2025	4,170	76
2026	3,643	76
2027	3,426	77
2028 and after	2,915	313
Total lease payments	25,604	700
Less amount representing interest	(2,625)	(89)
Total lease liability	22,979	611
Less current portion of lease liability	(5,667)	(63)
Lease liability, net of current portion	$ 17,312	$ 548

In February 2022, the Company amended its existing facility lease for the ExOne European headquarters and operating facility in Gersthofen, Germany, extending the lease term set to expire in December 2022 through December 2027, with the option to extend for two additional five-year extension periods. The rent is fixed through December 31, 2024 for an aggregate annual rent totaling $1.7 million, plus applicable taxes and is subject to adjustment on an annual basis thereafter (in accordance with the consumer price index for Germany) through December 31, 2027.

As of December 31, 2022, the Company does not have material operating leases that have not commenced.

Lessor

The Company leases machinery and equipment to customers (principally 3D printing machines and related equipment) under immaterial lease arrangements classified as either operating leases or sales-type leases.

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 addresses accounting for contingencies. The Company expenses as incurred the costs related to its legal proceedings. While the outcome of these claims cannot be predicted with certainty, management does not believe the outcome of any current legal proceedings will have a material adverse impact on the Company's consolidated financial statements.

Between September 2021 and the closing of the ExOne Merger on November 12, 2021,twelve putative class action complaints were filed by purported ExOne shareholders against ExOne and the former ExOne Board of Directors alleging violations of federal securities laws in connection with the S-4 filed by ExOne for the ExOne Merger. All have been dismissed.

On November 8, 2021, another purported stockholder, Leo Lissog Goldstein, filed a Section 220 complaint in Delaware Chancery Court against ExOne (*Goldstein v. The ExOne Company, Case No.* 2021-0958-KSJM). Mr. Goldstein seeks to discover certain books and records of the company related to the ExOne Merger purportedly in order to investigate, among other things, the events leading up to and the disclosures made in connection with the ExOne Merger. Mr. Goldstein also moved to intervene and stay the *Campanella* action, discussed below, until his Section 220 action is complete. Mr. Goldstein dismissed his complaint on February 14, 2023.

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On November 22, 2021, purported stockholder Pietro Campanella filed a class action lawsuit against ExOne, Desktop Metal, Inc., and former ExOne directors and officers alleging breach of fiduciary duties and aiding and abetting breach of fiduciary duties in connection with the ExOne Merger (*Campanella v. The ExOne Company et al., Case No. 2021-1013*, Case No. 2021-1013-LWW). In particular, Mr. Campanella alleges that ExOne's proxy statement and supplemental disclosures did not adequately disclose information related to a whistleblower investigation at one of Desktop Metal's subsidiaries, EnvisionTEC, and the resignation of EnvisionTEC's CEO.

On December 21, 2021, January 14, 2022, February 2, 2022 and February 22, 2022, four alleged shareholders of Desktop Metal stock filed purported securities class action complaints in the United States District Court for the District of Massachusetts. (Luongo v. Desktop Metal, D. Mass., Case No. 1:21-cv-12099-IT; Hathaway v. Desktop Metal, D. Mass., Case No. 1:22-cv-10059-IT; Guzman-Martinez v. Desktop Metal, D. Mass, Case No. 1:22-cv-10173, Xie v. Desktop Metal, Case No. 1:22-cv-10297-IT). Each complaint alleges that Desktop Metal and certain of its officers and directors violated Sections 10(b) and 20(a) of the Securities and Exchange Act by making false or misleading statements regarding EnvisionTEC's manufacturing and product compliance practices and procedures. On February 4, 2022, the court issued an order consolidating the first three District of Massachusetts securities class actions. On July 7, 2022, the court appointed Sophia Zhou lead plaintiff for the class period of February 17, 2021 through November 15, 2021. The court also vacated its earlier order consolidating the *Xie* action with the other lawsuits and will allow that action to proceed separately, with a new notice to investors, based on a class period of January 15, 2021 to February 16, 2021. On September 29, 2022, the Court re-consolidated the *Xie* action with the other actions for all pre-trial proceedings.

On July 12, 2022, two alleged shareholders of Desktop Metal stock filed derivative actions purportedly on behalf of Desktop Metal in the United States District Court for the District of Massachusetts. (Keyser v. Fulop, et al., Case No. 1:22-cv-11117; Qi v. Fulop, et al., Case No. 1:22-cv-1118). On July 22, 2022, an alleged shareholder of Desktop Metal stock filed a similar derivative complaint in the United States District Court for the District of Delaware (Cherry v. Fulop, et al., Case No. 1:22-cv-00962). The complaints allege that certain officers and directors of Desktop Metal caused harm to the Company by violating Section 14(A) of the Exchange Act and SEC Rule 14a-9 and breaching their fiduciary duties by making false or misleading statements regarding EnvisionTEC's manufacturing and product compliance practice and procedures.

On February 9, 2023, purported stockholder Jeffrey Schantz sent a demand letter to the company, requesting certain books and records of the company related to the December 8, 2020 transaction in which Trine Acquisition Corp. ("Trine"), a special purpose acquisition company ("SPAC"), merged with Desktop Metal.

The Company believes that these complaints are all without merit and intends to defend against them vigorously.

Whistleblower Complaint

On November 4, 2021, the Audit Committee of the Board of Directors engaged a third party to conduct an independent internal investigation as a result of a whistleblower complaint relating to manufacturing and product compliance practices at its EnvisionTEC US LLC facility in Dearborn, Michigan. In response, and to address the issues identified in the investigation, the Company implemented changes in the management of the Dearborn facility and improvements in manufacturing and compliance policies and procedures for the applicable products. Following notification to the FDA, the Company also initiated voluntary recalls of certain shipments of Flexcera resins and the PCA4000 curing box. The investigation is now closed, and the matters subject to the investigation and the Company's responsive actions did not have, and are not anticipated to have, a material impact on the Company's financial statements or its business.

Commitments

The Company has entered into legally binding agreements with certain suppliers to purchase materials used in the manufacturing of the Company's products. As of December 31, 2022, the Company had outstanding purchase orders with contract manufacturers in the amount of $61.0 million which are not included in the consolidated balance sheets.

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The Company has also entered into licensing and royalty agreements with certain manufacturing and software companies and universities related to the use of patented technology. Under the terms of each agreement, the Company has made initial, one-time payments of $0.3 million and is obligated to pay a set percentage, ranging from 1.0% - 13.0%, of all consideration received by the Company for sales of related products and services, until the agreements are terminated at various dates through 2037. The Company's aggregate minimum annual commitment under these contracts is $0.3 million. During the years ended December 31, 2022 and 2021, the Company recorded immaterial licensing and royalty fees.

As a result of the acquisition of ExOne, the Company assumed short-term financial guarantees and letters of credit. Within the Company's normal course of operations, it issues these short-term financial guarantees and letters of credit through a credit facility with a German bank to third parties in connection with certain commercial transactions requiring security. The credit facility provides a capacity amount of $5.3 million for the issuance of financial guarantees and letters of credit for commercial transactions requiring security.

At December 31, 2022, total outstanding financial guarantees and letters of credit issued by the Company under the credit facility were $3.9 million, of which $0.9 million have expiration dates ranging from March 2023 to September 2023, and the remaining $3.0 million with no expiration date. At December 31, 2022, cash collateral of $3.9 million was required for financial guarantees and letters of credit issued under the credit facility, and is included in current portion of restricted cash in the consolidated balance sheets.

Subsequent to December 31, 2022, the Company entered into an additional purchase commitment of $3.2 million for equipment that it plans to lease to customers in connection with digital dentistry solution offerings related to our Desktop Labs platform.

18. INCOME TAXES

During the years ended December 31, 2022, 2021, and 2020, the Company recorded $1.5 million, $29.7 million and $0.9 million, respectively, of income tax benefit, which was primarily driven by book losses and a partial release of the valuation allowance related to the deferred tax liabilities acquired on various acquisitions during 2021. For financial reporting purposes, loss before provision for income taxes, includes the following components (in thousands):

	Years Ended December 31,		
	2022	2021	2020
Domestic	$ (474,942)	$ (252,343)	$ (34,285)
Foreign	(266,899)	(17,659)	(670)
Loss before income taxes	$ (741,841)	$ (270,002)	$ (34,955)

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The provision (benefit) for income taxes consists of the following (in thousands):

	Years Ended December 31,		
	2022	2021	2020
Current:			
Federal	$ —	$ (33)	$ —
Foreign	368	—	—
State	35	20	—
Total Current	403	(13)	—
Deferred:			
Federal	196	(23,378)	(670)
State	16	(5,494)	(270)
Foreign	(2,113)	(783)	—
Total Deferred	(1,901)	(29,655)	(940)
Benefit for income taxes	$ (1,498)	$ (29,668)	$ (940)

A reconciliation of the expected income tax benefit computed using the federal statutory income tax rate to the Company's effective income tax rate for the years ended December 31, 2022, 2021 and 2020, is as follows:

	Years Ended December 31,		
	2022	2021	2020
Effective income tax rate:			
Expected income tax benefit at the federal statutory rate	21 %	21 %	21 %
State taxes	2 %	(2)%	6 %
Change in valuation allowance	(9)%	(4)%	(68)%
Goodwill impairment	(15)%	— %	— %
Research and development credit carryover	— %	(1)%	2 %
Stock-based compensation expense	(1)%	3 %	— %
Warrant Expense	— %	(5)%	— %
Permanent differences	— %	— %	42 %
Other	2 %	(1)%	— %
Effective income tax rate	(0)%	11 %	3 %

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As of the years ended December 31, 2022 and 2021, deferred tax assets and liabilities consist of the following (in thousands):

	Years Ended December 31,	
	2022	2021
Deferred tax assets:		
Federal and state net operating carryforwards	$ 185,842	$ 148,946
Research and development and other credits	10,974	10,977
Start-up costs	11,854	12,904
Stock-based compensation	3,554	4,242
Capitalized research and development	20,793	—
Reserves and accruals	3,311	1,452
Deferred lease liability	7,581	4,856
Depreciation	—	3
Divisional foreign entity deferred	—	2,137
Other deferred tax assets	7,960	6,457
Total gross deferred tax asset	251,869	191,974
Valuation allowance	(195,309)	(127,150)
Net deferred tax asset	56,560	64,824
Deferred tax liabilities:		
Right-of-use asset	(7,234)	(4,692)
Intangible assets	(56,794)	(68,504)
Depreciation	(962)	(1,527)
Other	—	(796)
Total deferred tax liabilities	(64,990)	(75,519)
Net deferred tax liability	$ (8,430)	$ (10,695)

Realization of deferred tax assets is dependent upon the generation of future taxable income. As required by ASC 740 Income Taxes, the Company evaluated the positive and negative evidence bearing upon its ability to realize the deferred tax assets as of December 31, 2022. As a result of the fact that the Company has incurred tax losses from inception, the Company has determined that it was more likely than not that the Company would not realize the benefits of federal and state net deferred tax assets nor the benefits of deferred tax assets in certain non-U.S. jurisdictions.

As a result of acquisitions in 2021, the Company recorded U.S. deferred tax liabilities in purchase accounting related to non-tax-deductible intangible assets recognized in the financial statements. The acquired deferred tax liabilities are a source of income to support recognition of the Company's existing deferred tax assets. Pursuant to ASC 805, the impact on a Company's existing deferred tax assets and liabilities caused by an acquisition should be recorded in the financial statements outside of acquisition accounting. Accordingly, in 2021 the Company recorded an income tax benefit of $29.6 million for the decrease in the valuation allowance as a result of such purchase accounting considerations. The Company maintains a valuation allowance on other U.S. deferred tax assets; and on non-U.S. deferred tax assets in certain jurisdictions.

Changes in the valuation allowance for deferred tax assets during the years ended December 31, 2022 and 2021 were as follows (in thousands):

	Years Ended December 31,	
	2022	2021
Valuation allowance at beginning of the year	$ 127,150	$ 111,494
Increases recorded to income tax provision	68,159	45,139
Decreases recorded as a benefit to income tax provision	—	(29,483)
Valuation allowance at end of year	$ 195,309	$ 127,150

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As of the years ended December 31, 2022 and 2021, the Company had federal net operating loss carryforwards of $692.8 million and $592.5 million, respectively, which may be available to reduce future taxable income. $118.1 million of carryforwards generated in 2017 and prior expire at various dates through 2037. The $574.7 million in carryforwards generated from 2018 forward do not expire. As of the years ended December 31, 2022 and 2021, the Company had State net operating loss carryforwards of $387.7 million and $190.5 million, respectively, which may be available to reduce future taxable income. These carryforwards expire at various dates through 2042. In addition, the Company had federal and state research and development tax credit carryforwards of $10.9 million available to reduce future tax liabilities, which will expire at various dates through 2042.

The Company has foreign net operating loss carryforwards available to reduce taxable income in Germany, Japan, Belgium, Italy and the United Kingdom. As of the years ended December 31, 2022 and 2021, the Company had total foreign net operating loss carryforwards of $35.4 million and $32.6 million, respectively. In Germany, the Company has $29.3 million of net operating loss carryforwards, which have an unlimited carryforward period and do not expire. The Company has smaller loss carryforwards in Belgium, Italy, Japan, and the United Kingdom.

Utilization of the Company's net operating loss ("NOL") carryforwards and research and development ("R&D") credit carryforwards may be subject to a substantial annual limitation due to ownership change limitations that have occurred previously or that could occur in the future in accordance with Section 382 of the Internal Revenue Code of 1986 ("Section 382") as well as similar state provisions. These ownership changes may limit the amount of NOL and R&D credit carryforwards that can be utilized annually to offset future taxable income and taxes, respectively. In general, an ownership change as defined by Section 382 results from transactions increasing the ownership of certain shareholders or public groups in the stock of a corporation by more than 50% over a three year period. During the year ended December 31, 2022, the Company has completed a study to assess whether a change of control has occurred or whether there have been multiple changes of control since inception. The study concluded that multiple changes of control did occur since inception and that the net operating loss carryforwards and research and development tax credit carryforwards are subject to an annual limitation under Section 382. As of December 31, 2022, $434.7 million in federal carryforwards and $5.9 million of federal R&D credit carryforwards are subject to limitation.

Beginning in 2022, the Tax Cuts and Jobs Act of 2017 ("TCJA") eliminated the option to deduct research and development expenditures in the current year and requires taxpayers to capitalize and amortize them over five or fifteen years pursuant to Internal Revenue Code Section 174. The capitalization of research and development resulted in a decrease to the Company's taxable loss however no tax benefit is recognized for the deferred tax asset established for these capitalized expenses due to the Company's valuation allowance position in the U.S.

The Company operates within multiple tax jurisdictions and could be subject to audit in those jurisdictions. Such audits can involve complex income tax issues, which may require an extended period of time to resolve and may cover multiple years. In management's opinion, adequate provisions for income taxes have been made for all years subject to audit.

In the U.S., the Company files income tax returns in the U.S. federal tax jurisdiction and various states. Since the Company is in a loss carryforward position, the Company is generally subject to examination by the U.S. federal, state and local income tax authorities for all tax years after 2018; and for 2018 and earlier years to the extent of the losses carried forward from such earlier years. The Company is currently not under examination by the Internal Revenue Service or any other jurisdiction for any tax years. The Company remains subject to non-U.S. income tax examinations in various jurisdictions for tax years 2017 through 2022.

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As of December 31, 2022, the Company has a liability of $1.0 million for uncertain tax positions acquired in various acquisitions during 2021. None of these positions are expected to reverse within twelve months. The Company recognizes accrued interest and penalties related to unrecognized tax benefits in the provision for income taxes. At December 31, 2022, the Company had a balance in accrued interest and penalties related to uncertain tax positions of $0.2 million. A reconciliation of the beginning and ending amount of unrecognized tax liabilities as of the years ended December 31, 2022 and 2021 is as follows (in thousands):

	Years Ended December 31,	
	2022	2021
Unrecognized tax liability, beginning of year	$ 997	$ —
Unrecognized tax liability acquired through purchase accounting	—	1,005
Gross decreases - foreign exchange translation adjustments	—	(8)
Unrecognized tax liability, end of year	$ 997	$ 997

The Company intends to permanently reinvest all earnings of its international subsidiaries in order to support the current and future capital needs of their operations in the foreign jurisdictions.

19. STOCKHOLDERS' EQUITY

The Company's authorized shares consisted of 500,000,000 shares of Class A Common Stock, $0.0001 par value (the "Common Stock") and 50,000,000 shares of Preferred Stock, $0.0001 par value (the "Preferred Stock").

During 2015, the Company issued 34,010,977 shares of Common Stock to the initial founders and certain employees of the Company at a purchase price of $0.0001 per share. These shares are fully vested.

Common Stock Warrants

In May 2017, the Company entered into a strategic collaboration agreement with an investor allowing the investor's resellers to sell and distribute the Company's products. In consideration for this agreement, the Company agreed to issue warrants to purchase up to 2,442,440 shares of Common Stock. The investor was eligible to receive a warrant to purchase one share of Common Stock for every $35.00 in revenue generated by the Company from the investor's resellers. Each warrant was issued at an exercise price equal to $3.34 per share (subject to appropriate adjustment in the event of a stock dividend, stock split, combination, or other similar recapitalization) and was set to expire on December 31, 2027. The Company issued 122,073 warrants in 2020 and recorded $0.2 million of expense related to the fair value of the warrants during the year ended December 31, 2020, calculated using the Black-Scholes warrant-pricing model with the following assumptions:

	Year Ended December 31, 2020
Risk-free interest rate	2.0 %
Expected volatility	52.5 %
Expected life (in years)	8.0 - 8.8
Expected dividend yield	—
Fair value of Common Stock	$ 3.34

756,498 warrants were converted to 447,938 shares of Common Stock through a cashless exercise in connection with the Business Combination.

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In August 2020, the Company issued a warrant to purchase up to 366,366 shares of common stock, par value $0.0001, in exchange for technical research and development advisor services. Each warrant was issued at an exercise price of $3.34 per share (subject to appropriate adjustment in the event of a stock dividend, stock split, combination, or other similar recapitalization) and was set to expire on August 22, 2027. The Company recorded $1.7 million of expense related to the fair value of the warrants during the year ended December 31, 2020, calculated using the Black-Scholes warrant-pricing model with the following assumptions:

	Year Ended December 31, 2020
Risk-free interest rate	0.5 %
Expected volatility	52.5 %
Expected life (in years)	0.3
Expected dividend yield	—
Fair value of Common Stock	$ 7.98

366,366 warrants vested upon a change in control and were converted to 244,428 shares of Common Stock through a cashless exercise in connection with the Business Combination.

Trine Warrants

In Trine's initial public offering, it sold units at a price of $10.00 per unit, which consisted of one share of Common Stock, $0.0001 par value, and one-half of a redeemable warrant (each, a "Public Warrant"). Each whole Public Warrant entitles the holder to purchase one share of Common Stock at a price of $11.50 per share and became exercisable as of 30 days from the date of the Business Combination. Unless earlier redeemed, the Public Warrants will expire five years from the completion of the Business Combination. The Company may redeem the outstanding Public Warrants in whole and not in part at a price of $0.01 per Public Warrant upon a minimum of 30 days' prior written notice of redemption, and only in the event that the last sale price of the Company's Common Stock is at least $18.00 per share for any 20 trading days within a 30-trading day period ending on the third trading day prior to the date on which notice of redemption is given. If the Company redeems the Public Warrants as described above, it will have the option to require all Public Warrant holders that wish to exercise to do so on a "cashless basis". On February 26, 2021, the Company delivered a notice to redeem all of its outstanding Public Warrants that remain unexercised at 5:00 p.m. New York City time on March 29, 2021. During 2021, Public Warrants for 14,840,589 shares of the Company's Common Stock were exercised for cash, resulting in the Company receiving net proceeds of $170.7 million. On March 29, 2021, the 166,905 outstanding Public Warrants were redeemed by the Company for $0.01 per Public Warrant. Effective March 29, 2021, all of the Public Warrants were exercised or redeemed.

The Warrant Agreement, dated as of March 14, 2019, by and between the Company and Continental Stock Transfer & Trust Company also obligated the Company to use its best efforts to file with the SEC a registration statement for the registration, under the Securities Act of 1933, as amended (the "Securities Act"), of the issuance of the shares of Common Stock issuable upon exercise of the Public Warrants, and to cause the same to become effective and remain effective while the Public Warrants remain outstanding. On February 4, 2021, the Company's registration statement covering such shares became effective.

Simultaneously with the consummation of Trine's initial public offering, Trine Sponsor IH, LLC (the "Sponsor") purchased an aggregate of 8,503,000 warrants to purchase one share of Common Stock at an exercise price of $11.50 (the "Private Placement Warrants") at a price of $1.00 per warrant ($8,503,000) in the aggregate in a private placement.

The Private Placement Warrants are identical to the Public Warrants except that the Private Placement Warrants are not redeemable by Desktop Metal, and may be exercised for cash or on a cashless basis so long as they are held by the Sponsor or any of its permitted transferees. Additionally, pursuant to the terms of the amended and restated registration rights agreement entered in connection with the Business Combination, the Sponsor had the right to have the resale of the shares of Common Stock acquired upon exercise of the Private Placement Warrants registered under the Securities Act. On February 4, 2021, the Company's registration statement covering such shares became effective.

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On February 24, 2020, Trine issued an unsecured promissory note (the "2020 Note") to the Sponsor. The 2020 Note bore no interest and was repayable in full upon consummation of the Business Combination. The Sponsor had the option to convert any unpaid balance of the 2020 Note into warrants equal to the principal amount of the 2020 Note so converted divided by $1.00. Upon closing of the Business Combination, the 2020 Note was converted into a Private Placement Warrant for 1,500,000 shares of Common Stock, with an exercise price of $11.50. The terms of these warrants are identical to the terms of the Private Placement Warrants. Pursuant to the terms of the amended and restated registration rights agreement entered in connection with the Business Combination, the Sponsor had the right to have the resale of the shares of Common Stock acquired upon exercise of such warrant registered under the Securities Act. On February 4, 2021, the Company's registration statement covering such shares became effective.

The Company's Private Placement Warrants were classified as liabilities, and were measured at fair value through earnings. During the years ended December 31, 2021 and 2020, the Company recorded a $56.6 million loss and $56.4 million gain, respectively, related to the change in fair value of the Private Placement Warrants, which were remeasured through the date of each exercise, calculated using the Black-Scholes warrant pricing model with the following assumptions:

	Years Ended December 31,	
	2021	**2020**
Risk-free interest rate	0.4% – 0.6 %	0.4 %
Expected volatility	55.0 %	50.0 %
Expected life (in years)	4.8	4.9
Expected dividend yield	—	—
Fair value of Common Stock	$ 19.82 – 30.49	$ 17.20
Exercise price	$ 11.50	$ 11.50

All of the Private Placement Warrants were exercised on a cashless basis prior to March 2, 2021, and an aggregate of 5,850,346 shares of the Company's Common Stock were issued in connection with these exercises. Effective March 2, 2021, all Private Placement Warrants were exercised.

Legacy Desktop Metal Convertible Preferred Stock

In connection with the Business Combination, Legacy Desktop Metal's Convertible Preferred Stock ("Legacy Convertible Preferred Stock") previously classified as mezzanine was retroactively adjusted, converted into Common Stock, and reclassified to permanent equity as a result of the reverse recapitalization. As of December 31, 2020, there was no Legacy Convertible Preferred Stock authorized, issued or outstanding. The following table summarizes details of Legacy Convertible Preferred Stock authorized, issued and outstanding immediately prior to the Business Combination ($ in thousands):

	Prior to Business Combination	
Legacy Convertible Preferred Stock Classes	**Shares Authorized, Issued and Outstanding**	**Preferred Stock**
Series A Legacy Convertible Preferred Stock, $0.0001 par value	26,189,545	$ 13,878
Series B Legacy Convertible Preferred Stock, $0.0001 par value	23,675,035	37,806
Series C Legacy Convertible Preferred Stock, $0.0001 par value	13,152,896	44,852
Series D Legacy Convertible Preferred Stock, $0.0001 par value	21,075,193	180,353
Series E Legacy Convertible Preferred Stock, $0.0001 par value	13,450,703	134,667
Series E-1 Legacy Convertible Preferred Stock, $0.0001 par value	2,494,737	24,977
Total	100,038,109	$ 436,533

The following describes the rights and preferences of the Company's Legacy Convertible Preferred Stock prior to conversion to common stock in the Business Combination:

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Voting—The holders of Legacy Convertible Preferred Stock voted together with all other classes and series of stock as a single class on an as-converted basis. Each share of Legacy Convertible Preferred Stock entitled the holder to such number of votes per share as equaled the whole number of shares of Legacy Desktop Metal common stock into which such share of Legacy Convertible Preferred Stock was convertible. The holders of the Series A Legacy Convertible Preferred Stock were entitled to elect one director to the Company's board of directors, the holders of the Series B Legacy Convertible Preferred Stock were entitled to elect two directors to the Company's board of directors, the holders of the Series C Legacy Convertible Preferred Stock were entitled to elect one director to the Company's board of directors, and the holders of the Series E Legacy Convertible Preferred Stock were entitled to elect one director to the Company's board of directors. The holders of Legacy Convertible Preferred Stock retained rights to vote on certain specified matters as set forth in the Company's certificate of incorporation. The holders of Series E-1 Legacy Convertible Preferred Stock were not entitled to vote in elections of directors.

Dividends—The holders of Legacy Convertible Preferred Stock were entitled to receive dividends at the rate of 8% of the original issue price for each series of Legacy Convertible Preferred Stock payable only when, as and if, declared by the Company's board of directors. Through the date of the Business Combination, no dividends had been declared.

Liquidation—Upon any liquidation, dissolution, or winding-up of the Company, whether voluntary or involuntary, the holders of the Legacy Convertible Preferred Stock were entitled to first be paid out of assets available for distribution, on a pari passu basis, prior and in preference to any distribution to the holders of Legacy Desktop Metal common stock, the greater of (a) an amount equal to $0.53372 per share for the Series A Legacy Convertible Preferred Stock, $1.6013 per share for Series B Legacy Convertible Preferred Stock, $3.4213 per share for the Series C Legacy Convertible Preferred Stock, $8.5656 per share for the Series D Legacy Convertible Preferred Stock, and $10.0211 per share for the Series E and Series E-1 Legacy Convertible Preferred Stock, plus declared but unpaid dividends and (b) an amount per share that would have been payable had all shares of the applicable series of Legacy Convertible Preferred Stock been converted to shares of Legacy Desktop Metal common stock immediately prior to any liquidation, dissolution, or winding-up of the Company. After payment of all preferential amounts required to be paid to the holders of Legacy Convertible Preferred Stock, the remaining assets of the Company available for distribution to the stockholders were to be distributed among the holders of shares of Legacy Desktop Metal common stock pro rata based on the number of shares held by each such holder.

Conversion—Each holder of Legacy Convertible Preferred Stock had the right, at their option at any time, to convert any such shares of Legacy Convertible Preferred Stock into fully paid and nonassessable shares of Legacy Desktop Metal common stock. The conversion ratio was determined by dividing the original issue price of such share of Legacy Convertible Preferred Stock by the conversion price then in effect, which was equal to $0.53372 per share for the Series A Legacy Convertible Preferred Stock, $1.6013 per share for Series B Legacy Convertible Preferred Stock, $3.4213 per share for the Series C Legacy Convertible Preferred Stock, $8.5656 per share for the Series D Legacy Convertible Preferred Stock, and $10.0211 per share for the Series E and Series E-1 Legacy Convertible Preferred Stock. The conversion price was subject to adjustment if certain dilutive events occurred. Conversion was mandatory in the event of a firm-commitment underwritten initial public offering of the Company's Legacy Desktop Metal common stock with a value of at least $5.13 per common share and $50 million in proceeds to the Company or upon the election of a majority of the holders of Legacy Convertible Preferred Stock, voting as a single class on an as-converted basis.

Redemption—The Legacy Convertible Preferred Stock was not subject to mandatory or optional redemption other than in connection with a liquidation, dissolution, or winding-up of the Company.

20. STOCK-BASED COMPENSATION

In 2015, the Board of Directors approved the adoption of the 2015 stock incentive plan (the "2015 Plan"). The 2015 Plan allowed for the award of incentive and nonqualified stock options, restricted stock, and other stock-based awards to employees, officers, directors, consultants, and advisers of the Company. Awards could be made under the 2015 Plan for up to 26,283,789 shares of Common Stock. Option awards expire 10 years from the grant date and generally vest over four years; however, vesting conditions can vary at the discretion of our Board of Directors.

As part of the acquisition of Make Composites, Inc. ("Make") in 2019, the Company assumed the 2018 equity incentive plan of Make (the "Make Plan"). The Make Plan allows for the award of incentive and nonqualified stock options and warrants for those

employees and contractors that were hired as part of the acquisition. The Make Plan allowed for232,304 options and warrants to be issued, which were issued in 2019, with no additional options to be issued in the future. Option awards expire10 years from the grant date and generally vest over four years; however, vesting conditions can vary at the discretion of our Board of Directors.

In December 2020, the Board of Directors and stockholders of the Company approved the adoption of the 2020 Incentive Award Plan (the "2020 Plan" and together with the 2015 Plan and the Make Plan, the "Plans"), which became effective on the date of the Business Combination. Upon effectiveness of the 2020 Plan, the Company ceased granting new awards under the 2015 Plan.

The 2020 Plan allows for the award of incentive and nonqualified stock options, restricted stock, and other stock-based awards to employees, officers, directors, consultants, and advisers of the Company. The number of shares of common stock initially available for issuance under the 2020 Plan was 12,400,813 shares of common stock plus the number of shares subject to awards outstanding under the 2015 Plan that expire, lapse, terminate, or are exchanged for cash, surrendered, repurchased, or canceled without having been fully exercised or forfeited. In addition, the number of shares of common stock available for issuance under the 2020 Plan is subject to an annual increase on the first day of each calendar year beginning on January 1, 2021 and ending on and including January 1, 2030 equal to the lesser of (i) 5% of the aggregate number of shares of common stock outstanding on the final day of the immediately preceding calendar year and (ii) such smaller number of shares as is determined by the Board of Directors. On January 1, 2021, 11,337,837 shares were added as available for issuance to the 2020 Plan.

Stock Options

The Company grants stock options at exercise prices deemed by the Board of Directors to be equal to the fair value of the Common Stock at the time of grant. The fair value of Common Stock has been determined by the Board of Directors of the Company at each stock option measurement date based on a variety of different factors, including the results obtained from independent third-party appraisals, the Company's consolidated financial position and historical financial performance, the status of technological development within the Company, the composition and ability of the current engineering and management team, an evaluation and benchmark of the Company's competition, the current climate in the marketplace, the illiquid nature of the Common Stock, arm's-length sales of the Company's capital stock, and the prospects of a liquidity event, among others.

In July 2020 in order to incentivize and retain personnel, the Company repriced certain employee unvested stock options held by employees to have an exercise price equal to the most recent 409A private stock valuation. Vested awards were not eligible for repricing. Employees were allowed to opt out of the repricing of unvested stock option grants by providing notice to the Company within a month following the repricing. If an employee did not opt out of the repricing, all unvested options held by such employee were repriced and subject to a new vesting schedule. Repriced options vest over a period of four years from the date of the repricing, with one-year cliff vesting and monthly vesting thereafter. The repricing affected 116 employees, at an incremental compensation cost of $3.6 million to the Company, which will be recognized over the vesting period.

During the years ended December 31, 2022 and 2021, the Company didnot grant any options to purchase shares of Common Stock to employees. During the year ended December 31, 2020, the Company granted options to purchase 8,450,799 shares of Common Stock to employees with a fair value of $29.8 million, calculated using the Black-Scholes option-pricing model with the following assumptions:

		Year Ended December 31, 2020
Risk-free interest rate		0.3% – 1.7 %
Expected volatility		52.7% – 54.2 %
Expected life (in years)		5.9 – 6.3
Expected dividend yield		—
Fair value of Common Stock	$	1.40 – 7.98

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During the years ended December 31, 2022 and 2021, the Company didnot grant any options to purchase shares of Common Stock to non-employees. During the year ended December 31, 2020, the Company granted options to purchase 12,212 shares of Common Stock to non-employees with a fair value of $0.1 million, calculated using the Black-Scholes option-pricing model with the following assumptions:

	Year Ended December 31, 2020
Risk-free interest rate	0.6% – 0.8 %
Expected volatility	54.3% – 54.8 %
Expected life (in years)	9.4 – 10.0
Expected dividend yield	—
Fair value of Common Stock	$ 1.40 – 7.98

The risk-free interest rate assumption is based upon observed interest rates appropriate for the term of the related stock options. The expected life of stock options was calculated using the average of the contractual term of the option and the weighted-average vesting period of the option, as the Company does not have sufficient history to use an alternative method to the simplified method to calculate an expected life for employees. The Company has not paid a dividend and is not expected to pay a dividend in the foreseeable future. Expected volatility for the Common Stock was determined based on an average of the historical volatility of a peer group of similar public companies.

The option activity of the Plans for the year ended December 31, 2022, is as follows (shares in thousands):

	Number of Shares	Weighted-Average Exercise Price per Share	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at January 1, 2022	13,249	$ 1.73	7.23	$ 42,775
Granted	—	$		
Exercised	(2,311)	$ 1.38		
Forfeited/expired	(2,515)	$ 1.71		
Outstanding at December 31, 2022	8,423	$ 1.83	6.02	922
Options vested at December 31, 2022	7,099	$ 1.88	5.76	922
Options vested or expected to vest at December 31, 2022	8,409	$ 1.83	6.02	922

There were no options granted in 2022 and therefore no weighted-average grant date fair value for the year ended December 31, 2022. The weighted-average grant-date fair value for options granted during the years ended December 31, 2021 and 2020 was approximately $5.24, and $3.52, respectively. The aggregate intrinsic value of options exercised during the years ended December 31, 2022, 2021, and 2020 was $4.7 million, $57.2, and $1.8 million, respectively.

On September 28, 2020 the Company modified the vesting conditions for certain awards granted to one of its officers such that in the event of a change in control, half of the outstanding unvested options would vest. Upon the Business Combination, the total incremental compensation expense resulting from the modification was approximately $1.8 million.

The total stock-based compensation expense related to stock options during the years ended December 31, 2022, 2021 and 2020 was $2.8 million, $6.9 million, and $6.8 million, respectively. Total unrecognized stock-based compensation expense related to unvested stock options at December 31, 2022 aggregated $2.4 million and is expected to be recognized over a weighted-average period of1.6 years.

Performance-Based Stock Options (included above)

During the year ended December 31, 2020,560,256 performance-based stock options were granted to key employees of the Company. These awards vest upon the achievement of certain performance milestones by the Company and prescribed service

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milestones by the employee. During the year ended December 31, 2021,83,958 performance-based stock options were forfeited due to employee termination. During the year ended December 31, 2022, 290,038 performance-based stock options were forfeited due to employee termination and the remaining 186,260 performance-based stock options outstanding expired without vesting as the performance milestones were not achieved by the Company. As of December 31, 2022, no unrecognized compensation cost remains.

Assumed Stock Options

In connection with the acquisition of ExOne, the Company assumed 86,020 unvested stock options which are considered post-combination expense and were valued using the Black-Scholes option-pricing model with the following assumptions:

	As of November 12, 2021
Risk-free interest rate	0.5% – 0.8 %
Expected volatility	57.2% – 59.4 %
Expected life (in years)	1.0 – 2.8
Expected dividend yield	—
Fair value of Common Stock	$ 8.61

The risk-free interest rate assumption is based upon observed interest rates appropriate for the term of the related stock options. The expected life of stock options was calculated using the average of the contractual term of the option and the weighted-average vesting period of the option, as the Company does not have sufficient history to use an alternative method to the simplified method to calculate an expected life for employees. The Company has not paid a dividend and is not expected to pay a dividend in the foreseeable future. Expected volatility for the Common Stock was determined based on an average of the historical volatility of a peer group of similar public companies.

Restricted Stock Awards

In connection with acquisitions, the Company has granted RSAs that are considered post-combination expense and accounted for as stock-based compensation as the shares vest.

The activity for stock subject to vesting under the Plans for the year ended December 31, 2022 is as follows (shares in thousands):

	Shares Subject to Vesting	Weighted-Average Grant Date Fair Value
Balance of unvested shares as of January 1, 2022	264	$ 7.79
Cancelled/Forfeited	(5)	$ 8.78
Vested	(157)	$ 7.11
Balance of unvested shares as of December 31, 2022	102	$ 8.78

The total stock-based compensation expense related to RSAs during the years ended December 31, 2022, 2021 and 2020 was $1.0 million, $3.1 million, and $0.6 million, respectively. As of December 31, 2022, the total unrecognized stock-based compensation expense related to unvested RSAs aggregated $0.8 million, and is expected to be recognized over a weighted-average period of1.1 years.

Restricted Stock Units

RSUs awarded to employees and non-employees generally vest over four years from the anniversary date of the grant, with 1-year cliff vesting and quarterly vesting thereafter, provided service with the Company is not terminated. The fair value of RSUs is equal to the estimated fair market value of the Company's Common Stock on the date of grant.

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RSU activity under the 2020 Plan for the year ended December 31, 2022 is as follows (shares in thousands):

	Shares Subject to Vesting	Weighted-Average Grant Date Fair Value
Balance of unvested shares as of January 1, 2022	16,395	$ 7.54
Granted	13,771	$ 3.16
Vested	(4,154)	$ 11.03
Cancelled/Forfeited	(3,867)	$ 7.60
Balance of unvested shares as of December 31, 2022	22,145	$ 4.15

The total stock-based compensation expense related to RSUs during the years ended December 31, 2022, 2021 and 2020 was $45.0 million, $18.8 million, and $0.6 million, respectively. Total unrecognized compensation costs related to unvested RSUs at December 31, 2022 was approximately $73.1 million and is expected to be recognized over a weighted-average period of 2.8 years.

Restricted stock units include awards that vest subject to certain performance and market-based criteria.

Performance-Based Restricted Stock Units (included above)

During the year ended December 31, 2021, 670,000 performance-based RSUs were granted to key employees of the Company. These awards vest upon the achievement of certain performance milestones by the Company and prescribed service milestones by the employee. No performance-based RSUs vested during the year ended December 31, 2021. During the year ended December 31, 2021, 120,000 awards expired due to performance milestones not being achieved. During the year ended December 31, 2022, no performance-based RSUs vested and 400,000 performance-based RSUs were forfeited due to employee termination. As of December 31, 2022, 150,000 performance-based RSUs remain outstanding.

During the year ended December 31, 2020, 124,300 performance-based RSUs were granted to a key employee of the Company. This award vests upon the achievement of certain performance milestones by the Company and prescribed service milestones by the employee. No performance-based RSUs vested during the years ended December 31, 2022 and 2021. As of December 31, 2022, 124,300 performance-based RSUs remain outstanding.

Market-Based Restricted Stock Units (included above)

In October 2021 the Compensation Committee of the Company's Board of Directors awarded certain executive officers a total of up to 9,070,269 market-based restricted share units. These restricted stock units will vest and result in the issuance of shares of Common Stock based on continuing employment and the achievement of certain market conditions set by the Company.

The Company used a Monte Carlo simulation model to estimate the grant-date fair value of the restricted stock units granted in October 2021. The fair value is recorded as stock compensation expense in the consolidated statements of operations over the period from the date of grant to October 2026 regardless of the actual outcome achieved.

The table below sets forth the assumptions used to value the market-based awards and the estimated grant-date fair value:

	October 2021 Awards
Risk-free interest rate	1.3 %
Expected dividend yield	— %
Remaining performance period (in years)	7.0
Expected volatility	55.0 %
Estimated grant date fair value (per share)	$ 0.98 – 4.95
Target performance (number of shares)	9,070,269

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During the year ended December 31, 2021, one of the executive officers resigned from the Company, forfeiting his market-based award. As the service condition was not met prior to his resignation, no stock-based compensation expense was recorded for this award. No market-based RSUs vested or were forfeited during the year ended December 31, 2022. As of December 31, 2022, 6,802,702 market-based restricted share units remain outstanding.

Liability-Classified Share-Based Arrangement

During the year ended December 31, 2021, the Compensation Committee of the Company's Board of Directors provided performance goals and achievement criteria to certain key employees. If these performance criteria are met, the Company has committed to issue RSU grants with a target fair value of $8.5 million on the future grant date. The awards will vest upon prescribed service milestones of the employee subsequent to the achievement of the specified performance criteria. During the year ended December 31, 2022, the designated employees terminated employment and the liability-classified awards were forfeited. As of December 31, 2022, there is no fair value associated with these awards. The liability-classified awards have been excluded from the potentially dilutive securities table.

Bonus Program

In June 2022, the Compensation Committee approved an amendment to the Company's bonus program ("2022 Bonus Program") Certain employees were granted dollar bonus amounts, which are to be paid out in RSUs. The number of RSUs awarded will be determined using the closing price of the Company's Common Stock on the date of the Board's final certification of the Company's performance attainment and awards to be issued to each employee.

The Company has accounted for these awards as liability-based awards, since the monetary value of the obligation associated with the award is based predominantly on a fixed monetary amount known at inception, and it has an unconditional obligation that it must or may settle by issuing a variable number of its equity shares. The Company will recognize stock-based compensation expense over the employees' requisite service period, based on the expected attainment of the Company-wide targets. As of December 31, 2022, the Company has accrued $0.8 million associated with these awards, which is recorded in accrued expenses and other current liabilities in the condensed consolidated balance sheets. The Company has recorded stock-based compensation expense of $0.8 million for the year ended December 31, 2022.

Stock-Based Compensation Expense

Total stock-based compensation expense related to all of the Company's stock-based awards granted is reported in the consolidated statements of operations as follows (in thousands):

	Years Ended December 31,		
	2022	2021	2020
Research and development[(1)]	$ 24,394	$ 11,446	$ 3,276
General and administrative expense	16,748	10,939	3,464
Sales and marketing expense	5,386	4,593	894
Cost of sales	2,257	1,800	372
Total stock-based compensation expense	$ 48,785	$ 28,778	$ 8,006

[(1)] Includes $7.3 million of stock-based compensation expense during the year ended December 31, 2022, incurred in connection with the Initiative described in *Note 24. Restructuring Charges*.

During the year ended December 31, 2022, the Company recognized $0.8 million of stock-based compensation expense associated with liability-classified awards related to the 2022 Bonus Program. During the years ended December 31, 2021 and 2020, the Company did not recognize any stock-based compensation expense associated with liability-classified awards.

There were 17,763,707 shares available for award under the 2020 Plan at December 31, 2022.

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21. RELATED PARTY TRANSACTIONS

As a result of the acquisition of EnvisionTEC, the Company entered into certain agreements with entities affiliated with Mr. El Siblani, who served as a director and executive officer of the Company until his resignation November 5, 2021. As of December 31, 2021, the Company recorded $0.5 million of right of use asset and $0.6 million of lease liability related to leases with Mr. El Siblani. During the year ended December 31, 2021, the Company paid $0.4 million of lease expense related to these leases. Additionally, during the year ended December 31, 2021, the Company paid $0.3 million of service expense to entities owned by Mr. El Siblani.

As a result of other acquisitions, the Company assumed lease agreements with related parties for facilities located across the United States which extend through 2029. As of December 31, 2022, the Company recorded $4.9 million of right of use asset and lease liabilities associated with these leases. As of December 31, 2021, the Company recorded $3.6 million of right of use asset and lease liabilities. During the years ended December 31, 2022, and 2021, the Company paid lease expense of $0.8 million and $0.6 million to the related parties, respectively. As of December 31, 2022, the Company's annual commitment related to these lease agreements is $0.8 million.

The Company sells products to Lightforce Orthodontics which is affiliated with a member of the Company's Board of Directors. Management believes the sales were conducted on terms equivalent to those prevailing in an arm's-length transaction. During the year ended December 31, 2022 the Company recognized $1.5 million of revenue. As of December 31, 2022, the Company has an immaterial account receivable balance with Lightforce Orthodontics.

22. SEGMENT INFORMATION

In its operation of the business, management, including the Company's chief operating decision maker, who is also Chief Executive Officer, reviews the business as one segment. The Company currently ships its product to markets in the Americas, Europe Middle East and Africa ("EMEA"), and Asia Pacific ("APAC"). Disaggregated revenue data for those markets is as follows (in thousands):

Revenue during the year ended December 31, 2022

	Americas	EMEA	APAC	Total
Products	$ 124,778	$ 48,981	$ 16,489	$ 190,248
Services	11,324	6,159	1,292	18,775
Total	$ 136,102	$ 55,140	$ 17,781	$ 209,023

Revenue during the year ended December 31, 2021

	Americas	EMEA	APAC	Total
Products	$ 71,875	$ 22,404	$ 11,715	$ 105,994
Services	4,087	1,693	634	6,414
Total	$ 75,962	$ 24,097	$ 12,349	$ 112,408

Revenue during the year ended December 31, 2020

	Americas	EMEA	APAC	Total
Products	$ 5,250	$ 6,629	$ 1,839	$ 13,718
Services	1,415	1,159	178	2,752
Total	$ 6,665	$ 7,788	$ 2,017	$ 16,470

During the years ended December 31, 2022, 2021 and 2020, the Company recognized the following revenue from service contracts and cloud-based software licenses over time, and hardware and consumable product shipments and subscription software at a point in time (in thousands):

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	Years Ended December 31,		
	2022	2021	2020
Revenue recognized at a point in time	$ 190,248	$ 105,994	$ 13,718
Revenue recognized over time	18,775	6,414	2,752
Total	$ 209,023	$ 112,408	$ 16,470

The Company's operations are principally in the United States. The locations of long-lived assets, including property, plant and equipment, net and operating lease right-of-use assets, are summarized as follows (in thousands):

	Years Ended December 31,	
	2022	2021
Americas	$ 56,145	$ 58,355
EMEA	16,399	11,289
APAC	5,874	6,861
Total long-lived assets	$ 78,418	$ 76,505

23. NET LOSS PER SHARE

The Company computes basic loss per share and the weighted-average number of Common Stock shares outstanding during each period. Diluted earnings per share include shares issuable upon exercise of outstanding stock options and stock-based awards where the conversion of such instruments would be dilutive.

	Years Ended December 31,		
(in thousands, except per share amounts)	2022	2021	2020
Numerator for basic and diluted net loss per share:			
Net loss	$ (740,343)	$ (240,334)	$ (34,015)
Denominator for basic and diluted net loss per share:			
Weighted-average shares	314,817	260,770	157,906
Net loss per share—Basic and Diluted	$ (2.35)	$ (0.92)	$ (0.22)

The Company's potential dilutive securities, which include outstanding Common Stock options, unvested restricted stock units, unvested restricted stock awards and outstanding Common Stock warrants, have been excluded from the computation of diluted net loss per share as the effect would be to reduce the net loss per share. Therefore, the weighted-average number of common shares outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same. The Company excluded the following potential common shares, presented based on amounts outstanding as of December 31, 2022, 2021, and 2020, from the computation of diluted net loss per share attributable to common stockholders because including them would have an anti-dilutive effect (in thousands):

	Years Ended December 31,		
	2022	2021	2020
Common Stock options outstanding	8,423	13,249	19,553
Unvested restricted stock units outstanding	22,145	16,395	683
Unvested restricted stock awards outstanding	102	264	279
6.0% Convertible Senior Notes due 2027	86,466	—	—
Common Stock warrants outstanding	—	—	25,010
Unvested Trine Founder Shares, held in escrow	—	—	1,851
Total shares	117,136	29,908	47,376

24. RESTRUCTURING CHARGES

In June 2022, the Board of Directors approved a strategic integration and cost optimization initiative that includes a global workforce reduction, facilities consolidation, and other operational savings measures (the "Initiative"). The purpose of the Initiative is to streamline the Company's operational structure, reducing its operating expenses and managing its cash flows.

During the year ended December 31, 2022, the Company recorded the following activity in accrued expenses and other current liabilities in the consolidated balance sheet (in thousands):

	Year Ended December 31, 2022
Accrued expenses, January 1, 2022	$ —
Restructuring charges	14,270
Cash payments	(2,829)
Stock-based compensation	(7,312)
Inventory write-off	(3,085)
Restructuring accrual estimate adjustment	51
Accrued expenses, December 31, 2022	$ 1,095

During the year ended December 31, 2022, the Company recorded restructuring charges of $14.3 million related to employee severance, benefits and related costs, inventory write-offs and facility consolidations which were expensed as follows (in thousands):

	Year Ended December 31, 2022
Cost of goods sold	$ 3,273
Research and development[(1)]	8,485
Sales and marketing	1,131
General and administrative	998
Interest and other (expense) income, net	383
Total restructuring charges[(2)]	$ 14,270

(1) Includes $7.3 million of stock-based compensation expense incurred in connection with the Initiative.
(2) Lease termination costs associated with the Initiative have yet to be determined, pending completion of the facility rationalization assessment. Other costs related to operational savings measures associated with the Initiative have yet to be determined.

As of December 31, 2022, the Company had $0.8 million of restructuring charges, recorded in accrued expenses and other current liabilities in the consolidated balance sheet.

In January 2023, the Company committed to additional action to continue and expand the Initiative, resulting in an estimated $19.6 million to $26.0 million of additional restructuring costs. The Company anticipates that the Initiative will be substantially complete by the end of 2023.

25. SUBSEQUENT EVENTS

On January 31, 2023, the Company committed to additional actions to continue and expand the Initiative. These additional actions include closing and consolidating select locations in the United States and Canada and reducing our workforce by an additional 15%., prioritizing investments and operations in line with near-term revenue generation, positioning us to achieve our long-term financial goals. For all committed restructuring activities under the Initiative, we expect to incur total pre-tax restructuring charges of $19.6 million to $26.0 million related to one-time termination benefits and associated costs, inventory write-offs, lease termination and equipment exit costs, and contract termination costs. The Company continues to anticipate that the Initiative will be substantially complete by the end of 2023.

DESKTOP METAL, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

On December 8, 2020, the Company, then operating under the name Trine Acquisition Corp., held a special meeting of stockholders (the "2020 Special Meeting") to approve certain matters relating to its proposed business combination with Desktop Metal, Inc. and Sparrow Merger Sub, Inc. Two of these matters were (1) a proposal to increase the total number of authorized shares of the Company's Class A common stock, par value $0.0001 per share (the "Class A common stock"), from 100,000,000 shares to 500,000,000 shares (the "Class A Increase Amendment") and (2) an amendment and restatement of its certificate of incorporation to read in its entirety as set forth in the Amended and Restated Certificate of Incorporation ("New Certificate of Incorporation"). The Class A Increase Amendment and the New Certificate of Incorporation were approved by a majority of the shares of Class A and Class B common stock of the Company, voting together as a single class, that were outstanding as of the record date for the 2020 Special Meeting. After the 2020 Special Meeting, a certificate of amendment with respect to the Class A Increase Amendment became effective, the business combination was consummated, the New Certificate of Incorporation became effective, and Company changed its name to Desktop Metal, Inc.

A recent decision of the Delaware Court of Chancery has created uncertainty as to whether Section 242(b)(2) of the Delaware General Corporation Law ("DGCL") would have required the Class A Increase Amendment and the New Certificate of Incorporation to be approved by a separate vote of the majority of the Company's then-outstanding shares of Class A common stock, in addition to a majority of the shares of Class A and Class B common stock voting together ("Boxed Decision"). While the Company believes that the Company's shares have been validly authorized since their original issuance, in light of the Boxed Decision, on February 13, 2023 the Company filed a petition in the Court of Chancery pursuant to Section 205 of the DGCL seeking validation of the Class A Increase Amendment, the New Certificate of Incorporation, and the shares issued in reliance on the effectiveness of the Class A Increase Amendment and the New Certificate of Incorporation to resolve any uncertainty with respect to those matters. Section 205 of the DGCL permits the Court of Chancery, in its discretion, to ratify and validate potentially defective corporate acts and stock after considering a variety of factors.

On February 28, 2023, the Court of Chancery granted the Company's Petition and issued an order providing that "1. The Class A Increase Amendment, including the filing and effectiveness thereof, is hereby validated and declared effective as of 12:01 a.m. (EDT) on December 9, 2020, 2. The New Certificate of Incorporation, including the filing and effectiveness thereof, is hereby validated and declared effective as of 4:15 p.m. (EDT) on December 9, 2020 and 3. All shares of capital stock of the Company issued in reliance on the effectiveness of the Class A Increase Amendment and New Certificate of Incorporation are hereby validated and declared effective as of the date and time of the original issuance of such shares." The Court's granting of the Section 205 Petition has addressed and eliminated the uncertainty created by the Boxed Decision.

Exhibit 4.2

DESCRIPTION OF THE REGISTRANT'S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

The following description of the capital stock of Desktop Metal, Inc. (the "Company," "we," "us," and "our") and certain provisions of our certificate of incorporation and bylaws are summaries and are qualified in their entirety by reference to the full text of our certificate of incorporation and bylaws, copies of which have been filed with the Securities and Exchange Commission, and applicable provisions of the General Corporation Law of the State of Delaware (the "DGCL").

Capital Stock

Our authorized capital stock consists of 500,000,000 shares of Class A common stock, par value $0.0001 per share, and 50,000,000 shares of preferred stock, par value $0.0001 per share. Unless our board of directors determines otherwise, we will issue all shares of our capital stock in uncertificated form.

Class A Common Stock

Holders of shares of Class A common stock are entitled to one vote for each share held of record on all matters submitted to a vote of stockholders. The holders of Class A common stock do not have cumulative voting rights in the election of directors.

In the event of our liquidation, dissolution or winding up and after payment in full of all amounts required to be paid to creditors and to any future holders of preferred stock having liquidation preferences, if any, the holders of Class A common stock will be entitled to receive pro rata our remaining assets available for distribution. Holders of Class A common stock do not have preemptive, subscription, redemption or conversion rights. There are no redemption or sinking fund provisions applicable to the Class A common stock. The rights, powers, preferences and privileges of holders of the Class A common stock are subject to those of the holders of any shares of preferred stock that the board of directors may authorize and issue in the future.

Preferred Stock

Under the terms of the certificate of incorporation, our board of directors is authorized to direct us to issue shares of preferred stock in one or more series without stockholder approval. Our board of directors has the discretion to determine the rights, powers, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock.

The purpose of authorizing our board of directors to issue preferred stock and determine its rights and preferences is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions, future financings and other corporate purposes, could have the effect of making it more difficult for a third party to acquire, or could discourage a third party from seeking to acquire, a majority of the outstanding voting stock.

Additionally, the issuance of preferred stock may adversely affect the holders of Class A common stock by restricting dividends on the Class A common stock, diluting the voting power of the Class A common stock or subordinating the liquidation rights of the Class A common stock. As a result of these or other factors, the issuance of preferred stock could have an adverse impact on the market price of the Class A common stock.

Dividends

Declaration and payment of any dividend is subject to the discretion of our board of directors. The time and amount of dividends is dependent upon, among other things, our business prospects, results of operations, financial condition, cash requirements and availability, debt repayment obligations, capital expenditure needs, contractual restrictions, covenants in the agreements governing current and future indebtedness, industry trends, the provisions of Delaware law affecting the payment of dividends and distributions to stockholders and any other factors or considerations our board of directors may regard as relevant.

We currently intend to retain all available funds and any future earnings to fund the development and growth of our business, and therefore do not anticipate declaring or paying any cash dividends on Class A common stock in the foreseeable future.

Anti-Takeover Provisions

The certificate of incorporation and bylaws contain provisions that may delay, defer or discourage another party from acquiring control of us. We expect that these provisions, which are summarized below, will discourage coercive takeover practices or inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors, which may result in an improvement of the terms of any such acquisition in favor of our stockholders. However, they also give our board of directors the power to discourage acquisitions that some stockholders may favor.

Authorized but Unissued Shares

The authorized but unissued shares of Class A common stock and preferred stock are available for future issuance without stockholder approval, subject to any limitations imposed by the listing standards of the NYSE. These additional shares may be used for a variety of corporate finance transactions, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved Class A common stock and preferred stock could make more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

Classified Board of Directors

Our certificate of incorporation provides that our board of directors is divided into three classes of directors, with the classes to be as nearly equal in number as possible, and with each director serving a three- year term. As a result, approximately one-third of our board of directors will be elected each year. The classification of directors has the effect of making it more difficult for stockholders to change the composition of our board of directors.

Stockholder Action; Special Meetings of Stockholders

Our certificate of incorporation provides that stockholders may not take action by written consent, but may only take action at annual or special meetings of stockholders. As a result, a holder controlling a majority of capital stock would not be able to amend the bylaws or remove directors without holding a meeting of stockholders called in accordance with the bylaws. Further, our certificate of incorporation provides that only the chairperson of our board of directors, a majority of our board of directors, our Chief Executive Officer or our President may call special meetings of stockholders, thus prohibiting a stockholder from calling a special meeting. These provisions might delay the ability of stockholders to force consideration of a proposal or for stockholders controlling a majority of capital stock to take any action, including the removal of directors.

Advance Notice Requirements for Stockholder Proposals and Director Nominations

In addition, our bylaws establish an advance notice procedure for stockholder proposals to be brought before an annual meeting or special meeting of stockholders. Generally, in order for any matter to be "properly brought" before a meeting, the matter must be (a) specified in a notice of meeting given by or at the direction of our board of directors, (b) if not specified in a notice of meeting, otherwise brought before the meeting by our board of directors or the chairperson of the meeting, or (c) otherwise properly brought before the meeting by a stockholder present in person who (1) was a stockholder both at the time of giving the notice and at the time of the meeting, (2) is entitled to vote at the meeting, and (3) has complied with the advance notice procedures specified in our bylaws or properly made such proposal in accordance with Rule 14a-8 under the Exchange Act and the rules and regulations thereunder, which proposal has been included in the proxy statement for the annual meeting. Further, for business to be properly brought before an annual meeting by a stockholder, the stockholder must (a) provide timely notice in writing and in proper form to the secretary and (b) provide any updates or supplements to such notice at the times and in the forms required by our bylaws. To be timely, a stockholder's notice must be delivered to, or mailed and received at, our principal executive offices not less than 90 days nor more than 120 days prior to the one-year anniversary of the preceding year's annual meeting; provided, however, that if the date of the annual meeting is more than 30 days before or more than 60 days after such anniversary date, notice by the stockholder to be timely must be so delivered, or mailed and

received, not later than the 90th day prior to such annual meeting or, if later, the 10th day following the day on which public disclosure of the date of such annual meeting was first made.

Stockholders at an annual meeting or special meeting may only consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of our board of directors or by a qualified stockholder of record on the record date for such meeting, who is entitled to vote at the meeting and who has delivered timely written notice in proper form to our secretary of the stockholder's intention to bring such business before the meeting. These provisions could have the effect of delaying stockholder actions that are favored by the holders of a majority of the outstanding voting securities until the next stockholder meeting.

Amendment of Certificate of Incorporation or Bylaws

Our bylaws may be amended or repealed by a majority vote of our board of directors or by the holders of at least sixty-six and two-thirds percent of the voting power of all of the then-outstanding shares entitled to vote generally in the election of directors, voting together as a single class. The affirmative vote of a majority of our board of directors and at least sixty-six and two-thirds percent in voting power of the outstanding shares entitled to vote would be required to amend certain provisions of our certificate of incorporation.

Limitations on Liability and Indemnification of Officers and Directors

Our certificate of incorporation and bylaws provide indemnification and advancement of expenses for our directors and officers to the fullest extent permitted by the DGCL, subject to certain limited exceptions. We have entered into indemnification agreements with each of our directors and officers. In some cases, the provisions of those indemnification agreements may be broader than the specific indemnification provisions contained under Delaware law. In addition, as permitted by Delaware law, our certificate of incorporation and bylaws include provisions that eliminate the personal liability of directors for monetary damages resulting from breaches of certain fiduciary duties as a director. The effect of this provision is to restrict our rights and the rights of our stockholders in derivative suits to recover monetary damages against a director for breach of fiduciary duties as a director.

These provisions may be held not to be enforceable for violations of the federal securities laws of the United States.

Dissenters' Rights of Appraisal and Payment

Under the DGCL, with certain exceptions, our stockholders have appraisal rights in connection with a merger or consolidation of our company. Pursuant to Section 262 of the DGCL, stockholders who properly demand and perfect appraisal rights in connection with such merger or consolidation have the right to receive payment of the fair value of their shares as determined by the Delaware Court of Chancery.

Stockholders' Derivative Actions

Under the DGCL, any of our stockholders may bring an action in our name to procure a judgment in its favor, also known as a derivative action, provided that the stockholder bringing the action is a holder of the our shares at the time of the transaction to which the action relates.

Forum Selection

Our certificate of incorporation provides that unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware, to the fullest extent permitted by applicable law, is the sole and exclusive forum for: (i) any derivative action brought by a stockholder on behalf of the Company, (ii) any claim of breach of a fiduciary duty owed by any of our directors, officers, stockholders or employees, (iii) any claim against us arising under our certificate of incorporation, bylaws or the DGCL or (iv) any claim against us governed by the internal affairs doctrine. Our certificate of incorporation designates the federal district courts of the United States of America as the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act.

Transfer Agent and Registrar

The transfer agent and registrar for the Class A common stock is Continental Stock Transfer & Trust Company.

Trading Symbol and Market

Our Class A common stock is listed on the NYSE under the symbol “DM”.

Exhibit 10.11

DESKTOP METAL, INC.
2020 INCENTIVE AWARD PLAN

RESTRICTED STOCK UNIT GRANT NOTICE (PERFORMANCE-VESTING)

Capitalized terms not specifically defined in this Restricted Stock Unit Grant Notice (Performance-Vesting) (the " ***Grant Notice***") have the meanings given to them in the 2020 Incentive Award Plan (as amended from time to time, the " ***Plan***") of Desktop Metal, Inc. (the "***Company***") or **Exhibit A**.

The Company has granted to the participant listed below ("***Participant***") the number of Restricted Stock Units set forth below (the "***RSUs***"), subject to the terms and conditions of the Plan and the Performance-Based Restricted Stock Unit Agreement attached as **Exhibit A** and the Vesting Schedule attached as **Schedule I** (collectively, the "***Agreement***"), all of which are incorporated into this Grant Notice by reference.

Participant:

Grant Date:

Number of RSUs:

Vesting Schedule:

By Participant's signature below, Participant agrees to be bound by the terms of this Grant Notice, the Plan and the Agreement. Participant has reviewed the Plan, this Grant Notice and the Agreement in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Grant Notice and fully understands all provisions of the Plan, this Grant Notice and the Agreement. Participant hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator upon any questions arising under the Plan, this Grant Notice or the Agreement.

DESKTOP METAL, INC.	**PARTICIPANT**
By: ______________________	_
Name: ______________________	
Title: ______________________	

EXHIBIT A

PERFORMANCE-BASED RESTRICTED STOCK UNIT AGREEMENT

Capitalized terms not specifically defined in this Agreement have the meanings specified in the Grant Notice or, if not defined in the Grant Notice, in the Plan.

ARTICLE I.
GENERAL

1.1 Award of RSUs. The Company has granted the RSUs to Participant effective as of the grant date set forth in the Grant Notice (the "***Grant Date***"). Each RSU represents the right to receive one Share or, at the option of the Company, an amount of cash, in either case, as set forth in this Agreement. Participant will have no right to the distribution of any Shares or payment of any cash until the time (if ever) the RSUs have vested.

1.2 Incorporation of Terms of Plan. The RSUs are subject to the terms and conditions set forth in this Agreement and the Plan, which is incorporated herein by reference. Except as expressly set forth herein, in the event of any inconsistency between the Plan and this Agreement, the terms of the Plan will control.

1.3 Unsecured Promise. The RSUs will at all times prior to settlement represent an unsecured Company obligation payable only from the Company's general assets.

1.4 Defined Terms. As used in this Agreement:

(a) "***Cause***" shall mean Participant's (i) violation of a Company policy or rule, (ii) breach, attempted breach or violation of any non-competition or non-solicitation agreement between Participant and the Company, (iii) willful failure to substantially perform Participant's duties with the Company, (iv) willful failure in any material respect to carry out or comply with any lawful and reasonable directive of the Board, (v) arrest for, conviction of, or plea of guilty, *nolo contendere*, or no contest to any felony or misdemeanor involving moral turpitude, material deceit, or fraud, (vi) gross negligence, willful misconduct, or (vi) other conduct by Participant that could be materially harmful to the business, interests or reputation of the Company.

(b) "***Certification Date***" shall mean a date in January or February of the calendar year following the calendar year in which the applicable Thirty-Day VWAP is measured, as determined by the Administrator.

(c) "***Good Reason***" shall mean (i) the Company relocates Participant or requires Participant to be based, in either case, more than thirty-five (35) miles from the Company's current Burlington, MA location, (ii) Participant's job responsibilities are materially reduced by the Company, or (iii) Participant's base salary is materially reduced; provided, that, in the case of any of the foregoing, the condition that constitutes Good Reason continues beyond thirty (30) days after Participant has provided the Company written notice that Participant believes in good faith that such condition giving rise to such claim of Good Reason has occurred, so long as such notice is provided within ninety (90) days after the initial existence of such condition and Participant leaves employment within thirty (30) days after Participant has provided the Company written notice of the Good Reason and it failed to cure the same.

(d) "***Last Certification Date***" means the Certification Date occurring [_______].

(e) “***Market Capitalization***” means, as of any Measurement Date an amount equal to (i) the Thirty-Day VWAP multiplied by (ii) (A) the average of the total number of outstanding shares of Common Stock during such Thirty-Day VWAP period, (B) the total number of outstanding shares of Common Stock immediately prior to a Change in Control or (C) the total number of outstanding shares of Common Stock on the date of the Participant’s Termination of Service due to death or Disability (excluding any Shares received as a result of such Termination of Service), as applicable, as determined by the Administrator.

(f) “***Market Capitalization Goals***” means the Market Capitalization goals as set forth on the attached **Schedule I**.

(g) “***Measurement Date***” means a (i) Certification Date with respect to a Thirty-Day VWAP calculation, (ii) Change in Control, and (iii) Termination of Service as a result of Participant’s death or as a result of the Company’s termination of the Participant due to the Participant’s Disability.

(h) “***Performance Period***” means the period beginning on the Grant Date and ending on [_______].

(i) “***Performance Vesting Condition***” means the achievement of a Market Capitalization Goal on a Measurement Date.

(j) “***Qualifying Termination***” means a termination of Participant’s employment by the Company without Cause or by Participant for Good Reason.

(k) “***Satisfied Tranche***” means each Tranche set forth in **Schedule I** with respect to which the Performance Vesting Condition has been achieved as of a Measurement Date.

(l) “***Service Vesting Condition***” means the service-based vesting conditions set forth in Section 2.1(b).

(m) “***Thirty-Day VWAP***” means the volume weighted average trading price per share of Common Stock measured over any rolling thirty day period occurring during the last three months of any calendar year beginning with calendar year [_______] but within the Performance Period; provided, that, in connection with a Change in Control, the Thirty-Day VWAP shall mean the price per share of Common Stock paid by an acquiror in connection with a Change in Control, which, to the extent that the consideration in the Change in Control transaction is paid in stock of the acquiror or its affiliate, price per share of Common Stock shall mean the value of the consideration paid per share of Common Stock based on the volume weighted average trading price per share of the acquiror’s (or its affiliate’s) common stock on the principal exchange on which such shares are then traded for each trading day during the five (5) consecutive trading days ending on the date ten (10) days prior to the date on which a Change in Control occurs, unless otherwise determined by the Administrator (including in connection with valuing any shares or other consideration that is not publicly traded); provided, further, that, in the event of the Participant’s Termination of Service due to death or the Company’s termination of the Participant due to the Participant’s Disability, the Thirty-Day VWAP shall mean the Fair Market Value of a share of Common Stock on the date of such Termination of Service.

(n) “***Tranche***” means each tranche of RSUs as set forth in the attached **Schedule I**.

(o) “***Unsatisfied Tranche***” means each Tranche set forth in the attached **Schedule I** with respect to which the Performance Vesting Condition has not been achieved.

ARTICLE II.
VESTING; FORFEITURE AND SETTLEMENT

2.1 General Vesting; Forfeiture . Subject to Section 2.2 and Section 2.3, the RSUs will vest upon (i) the achievement of the Performance Vesting Conditions and (ii) satisfaction of the Service Vesting Conditions, as follows:

(a) The RSUs will satisfy the Performance Vesting Conditions for a Tranche on the first Certification Date upon which the Administrator determines that the Market Capitalization Goal for such Tranche has been satisfied, provided the Participant has been a Service Provider from the Grant Date through such Certification Date, except as otherwise provided in Section 2.3(b). For the avoidance of doubt, notwithstanding that the applicable Market Capitalization Goal may be achieved with respect to any Tranche or Tranches, the date the applicable Performance Vesting Condition will be deemed satisfied and the associated Tranche or Tranches of RSUs will be deemed vested with respect to any Performance Vesting Conditions will be the applicable Certification Date and, except as provided in Section 2.3(b), will be subject to Participant's continuing to be a Service Provider through such Certification Date. Furthermore, each Market Capitalization Goal may be achieved only once and more than one Market Capitalization Goal may be achieved on a particular Certification Date. For example, if a Market Capitalization Goal of $[_______] is determined by the Administrator to have been satisfied on [_______], the Market Capitalization thereafter drops below such level and again reaches the $[_______] Market Capitalization Goal during the 30 consecutive trading-day period ending [_______], no additional Tranches shall be considered to have achieved under the Performance Vesting Condition as a result of reaching the same Market Capitalization Goal for a second time. In no event may more than [_______] RSUs vest pursuant to this Award; and

(b) Tranches 1-5 in the attached Schedule I will satisfy the Service Vesting Condition if the Participant remains a Service Provider through the third anniversary of the Grant Date. Traches 6-12 in the attached Schedule I will satisfy the Service Vesting Condition if the Participant remaining a Service Provider through the fourth anniversary of the Grant Date. For the avoidance of doubt, in no event shall any RSUs vest unless and until both the applicable Performance Vesting Conditions and Service Vesting Conditions are satisfied, except as provided in Section 2.3.

(c) Notwithstanding anything to the contrary contained herein, all RSUs that have not become vested prior to or on the Last Certification Date shall automatically be forfeited and terminated as of the Last Certification Date without consideration therefor.

2.2 Change in Control. Notwithstanding anything to the contrary in this Agreement, upon the occurrence of a Change in Control on or before the Last Certification Date, subject to the Participant remaining a Service Provider through the date of the Change in Control, any Tranche that is an Unsatisfied Tranche prior to the date of the Change in Control shall be a Satisfied Tranche on the date of the Change in Control to the extent the Market Capitalization equals or exceeds the Market Capitalization Goal applicable to the applicable Tranche. After taking into account the prior sentence, any RSUs subject to Unsatisfied Tranches on the date of the Change in Control will be automatically forfeited on the date of the Change in Control without consideration, except as otherwise determined by the Administrator. Any Tranche that has met the Performance Vesting Conditions as of the date of the Change in Control but has not satisfied the Service Vesting Conditions as of the date of the Change in Control shall, to the extent such RSUs subject to Satisfied Tranches are assumed, substituted or continued in such Change in Control, continue to be eligible to vest in the Service Vesting Conditions subject to Section 2.3.

2.3 Termination of Employment.

(a) Subject to Section 2.3(c), in the event of a Qualifying Termination following a Change in Control, the Satisfied Tranches that remain outstanding and subject to Service Vesting Conditions shall vest immediately as of the Qualifying Termination.

(b) Subject to Section 2.3(c), if Participant experiences a Termination of Service due to Participant's death or the Participant incurs a Termination of Service by the Company due to the Participant's Disability, then (i) any Tranche that is an Unsatisfied Tranche prior to the date of such Termination of Service shall be a Satisfied Tranche on the date of such Termination of Service to the extent the Market Capitalization equals or exceeds the Market Capitalization Goal applicable to the applicable Tranche and (ii) any RSUs subject to Satisfied Tranches shall vest as of the date of such Termination of Service. Any RSUs subject to Unsatisfied Tranches as of the date of such Termination of Service (after taking into account any vesting that occurs on such date) will immediately and automatically be cancelled and forfeited, except as otherwise determined by the Administrator.

(c) The treatment set forth in Section 2.3(a) and Section 2.3(b) is subject to Participant's (or Participant's estate's) execution and non-revocation of a general release of claims in the form provided to the Participant by the Company no later than thirty (30) days following the date of such Termination of Service (the "***Release***").

(d) In the event of Participant's Termination of Service for any reason other than as set forth in Section 2.3(a) or Section 2.3(b) or in the event the Participant fails to satisfy the requirements in Section 2.3(c), all then-unvested RSUs will immediately and automatically be cancelled and forfeited, except as otherwise determined by the Administrator.

2.4 Settlement.

(a) RSUs will be paid in Shares or cash at the Company's option as soon as administratively practicable after the vesting of the applicable RSU, but in no event more than sixty (60) days after the RSU's vesting date.

(b) If an RSU is paid in cash, the amount of cash paid with respect to the RSU will equal the Fair Market Value of a Share on the day immediately preceding the payment date.

ARTICLE III.
TAXATION AND TAX WITHHOLDING

3.1 Representation. Participant represents to the Company that Participant has reviewed with Participant's own tax advisors the tax consequences of this Award and the transactions contemplated by the Grant Notice and this Agreement. Participant is relying solely on such advisors and not on any statements or representations of the Company or any of its agents.

3.2 Tax Withholding.

(a) The Company has the right and option, but not the obligation, to treat Participant's failure to provide timely payment in accordance with the Plan of any withholding tax arising in connection with the RSUs as Participant's election to satisfy all or any portion of the withholding tax by requesting the Company retain Shares otherwise issuable under the Award.

(b) Participant acknowledges that Participant is ultimately liable and responsible for all taxes owed in connection with the RSUs, regardless of any action the Company or any Subsidiary takes with respect to any tax withholding obligations that arise in connection with the RSUs. Neither the

Company nor any Subsidiary makes any representation or undertaking regarding the treatment of any tax withholding in connection with the awarding, vesting or payment of the RSUs or the subsequent sale of Shares. The Company and its Subsidiaries do not commit and are under no obligation to structure the RSUs to reduce or eliminate Participant's tax liability.

3.3 Section 409A. To the extent applicable, this Agreement shall be interpreted in accordance with Section 409A and include appropriate terms from the Plan regarding Section 409A, including without limitation any such regulations or other guidance that may be issued after the effective date of this Agreement.

ARTICLE IV.
OTHER PROVISIONS

4.1 Adjustments. Participant acknowledges that the RSUs, the Shares subject to the RSUs, and the Market Capitalization Goals may be adjusted, modified and terminated in connection with certain events as provided in this Agreement and the Plan, including adjustments to account for any subdivision of Common Stock, declaration of a dividend payable in Common Stock, declaration of a dividend payable in a form other than Common Stock in an amount that has a material effect on the price of a share of Common Stock, a merger, combination or consolidation of the outstanding shares of Common Stock (by reclassification or otherwise) into a lesser number of shares of Common Stock, a recapitalization, an acquisition, a spin-off or a similar occurrence.

4.2 Notices. Any notice to be given under the terms of this Agreement to the Company must be in writing and addressed to the Company in care of the Company's Secretary at the Company's principal office or the Secretary's then-current email address or facsimile number. Any notice to be given under the terms of this Agreement to Participant must be in writing and addressed to Participant (or, if Participant is then deceased, to the Designated Beneficiary) at Participant's last known mailing address, email address or facsimile number in the Company's personnel files. By a notice given pursuant to this Section, either party may designate a different address for notices to be given to that party. Any notice will be deemed duly given when actually received, when sent by email, when sent by certified mail (return receipt requested) and deposited with postage prepaid in a post office or branch post office regularly maintained by the United States Postal Service, when delivered by a nationally recognized express shipping company or upon receipt of a facsimile transmission confirmation.

4.3 Titles. Titles are provided herein for convenience only and are not to serve as a basis for interpretation or construction of this Agreement.

4.4 Conformity to Securities Laws. Participant acknowledges that the Plan, the Grant Notice and this Agreement are intended to conform to the extent necessary with all Applicable Laws and, to the extent Applicable Laws permit, will be deemed amended as necessary to conform to Applicable Laws.

4.5 Successors and Assigns. The Company may assign any of its rights under this Agreement to single or multiple assignees, and this Agreement will inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer set forth in the Plan, this Agreement will be binding upon and inure to the benefit of the heirs, legatees, legal representatives, successors and assigns of the parties hereto.

4.6 Limitations Applicable to Section 16 Persons. Notwithstanding any other provision of the Plan or this Agreement, if Participant is subject to Section 16 of the Exchange Act, the Plan, the Grant Notice, this Agreement, the RSUs will be subject to any additional limitations set forth in any applicable exemptive rule under Section 16 of the Exchange Act (including any amendment to Rule 16b-3) that are

requirements for the application of such exemptive rule. To the extent Applicable Laws permit, this Agreement will be deemed amended as necessary to conform to such applicable exemptive rule.

4.7 Entire Agreement. The Plan, the Grant Notice and this Agreement (including any exhibit hereto) constitute the entire agreement of the parties and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof.

4.8 Agreement Severable. In the event that any provision of the Grant Notice or this Agreement is held illegal or invalid, the provision will be severable from, and the illegality or invalidity of the provision will not be construed to have any effect on, the remaining provisions of the Grant Notice or this Agreement.

4.9 Limitation on Participant's Rights. Participation in the Plan confers no rights or interests other than as herein provided. This Agreement creates only a contractual obligation on the part of the Company as to amounts payable and may not be construed as creating a trust. Neither the Plan nor any underlying program, in and of itself, has any assets. Participant will have only the rights of a general unsecured creditor of the Company with respect to amounts credited and benefits payable, if any, with respect to the RSUs, and rights no greater than the right to receive cash or the Shares as a general unsecured creditor with respect to the RSUs, as and when settled pursuant to the terms of this Agreement.

4.10 Not a Contract of Employment. Nothing in the Plan, the Grant Notice or this Agreement confers upon Participant any right to continue in the employ or service of the Company or any Subsidiary or interferes with or restricts in any way the rights of the Company and its Subsidiaries, which rights are hereby expressly reserved, to discharge or terminate the services of Participant at any time for any reason whatsoever, with or without Cause, except to the extent expressly provided otherwise in a written agreement between the Company or a Subsidiary and Participant.

4.11 Counterparts. The Grant Notice may be executed in one or more counterparts, including by way of any electronic signature, subject to Applicable Law, each of which will be deemed an original and all of which together will constitute one instrument.

* * * * *

Schedule I

Tranche	Market Capitalization Goals (Billions)	Number of RSUs to Vest

Desktop Metal, Inc.

NON-COMPETITION AND NON-SOLICITATION AGREEMENT

This Agreement is made between Desktop Metal, Inc., a Delaware corporation (hereinafter referred to as the "Company"), and **FULL NAME** (the "Employee").

For good consideration and in consideration of the employment or continued at-will employment of the Employee by the Company, the Employee and the Company agree as follows:

1. Non-Competition.

(a) While the Employee is employed by the Company (regardless of any changes occurring after the date hereof to the job title or working conditions applicable to the Employee) and for a period of one year after the termination or cessation of such employment, the Employee will not directly or indirectly engage or assist others in engaging in any business or enterprise (whether as owner, partner, officer, director, employee, consultant, investor, lender or otherwise, except as the holder of not more than 1% of the outstanding stock of a publicly-held company) that is competitive with the Company's business, including but not limited to any business or enterprise that develops, manufactures, markets, licenses, sells or provides any product or service that competes with any product or service developed, manufactured, marketed, licensed, sold or provided, or planned to be developed, manufactured, marketed, licensed, sold or provided, by the Company while the Employee was employed by the Company, and in the geographic areas in which the employee, during any time within the last 2 years of employment, provided services or had a material presence or influence;

(b) The non-competition restrictions contained in this section shall be effective in the event the Employee's employment terminates for any reason, with the exception that these restrictions shall not be effective if the Employee is terminated by the Company without cause of laid off. "Cause" means Employee's violation of a Company policy or rule; Employee's breach, attempted breach, or violation of this Agreement; Employee's failure to perform job duties and responsibilities to the satisfaction of the Company; grounds for termination reasonably related, in the Company's honest judgment, to the needs of its business; Employee's arrest for, conviction of, or plea of guilty, nolo contendere, or no contest to any felony or to a misdemeanor involving moral turpitude, deceit, dishonesty, or fraud; Employee's dishonest statements or acts with respect to or affecting the Company; Employee's gross negligence, willful misconduct, or insubordination; or other conduct by Employee that could be harmful to the business, interests, or reputation of the Company.

(c) During the one-year non-competition period, the Company shall pay to the Employee a payment, consistent with the payment of wages under Massachusetts General Laws c. 148, § 149, on a pro-rata basis, of fifty percent (50%) of the Employee's highest annualized base salary paid by the Employer within the two years preceding the Employee's termination of employment ("Non-Compete Payment"). The Non-Compete

Payment shall be made in four equal installments, with each installment equivalent to twenty-five percent (25%) of the total Non-Compete Payment: the first payment shall be made on or before the 3-month anniversary of Employee's termination; the second payment shall be made on or before the 6-month anniversary of Employee's termination; the third payment shall be made on or before the 9-month anniversary of Employee's termination; and the fourth payment shall be made on or before the 12-month anniversary of Employee's termination. Employee acknowledges and agrees that the Non-Compete Payment and payment schedule is mutually-agreed upon consideration sufficient to support the restrictions set forth in Section 1(a). The Non-Compete Payment obligation shall become effective upon termination of the Employee's employment. The Company shall not be required to make the Non-Compete Payment and may unilaterally discontinue the Non-Compete Payment if (i) the non-competition restrictions set forth in Section 1(a) are ineffective because the Employee is laid off or terminated without Cause; (ii) the Company, pursuant to Section 1(d), waives the non-competition restrictions set forth in this Section 1(a); or (iii) the Employee breaches his or her obligations in Section 1(a). In the event of the Employee's breach of the obligations in Section 1(a), the Company may unilaterally discontinue or refuse to make the Non-Compete Payment, in addition to and without limiting any other available rights and remedies the Company has, in law or equity, in connection with the Employee's breach of this Agreement. Additionally, if Company determines, in its sole and absolute discretion, that Employee violated the obligations in Section 1(a), the Company may recover from the Employee any and all of the Non-Compete Payment that was made to the Employee.

(d) The Company may unilaterally waive the non-competition restrictions set forth in this section of this Agreement at any time, in its sole discretion, in a writing signed by the General Counsel or Director of Human Resources, with or without any advance notice to the Employee. Upon waiver by the Company, the Company's obligation to make the Non-Compete Payment described in Section 1(c) shall terminate and shall not be due or payable to the Employee.

2. Non-Solicitation. While the Employee is employed by the Company (regardless of any changes occurring after the date hereof to the job title or working conditions applicable to the Employee) and for a period of one year after the termination or cessation of such employment for any reason, the Employee will not directly or indirectly:

(a) Either alone or in association with others, solicit, transact business with, accept business from, divert or take away, or attempt to divert or take away, the business or patronage of any of the clients, customers, or business partners of the Company which were contacted, solicited, or served by the Company during the 12-month period prior to the termination or cessation of the Employee's employment with the Company, for the purpose of providing or obtaining any product or service reasonably deemed competitive with any product or service then offered by the Company; or

(b) Either alone or in association with others (i) solicit, induce or attempt to induce, any employee or independent contractor of the Company to terminate his or her

employment or other engagement with the Company, or (ii) hire, or recruit or attempt to hire, or engage or attempt to engage as an independent contractor, any person who was employed or otherwise engaged by the Company at any time during the term of the Employee's employment with the Company; provided, that this clause (ii) shall not apply to the recruitment or hiring or other engagement of any individual whose employment or other engagement with the Company has been terminated for a period of six months or longer.

3. Extension. If the Employee violates the provisions of any of the preceding paragraphs of this Sections 1 or 2, the Employee shall continue to be bound by the restrictions set forth in Sections 1 and 2 until a period of two (2) years after the termination or cessation of employment.

4. Cooperation. During the Employee's employment and for a period of two (2) years following the termination or cessation of the Employee's employment, the Employee will respond truthfully, completely, and in a timely manner to requests from the Company for information concerning the Employee's prospective or new employer, the Employee's prospective or new duties and responsibilities in any new job, the Employee's compliance with his or her post-employment obligations to the Company (including, but not limited to, obligations under this Agreement), and any steps the Employee's prospective or new employer intends to take to ensure the Employee's compliance with the terms of this Agreement.

5. Equitable Remedies. The restrictions contained in this Agreement are necessary for the protection of the trade secrets, confidential information, and goodwill of the Company and are considered by the Employee to be reasonable for such purpose. The Employee agrees that any breach of this Agreement is likely to cause the Company substantial and irrevocable damage which is difficult to measure. Therefore, in the event of any such breach or threatened breach, the Employee agrees that the Company, in addition to such other remedies which may be available, shall be entitled to obtain an injunction from a court restraining such a breach or threatened breach and ordering specific performance of the provisions of this Agreement, and the Employee hereby waives the adequacy of a remedy at law as a defense to such relief. Employee further agrees that Company may recover its attorneys' fees if it successfully enforces this Agreement.

6. Obligations to Third Parties. The Employee acknowledges and represents that this agreement and the Employee's employment with the Company will not violate any continuing obligation the Employee has to any former employer or other third party.

7. Disclosure of this Agreement. The Employee hereby authorizes the Company to notify others, including but not limited to customers of the Company and any of the Employee's future employers or prospective business associates, of the terms and existence of this Agreement and the Employee's continuing obligations to the Company hereunder. If the Employee's employment terminates for any reason, the Employee agrees to provide a copy of this Agreement to any subsequent employer or potential employer of Employee.

8. Employment At-Will. The Employee acknowledges that this Agreement does not constitute a contract of employment, does not imply that the Company will continue his or her employment for any period of time and does not change the at-will nature of his or her employment.

9. Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of both parties and their respective successors and assigns, including any corporation with which, or into which, the Company may be merged or which may succeed to the Company's assets or business, provided, however, that the obligations of the Employee are personal and shall not be assigned by him or her. The Employee expressly consents to be bound by the provisions of this Agreement for the benefit of the Company or any subsidiary or affiliate thereof to whose employ the Employee may be transferred without the necessity that this Agreement be re-signed at the time of such transfer.

10. Interpretation/Reformation. If any restriction set forth in Sections 1 or 2 is found by any court of competent jurisdiction to be unenforceable, it shall be interpreted to extend only over the maximum extent to which it may be enforceable by law, and such court is requested to so reform or otherwise revise this Agreement.

11. Severability. In case any provision of this Agreement shall be invalid, illegal or otherwise unenforceable, the validity, legality and enforceability of the remaining provisions shall in no way be affected or impaired thereby.

12. Waivers. No delay or omission by the Company in exercising any right under this Agreement will operate as a waiver of that or any other right. A waiver or consent given by the Company on any one occasion is effective only in that instance and will not be construed as a bar to or waiver of any right on any other occasion.

13. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Massachusetts (without reference to the conflicts of laws provisions thereof). Any action, suit, or other legal proceeding which is commenced to resolve any matter arising under or relating to any provision of this Agreement shall be commenced only in a court of the State of Massachusetts (or, if appropriate, a federal court located within the State of Massachusetts and the Company and the Employee each consents to the jurisdiction of such a court. The Company and the Employee each hereby irrevocably waive any right to a trial by jury in any action, suit or other legal proceeding arising under or relating to any provision of this Agreement.

14. Entire Agreement; Amendment. This Agreement supersedes all prior agreements, written or oral, between the Employee and the Company relating to the subject matter of this Agreement. This Agreement may not be modified, changed or discharged in whole or in part, except by an agreement in writing signed by the Employee and the Company. The Employee agrees that any change or changes in the Employee's duties, salary or compensation after the signing of this Agreement shall not affect the validity or scope of this Agreement.

15. Captions. The captions of the sections of this Agreement are for convenience of reference only and in no way define, limit or affect the scope or substance of any section of this Agreement.

16. Consultation with Counsel; Time to Consider. The Employee has the right to consult with counsel prior to signing this Agreement. The Employee agrees and acknowledges that the Company provided this Agreement to employer on the earlier of the date of the formal offer of employment or ten business days before starting employment.

THE EMPLOYEE ACKNOWLEDGES THAT EMPLOYEE HAS CAREFULLY READ THIS AGREEMENT, THAT EMPLOYEE HAS HAD THE OPPORTUNITY TO CONSULT WITH COUNSEL ABOUT THIS AGREEMENT, THAT EMPLOYEE ENTERS INTO THIS AGREEMENT FREELY AND VOLUNTARILY, AND THAT EMPLOYEE UNDERSTANDS AND AGREES TO ALL OF THE PROVISIONS IN THIS AGREEMENT.

IN WITNESS WHEREOF, this Agreement is executed as a sealed instrument by the parties as of the date set forth below.

DESKTOP METAL, INC.

Date: ____________________

By: ______________________

Name: ____________________

Title: _____________________

FULL NAME

Date: ____________________

____

(Signature)

Address: ___________________

____

____

Exhibit 21.1

Subsidiaries	Jurisdiction of Incorporation
Desktop Metal Operating, Inc.	Delaware
Desktop Metal GMBH	Germany
Desktop Metal Securities Corporation	Massachusetts
addLEAP AB	Sweden
Figur Machine Tools LLC	New Jersey
EnvisionTEC US LLC	Delaware
Envisiontec GmbH	Germany
EnvisionTec Group Canada, Inc.	Canada
Adaptive3D LLC	Delaware
Adaptive 3D Technologies, LLC	Texas
Syzygy Memory Plastics Corporation	Delaware
Beacon Bio, Inc.	Delaware
DM Belgium B.V.	Belgium
Aerosint S.A.	Belgium
Dental Arts Laboratories, Inc.	Illinois
A.I.D.R.O. Srl	Italy
Meta Additive Ltd.	United Kingdom
Larry Brewer Dental Lab, Inc.	Oklahoma
Brewer Tafla Dental Technologies, LLC	Oklahoma
May Dental Arts, LLC	Missouri
ExOne Americas, LLC	Delaware
ExOne Operating, LLC	Delaware
ExOne GmbH	Germany
ExOne KK	Japan
Desktop Labs, Inc.	Delaware

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-251653 and 333-257581 on Form S-3 and Registration Statement Nos. 333-261152 and 333-256722 on Form S-8 of our reports dated March 1, 2023, relating to the financial statements of Desktop Metal, Inc. and the effectiveness of Desktop Metal, Inc.'s internal control over financial reporting appearing in this Annual Report on Form 10-K for the year ended December 31, 2022.

/s/ Deloitte & Touche LLP

Boston, Massachusetts
March 1, 2023

Exhibit 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a) of RULE 15d-14(a)
OF THE SECURITIES EXCHANGE ACT OF 1934

I, Ric Fulop, certify that:

1. I have reviewed this Annual Report on Form 10-K of Desktop Metal, Inc. for the year ended December 31, 2022;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements and other financial information included in this report, fairly present, in all material respects, the financial condition, results of operations, and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) 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:

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize, and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2023

/s/ Ric Fulop
Ric Fulop
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(a) OR RULE 15d-14(a)
OF THE SECURITIES EXCHANGE ACT OF 1934

I, Jason Cole, certify that:

1. I have reviewed this Annual Report on Form 10-K of Desktop Metal, Inc. for the year ended December 31, 2022;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements and other financial information included in this report, fairly present, in all material respects, the financial condition, results of operations, and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) 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:

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize, and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2023

/s/ Jason Cole
Jason Cole
Chief Financial Officer
(Principal Financial Officer and Principal Accounting 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 Annual Report of Desktop Metal, Inc. (the "Company") on Form 10-K for the year ended December 31, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Ric Fulop, the Chief Executive Officer of the Company, and Jason Cole, the Chief Financial Officer of the Company, each hereby certifies pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of his 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.

March 1, 2023	/s/ Ric Fulop Ric Fulop	Chief Executive Officer (Principal Executive Officer)
March 1, 2023	/s/ Jason Cole Jason Cole	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)

A signed original of this written statement required by 18 U.S.C. Section 1350 has been provided to Desktop Metal, Inc. and will be retained by Desktop Metal, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.