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, 2023

OR

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

For the transition period from _____to _____

Commission file number: 001-39092

SHAPEWAYS HOLDINGS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**87-2876494**
(State or other jurisdiction of incorporation)	**(I.R.S. Employer Identification No.)**

12163 Globe St

Livonia, MI 48150

(Address of principal executive offices) (Zip Code)

(734) 422-6060

(Registrant's telephone number, including area code)

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

Title of each class:	Trading Symbol(s)	Name of each exchange on which registered:
Common Stock, par value $0.0001 per share	**SHPW**	**The Nasdaq Stock Market LLC**
Warrants to purchase Common Stock	**SHPWW**	**The Nasdaq Stock Market LLC**

Securities registered pursuant to Section 12(g) of the Securities Exchange Act of 1934: 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 12b2 of the Exchange Act). Yes ☐ No☒

The aggregate market value of voting stock held by non-affiliates of the registrant, as of June 30, 2023, the last business day of the registrant's most recently completed second fiscal quarter, was approximately $20.4 million (based on the last reported sale price of the registrant's common stock of $3.76 per share on June 30, 2023 on the New York Stock Exchange). The registrant has no non-voting stock outstanding.

As of March 22, 2024 the registrant had6,616,465 shares of common stock outstanding.

Documents Incorporated by Reference

Portions of the registrant's definitive proxy statement related to the registrant's 2024 Annual Meeting of Shareholders to be filed hereafter are incorporated by reference into Part III of this Annual Report on Form 10-K. The 2024 Proxy Statement will be filed with the U.S. Securities and Exchange Commission within 120 days after the end of the fiscal year to which this Report relates.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K (the "Report"), including, without limitation, the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations," includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act") and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). All statements, other than statements of present or historical fact included in or incorporated by reference in this Report, regarding the future financial performance of Shapeways Holdings, Inc. (the "Company", "Shapeways," "we," "us" or "our"), as well as the Company's strategy, future operations, future operating results, financial position, estimated revenue, and losses, projected costs, prospects, plans and objectives of management and ability to implement additional cost-reduction measures or consummate capital raises or strategic alternatives, including a sale or liquidation of some or all of the Company's assets via merger, business combination, or other strategic transaction to maximize shareholder value, and the timing and/or impact of any such potential transactions or cost-reduction measures are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "plan," "believe," "expect," "anticipate," "intend," "outlook," "estimate," "forecast," "project," "continue," "could," "may," "might," "possible," "potential," "predict," "should," "would," "will," "seek," "target," and other similar words and expressions, but the absence of these words does not mean that a statement is not forward-looking.

The forward-looking statements are based on information available as of the date of this Report and on the current expectations, forecasts and assumptions of the management of the Company, involve a number of judgments, risks and uncertainties and are inherently subject to changes in circumstances and their potential effects and speak only as of the date of such statements. There can be no assurance that future developments will be those that have been anticipated. These forward-looking statements involve a number of risks, uncertainties (some of which are beyond the Company's control) or other assumptions that may cause actual results or performance to be materially different from those expressed, contemplated or implied by these forward-looking statements. These risks and uncertainties include, but are not limited to, those factors described under Part I, Item 1A: "Risk Factors." Should one or more of these risks or uncertainties materialize, or should any of our assumptions prove incorrect, actual results may vary in material respects from those projected in these forward-looking statements. The Company undertakes no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as may be required under applicable securities laws. These risks and others described under Part I, Item 1A: "Risk Factors" may not be exhaustive.

By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. Forward-looking statements are not guarantees of future performance and the Company's actual results of operations, financial condition and liquidity, and developments in the industry in the Company operates may differ materially from those made in or suggested by the forward-looking statements contained in this Report. In addition, even if the Company's results or operations, financial condition and liquidity, and developments in the industry in which it operates are consistent with the forward-looking statements contained in this Report, those results or developments may not be indicative of results or developments in subsequent periods.

PART I

Item 1. Business

Company Overview

Shapeways Holdings, Inc. ("Shapeways") is a leading digital manufacturer combining high quality, flexible on-demand manufacturing with purpose-built proprietary software to offer customers an end-to-end digital manufacturing platform on which they can rapidly transform digital designs into physical products. Our manufacturing platform offers customers access to high quality manufacturing from start to finish through automation, innovation and digitization. Our proprietary software, wide selection of materials and technologies, and global supply chain lower manufacturing barriers and accelerate delivery of manufactured parts from prototypes to finished end parts. We combine deep digital manufacturing know-how and software expertise to deliver high quality, flexible on-demand digital manufacturing to a range of customers, from project-focused engineers to large enterprises. Digital manufacturing is the complete digitization of the end-to-end manufacturing process that enables the transition of a digital file to a physical product.

We have manufacturing facilities in Livonia and Charlotte, Michigan within the United States and in Eindhoven, the Netherlands. In addition, as of December 31, 2023, we had 40 strategic supply chain partners who provide incremental capacity and production technologies to help us scale with customer demand and support us in efficiently launching new materials and manufacturing technologies. Approximately 35% of our revenue in 2023 was earned through those strategic outsourced supply chain partners.

We support our customers through the design, pre-production, manufacturing and delivery process across a range of industries, materials, part volumes and delivery options. Our software is deeply integrated with our customers' workflows and often is mission critical to their businesses. We make industrial-grade additive manufacturing and traditional manufacturing accessible by fully digitizing the end-to-end manufacturing process, and by providing a broad range of solutions utilizing 12 additive manufacturing technologies, 13 injection molding and computer numerical control ("CNC") manufacturing technologies and more than 120 materials and finishes, with the ability to easily scale new innovation. Shapeways has delivered over 24 million parts to over one million customers in over 180 countries as of December 31, 2023. Our platform is agnostic as to manufacturing hardware, materials and design software providers.

We use our proprietary software to automate production that passes through our manufacturing platform. Our software supports ordering, part analysis, manufacturing planning, pre-production and manufacturing. This software enables us to offer high quality, low-volume, complex part production. In an environment increasingly focused on mass customization and speed of part delivery, we believe that our core competency in low-volume, high-mix production at scale appeals to customers.

We launched the first phase of our software offering to third-party manufacturers, under the brand OTTO, in the fourth quarter of 2021. In April 2022 we acquired MFG.com ("MFG") and MakerOS, Inc. ("MakerOS"), which expanded our software offering's customer base and feature set. In July 2023, we announced the launch of a 3D Model Viewer for our software offering deployed via the MFG brand. This feature is available for manufacturers on the MFG.com platform and is intended to accelerate and improve the quoting process. The 3D Model Viewer provides manufacturers with a unified platform and the latest technology for viewing 3D models of custom parts, which streamlines the quoting process, and allows for greater accuracy and speed. In addition to providing multiple benefits for manufacturers, the enhanced 3D capability also streamlines the purchasing experience for buyers because they can receive faster, more precise quotes.

Our Strategy

The key elements of our strategy for growth are:

- ***Expand materials offering.*** Our materials portfolio has historically been focused on polymers. We plan to continue to expand our polymers offerings while adding capabilities in industrial metals, composites and ceramics. We believe that by expanding our materials capabilities and offering a comprehensive and innovative materials portfolio, we will be able to unlock additional opportunities in key markets such as industrial, medical, automotive and aerospace.
- ***Expand within and beyond additive manufacturing.*** We plan to continue to expand our reach within additive manufacturing through new hardware and expanded materials capabilities. We also plan to expand into other digital manufacturing technologies such as computer numerical control, injection molding and sheet metal, all of which are generally suited to complex, low-volume part production. As our customers scale in volume, they often

graduate into these traditional methods; therefore, we believe adding these capabilities will allow us to capture a larger portion of customer spend and grow with our customers' needs. We plan to leverage our strategic outsourced supply chain partners to support these manufacturing capabilities while we focus our internal manufacturing capabilities on additive manufacturing.

Our Competitive Strengths

- ***Diverse, global customer base.*** Our customers today include businesses of all sizes, ranging from small and medium enterprises to Fortune 500 organizations, and span many industries, including aerospace, robotics, consumer products, architecture, gaming, jewelry and medical devices. To date we have primarily served customers based in North America and Europe.
- ***High quality, flexible on-demand manufacturing with proprietary purpose-built software***. Our manufacturing platform adjusts to customers' needs to optimize for speed, cost and quality. Our platform is designed to be highly configurable to meet the needs of our customers and suited for industrial-grade, high quality, low-volume, complex one-part production at scale. We offer high quality, flexible on-demand manufacturing services to deliver finished end parts to our customers in days instead of the weeks or months that are generally required by traditional manufacturers.
- ***Platform scalability and quick adaptability to market shifts***. We do not depend on the success of any one hardware provider, manufacturing technology, or materials vendor. Our software is designed to be highly configurable and integrate easily with new hardware technologies and materials allowing us to adapt and shift in response to market changes. We expect to continue adding new hardware providers, manufacturing technologies and materials. We believe that we will benefit from innovation in hardware and materials across the additive manufacturing market, which will allow us to offer even more materials to our customers.
- ***Enabling platform adoption across customer types and industries***. Our customer base is diversified across sizes, industries and geographies. Unlike hardware providers, we have the opportunity to capture business from small to medium sized manufacturers that are unlikely to invest the capital required to deploy and support their own digital manufacturing capabilities.
- ***Experienced management team with strong investor support***. Our leadership team has decades of category and operational experience, including our engineering, sales and manufacturing teams. We have a proven history in successfully operating and scaling businesses with experience in both technology and manufacturing. Investors with deep domain expertise have supported our business, providing resources and knowledge in the development of our end-to-end digital manufacturing platform and underlying software.

Our Platform

Shapeways Digital Manufacturing Platform

We offer a broad set of digital manufacturing tools and services to help customers innovate faster, lower costs and scale more efficiently. Our end-to-end digital manufacturing platform is differentiated through three key areas, design, production, and scale and is powered by our proprietary, purpose-built software:

- ***Design***. We provide our customers with advanced design technology and services to help correct and optimize their files to enable successful manufacturability. Through our software and in-house experts, we assist with file optimization, file correction, material and technology consultation, and prototyping. We also review digital files so they are optimized for materials, strength, structure, and cost, working closely with our customers to ensure quality and end-user satisfaction. Finally, we offer custom rapid-prototyping services that can accelerate product development by allowing our customers to iterate designs both virtually and physically prior to production.

- ***Production***. Through our digital manufacturing platform, our customers have access to numerous innovative additive manufacturing hardware technologies and materials. We built our platform with process visibility and quality in mind, and we offer our customers the ability to track production via real-time dashboards. Our manufacturing technology is able to deliver thousands of unique parts per day and can track by machine, material, operator, and process. Our production capabilities include 12 hardware technologies and more than 120 materials and finishes. We offer advanced finishing, including painting, polish, chemical treatment, color and metal plating, as well as performance and fit testing, quality checks and assembly for finished end-parts. We also offer custombranded packing and fulfillment. Shapeways provides high quality, low-volume production with a 30-day average of approximately 98% on-time deliveries globally with a less than 1% customer complaint rate for the years ended December 31, 2023 and 2022. By shipping products directly to our customers' end customers, we can help reduce the potential for issues related to order fulfillment. The table below shows 12 common materials offered by Shapeways and the 12 types of technologies that are used to manufacture end parts using the material, in each case as of December 31, 2023.

Name	Material	Technology
Accura 60, Accura Xtreme, Accura Xtreme 200, Grey Primed SLA	Accura 60, Accura Xtreme, Accura Xtreme 200, LT9000	SLA
MJF Plastic PA12, PA12GB, Polypropylene	Nylon 12, Nylon 12 Glass Bead Filled, Polypropylene	MJF
PA11, TPU, Versatile Plastic, Nylon 6 Mineral Filled , Arnite® T AM1210, TPE	Nylon 11, Thermoplastic Polyurethane, Nylon 12, Nylon 6 Mineral Filled, PBT, TPC	SLS
Multi-Color Polyjet	Vero	Polyjet
Stainless Steel 316L, Stainless Steel 17-4PH, 4140 Steel, Copper	Stainless Steel 316L, Stainless Steel 17-4PH, 4140 Steel, Copper	BMD
High Definition Full Color, Fine Detail Plastic	Mimaki MH-100, Visijet M3 Crystal	Material Jetting
BHDA, Ultracur3D® RG 35, 5015 Elastomeric Shore A 70, 3843 Tough HDT80, 3172 Tough High Impact	R5 Gray, Ultracur3D® RG 35, 5015 Elastomeric Shore A 70, 3843 Tough HDT80, 3172 Tough High Impact	DLP
EPU 40, RPU 70, UMA 90	Elastomeric Polyurethane, Rigid Polyurethane, Urethane Methacrylate	DLS
Aluminum, MS1	Aluminum, Maraging Steel (MS1)	L-PBF
Steel, Stainless Steel 316L	420 Steel / Bronze (60:40),Stainless Steel 316L, Stainless Steel 17-4PH, Gypsum	Binder Jetting
Bronze, Brass, Copper, Gold Plated Brass, Gold, Platinum, Rhodium Plated Brass, Silver	Wax Casting	Casting
Titanium	Ti-6AI-4V (Titanium)	E-PBF

- ***Scale***. Our Application Programming Interface ("API") integrations allow us to easily scale and grow with our customers' businesses. With our API integrations, customers can seamlessly integrate custom websites or web applications into our platform, enabling them to efficiently scale and leverage our fulfillment capability. We also have integrations with leading third party e-commerce providers, allowing our customers who sell consumer-facing goods to connect their stores directly to our platform. Further, our customers have access to our service and support teams, who provide them with deep domain expertise in digital manufacturing technology, materials and production processes.

Shapeways' Proprietary, Purpose-Built Software

Our ability to deliver high quality, flexible on-demand manufacturing is powered by our proprietary, purpose-built software. That internal-use software, "InShape," enables us to fully digitize the end-to-end manufacturing workflow, including:

Ordering. Our software enables customized order intake allowing our customers to offer secure upload and immediate pricing through automated configurations of model, material, finish, and fulfillment requirements. Our software provides order management to simplify manufacturing status monitoring, sales tracking, and repeat ordering. Files that are uploaded can be saved to a digital inventory, allowing the customer to facilitate future orders.

Analysis. Currently approximately 85% of files that are uploaded to our platform must be revised for successful manufacturability. Our software provides automated printability analysis, including file correction and optimization, and can automatically correct common issues with 3D models. If the file is determined to be unprintable based on model geometry, past print successes, and material guidelines, our software enables automated workflows to communicate feedback and printability issues with the customer and offer them paths for resolution.

Planning. Our software enables production planning across a supply chain network, including both our internal manufacturing facilities and external supply chain outsource partners. Our software automates the assignment and allocation of orders through the supply chain using smart demand allocation, based on cost, manufacturing capacity, part specification, geography, and fulfillment speed.

Pre-Production. Our software includes manufacturing preparation technology, 2D and 3D tray planning, and machine integration. This allows for optimized asset utilization, materials usage, and machine capacity utilization.

Manufacturing. Our software includes technology that spans production, asset monitoring, material monitoring, traceability, post-production processes, and certification. This includes robust tools to monitor all steps of the manufacturing process and enable continuous iterations and improvements to adjust to emerging technologies and capabilities. Our platform connects directly with additive manufacturing hardware, providing an integrated platform for monitoring production, maintenance, and printer status across both internal manufacturing and outsource supply chain capabilities. We provide full historical logging capabilities, capturing key touch points from pre-print to production to reduce machine downtime and enable gross margin improvements.

Our software also supports post-production processes, inspection, and assembly. This enables us to incorporate custom workflows, including improved quality assurance processes and assembly instructions. Our quality assurance feedback process creates a feedback loop between customers and manufacturers to achieve optimal product standards.

Our software enables global distribution and delivery of finished products direct to the end customer. We ship efficiently via a distribution center network and shipping service integrations. Our customer service team has deep domain expertise in additive manufacturing technology, materials, and production processing and offers end-to-end support to both our customers and their end customers.

Strategic Alternatives Update

As previously disclosed, we have been working with advisors in considering strategic alternatives, including, without limitation, a sale of a material portion of our assets, merger, business combination, liquidation of certain assets or other strategic transaction to maximize shareholder value. Based on market checks conducted by our advisors, as well as preliminary discussions with and feedback from potential purchasers, and in light of continued macroeconomic and industry pressures, we are actively taking steps to sell a material portion of our assets. In the course of these preliminary discussions, potential purchasers have indicated an interest in acquiring either our manufacturing business or software business, but not both.

We are continuing to evaluate strategic alternatives with regard to our core manufacturing and software businesses, including ongoing discussions with potential acquirers. We have not signed a definitive agreement with respect to either our software or manufacturing assets, and there can be no assurance that any of these processes will result in any transaction. Please see Part I, Item 1A: “Risk Factors—Risks Related to Our Business—We may not be successful in identifying and implementing one or more strategic alternatives for our business, and any strategic alternative that we may consummate could have material adverse consequences for us” and Note 3 of our consolidated financial statements included in Part II, Item 8: Financial Statements and Supplementary Data, of this Annual Report on Form 10-K.

Customers

We have delivered over 24 million parts to over one million customers in over 180 countries from inception through 2023. A key component of our growth has been our relationships with our customers, which has led to a high level of repeat revenue. In 2023, one customer accounted for approximately 17% of our revenue. Our customers range from small and medium-sized enterprises to Fortune 500 companies and are diversified across a range of industries. Shapeways supports customers’ manufacturing needs from design, prototyping, optimization, and finished part production.

Research and Development

Our research and development efforts are focused primarily on software development and the evaluation of new manufacturing technologies and materials to add to the Shapeways digital manufacturing platform, both internally and through our strategic outsourced supply chain partners. The digital manufacturing landscape is evolving quickly, with new technologies and materials being brought to market at an increasingly rapid pace. Our research and development, operations and supply chain teams have deep relationships with leading hardware and materials providers, allowing us to stay current on new technologies coming to market. Our research and development team regularly evaluates opportunities in new technologies and materials across a range of factors including customer demand, technology maturity, and production workflow. Additionally, our research and development team work closely with hardware original equipment manufacturers ("OEMs") and materials providers to ensure production quality and efficiency for our customers.

Sales and Marketing

Historically, Shapeways has been a self-service digital manufacturing platform growing through our customers and through organic customer acquisition. We are focused on direct sales and marketing efforts to both expand our customer base and retain our existing customer base. We have strong brand recognition due to our long-standing relationships with hardware OEMs and materials providers, who have also served as channels for customer acquisition. Our marketing strategy has historically focused on inbound marketing, and we plan to expand our outbound efforts, primarily focused on larger potential customers and expanding our reach in key verticals.

Our marketing strategies are focused on supporting sales growth by driving awareness of digital manufacturing and of our platform. We develop comprehensive sales and marketing content, tools, and campaigns, often in parallel with our partner network. Our internal marketing team develops content specifically aimed at both corporate executives and engineers in multiple formats such as case studies, newsletters, and webinars in order to facilitate sales and customer engagement. We regularly release communications through trade press and attend industry events and conferences to augment our vertical market strategy and build strategic relationships.

Manufacturing and Suppliers

Our manufacturing capabilities include ISO 9001: 2015, IATF 16949, and ITAR compliant facilities in Livonia and Charlotte, Michigan and in Eindhoven, the Netherlands, as well as a network of outsourced supply chain partners, all of which are managed through our proprietary software platform. Our strategic outsourced supply chain partners focus on overflow capacity to help us meet peak demand, as well as support us in efficiently launching new materials and technologies on our platform. Our internal manufacturing and supply chain teams collaborate closely with our strategic outsourced supply chain partners to ensure production quality.

We source and purchase manufacturing equipment from the leading hardware providers in the additive manufacturing ecosystem, such as 3D Systems, Carbon, EnvisionTec, EOS, ExOne, Formlabs, HP, Origin, Prodways and Desktop Metal. We source materials from these hardware providers as well as from leading chemicals companies such as BASF, DSM/Covestro, and Henkel. As the hardware and materials landscape continues to evolve, we expect to partner with additional hardware and materials providers, either by bringing their capabilities in house or by outsourcing to our strategic outsourced supply chain partners.

Our Competition

The industry in which we operate is fragmented and competitive. We compete for customers with a range of digital manufacturing platforms, including Materialise NV, Proto Labs, Inc., service bureaus, digital manufacturing brokers, and small local manufacturers. We believe we are differentiated from our competitors as we provide solutions that combine proprietary software and digital manufacturing capabilities.

In particular, we believe we compare favorably to other industry participants on the basis of the following competitive factors:

- Wide range of plastic materials offerings;
- Growing portfolio of metals offerings with ability to supply new materials as they become available;
- Part quality and consistency across over 24 million parts;

- Serving a broad range of customers and industries;
- End-to-end digital manufacturing solution from design and repair to production and distribution;
- Proprietary software platform to streamline customer operations;
- Strategic ecosystem of partner integrations; and
- Opportunity to expand to traditional manufacturing capabilities and capture more customers' share of wallet.

Intellectual Property

Our ability to drive innovation in the digital manufacturing market depends in part upon our ability to protect our core technology and software know-how. We attempt to protect our intellectual property rights through a combination of patent, trademark, domain names, copyright and trade secret laws, as well as through contractual provisions and restrictions on access to our proprietary technology which includes both nondisclosure and invention assignment agreements with our consultants and employees and non-disclosure agreements with our vendors and business partners. While unpatented research, development, know-how and engineering skills are important to our business, we pursue patent protection when we believe it is possible and consistent with our overall strategy for safeguarding intellectual property. Our existing patents are expected to expire between 2031 through 2038.

As of December 31, 2023, we owned 26 issued patents, including 10 United States patents and 16 foreign patents. Shapeways' patents and patent applications are directed to proprietary technology used in mass customization design tools, part costing, evaluating manufacturability, manufacturing planning, and the manufacturing process.

We have registered "Shapeways" as a trademark in Australia, Canada, China, the European Union, India, Israel, Japan, New Zealand, Singapore, South Korea, Taiwan, the United Kingdom, and the United States.

We have registered "OTTO" as a trademark in the United Kingdom, the United States, Singapore and Israel. "OTTO" trademark registrations are pending in Australia, Canada, India, New Zealand, and Taiwan.

Seasonality

Our revenues and operating results may fluctuate from quarter-to-quarter and year-to-year due to our sales cycle and seasonal reductions in business activity among our customers, particularly during the summer months in Europe.

Mission, Values and Human Capital

Our mission is to reshape manufacturing by offering advanced manufacturing solutions and a full suite of software tools and services to enable manufacturing digitization. At Shapeways, we hold ourselves accountable for upholding our corporate responsibility and sustainability practices. Our values govern our internal and external relationships. They set the foundation for what we stand for and the behaviors we promote. And in an ever-changing world, our values remain the moral compass guiding our decision making.

- ONE TEAM: Together We Go Far
- INNOVATE: Fail Fast, Learn Faster
- THINK CRITICALLY: Be Inquisitive
- DRIVE RESULTS: Move the Needle
- BE PASSIONATE: Believe in the Mission

Workforce Demographics

As of December 31, 2023, we had 220 total employees, of which 203 were full time employees and 17 were part time employees. We also regularly use independent contractors and other temporary employees to supplement our regular staff. We believe that our future success will depend partly on our continued ability to attract, hire and retain qualified, diverse and inclusive personnel.

We are an equal opportunity employer, and we believe that having a diverse workforce drives innovation and resilience. Gender and ethnic diversity, inclusion, and performance go hand in hand. Our workforce is comprised of engineers, technicians, salespeople, and business professionals, of which approximately 35% were racially diverse as of December 31, 2023.

The success of our business is fundamentally connected to our employees and their well-being. We are committed to the health, safety, and wellness of our employees around the globe. We provide our employees with a wide range of benefits, including benefits directed to their health, safety, and long-term financial security.

Total Rewards

A competitive total rewards program is integral to our success, which depends considerably on our ability to attract and retain highly engaged employees in a dynamic and changing business environment.

We review base compensation for non-senior level management employees semiannually, and we review equity, benefits, and perquisites annually. To do so, we analyze many factors, including individual and corporate performance, managers' feedback, and market data from third-party compensation surveys.

Diversity, Equity, and Inclusion ("DEI")

We believe it is important to foster a culture of belonging and acceptance, and to create a workplace environment free of bias. To do this we are dedicated to driving DEI efforts from committees composed of employees and management of all levels, which are focused on creating business case initiatives championing our diversity strategy. We also hold annual employee, board, and contractor trainings on DEI matters.

Engagement

Having a highly engaged workforce is necessary for retaining talent and ensuring the continued success of our organization. To do so, we continually gather employee feedback both internally through employee lifecycle surveys (onboarding, satisfaction, pulse, and exit) and externally (Glassdoor). We analyze the data throughout the year to identify our strengths and weaknesses, patterns, and issues. Our goal is to focus on continuous improvement, whether by growing our areas of strength or improving where we are weakest.

Learning and Development

We invest in our employees through on-the-job training. We provide all employees with a membership to an online learning platform on their first day, where they have access to thousands of business, creative, and technology courses free of charge.

Semi-annually we request employees provide feedback on their career goals and aspirations. These surveys focus on employees' current skills and knowledge, and identify skills gaps and areas of interest for further development. Our human resources team analyzes the responses and collects managers' input to create individual development plans for every employee.

Product Responsibility

We strive to foster a community and marketplace where our customers can convert their ideas into reality. However, that range of expression has its limits. For example, there have been news reports that 3D printers were used to print guns or other weapons. While we implement a weapons and content policy, we have little, if any, control over what objects our customers print using our offerings, and it may be difficult, if not impossible, for us to monitor and prevent customers from printing weapons with our services. While we are not aware of our platform being used to print guns or other weapons, there can be no assurance that we will not be held liable if someone were injured or killed by a weapon or other dangerous object containing a component part or parts manufactured for a customer using one of our offerings.

Employees throughout the sales and production process are trained to identify and reject problematic models. Our manufacturing partners are also required to comply with this policy and inform Shapeways of any non-complying products.

Workplace Safety

We are committed to creating a safe, secure, and healthy work environment for our employees. Our focus is on reducing significant safety risks and driving a strong safety culture through communication, awareness, and visible leadership. To assist in achieving this commitment, we provide safety trainings and necessary personal protective equipment ("PPE") at all facilities. We monitor injury and illness health and safety metrics across our organization to continually evaluate our safety programs to meet the needs of our teams.

Environmental

We strive to maximize recycling in our facilities. We recycle metal, plastic, and paper. The minimal hazardous waste streams are handled by reputable third party providers. Beyond this, we have introduced several materials offerings that are plant-based and have high recycling rates within our manufacturing process. One of the benefits of 3D printing is that additive manufacturing uses only the material needed to produce the final part, and as a result there is substantially less production waste than with traditional manufacturing.

Facilities

We lease a 17,250 square foot manufacturing facility in Livonia, Michigan which expires in March 2026 and a 100,000 square foot manufacturing facility in Charlotte, Michigan which expires in April 2026. We lease a 18,837 square foot facility in Eindhoven, Netherlands, and the lease of this facility expires in September 2024. We believe that our facilities are adequate for our current needs and, should we need additional space, that we will be able to obtain additional space on commercially reasonable terms.

Government Regulations

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

Prior to utilizing Shapeways' services, all Shapeways customers must agree to Shapeways Terms and Conditions wherein, among other things, customers warrant that any files they upload are their original creation and not copied from any third party or entity. The Shapeways Terms and Conditions also contain additional legal safeguards designed to protect Shapeways from intellectual property infringement by its customers, such as their acknowledgement of their compliance with all applicable laws, rules and regulations and their indemnification of Shapeways for any claims resulting from their infringement of any third party intellectual property.

In addition to the Shapeways Terms and Conditions, we implement other safeguards and policies to eliminate or reduce exposure to third party intellectual property infringement. Specifically, we utilize a keyword filter that screens all product listings for specific terms prior to the listings' publication on the Shapeways marketplace. The keyword filter screens terms (i) related to products where Shapeways has observed substantial prior unauthorized intellectual property use, and (ii) added upon request by certain intellectual property rights holders who have sent Shapeways notices under the Digital Millennium Copyright Act ("DMCA"). The keyword filter is periodically updated. Once a listing has been flagged by Shapeways' keyword filter, the listing enters into a queue for manual review by Shapeways' content review team and/or the legal department. The content review team and/or the legal department reviews the listing for unauthorized use of intellectual property.

The primary intellectual property-related statute that applies to our business is the DMCA, which, among other things, provides a copyright safe harbor for online service providers and a formal procedure for submitting copyright takedown notices. The takedown procedure consists of six requirements which establish the proper standing of the individual or organization providing notice, and specify the infringing and infringed material. Once a proper DMCA takedown notice is received, we promptly remove the content and inform the customer of the takedown notice that we received. The customer then has an opportunity to file a counter notice to reinstate the content. Although there is no DMCA equivalent for trademarks, we apply a similar takedown procedure for those instances.

Environmental Matters

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

The export of our products internationally from our production facilities subjects us to environmental laws and regulations concerning the import and export of chemicals and hazardous substances such as the Toxic Substances Control Act and Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals. These laws and regulations require the evaluation and registration of certain chemicals that we ship along with, or that form a part of, our systems and other products.

Export and Trade Matters

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

Available Information

Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to reports filed pursuant to Sections 13(a) and 15(d) of the Securities Exchange Act of 1934, as amended, are available free of charge on the Investor Relations section of our website at investors.shapeways.com as soon as reasonably practicable after we file such material with the Securities and Exchange Commission, or the SEC. The information on, or that can be accessed through, our website is not part of this Report. We have included our website address as an inactive textual reference only. The SEC also maintains a website that contains reports and other information regarding issuers, such as Shapeways, that file materials electronically with the SEC. The SEC’s website is located at www.sec.gov.

Item 1A. Risk Factors

An investment in our securities involves a high degree of risk. You should consider carefully all of the risks described below, together with the other information contained in this Report, including our financial statements and related notes, before making a decision to invest in our securities. If any of the following events occur, our business, financial condition and operating results may be materially adversely affected. In that event, the trading price of our securities could decline, and you could lose all or part of your investment.

Risk Factor Summary

- We have a history of losses and may not achieve or maintain profitability in the future.
- There is substantial doubt as to our ability to continue as a going concern. We will require substantial additional capital to finance our operations, and this capital might not be available on acceptable terms, if at all.

- We may not be successful in identifying and implementing one or more strategic alternatives for our business, and any strategic alternative that we may consummate could have material adverse consequences for us.
- If we are unable to achieve our cost-reduction goals, we may need to perform additional cost-reduction measures such as a further reduction in force.
- We face significant competition and expect to face increasing competition in many aspects of our business, which could cause our operating results to suffer.
- The digital manufacturing industry is a relatively new and emerging market and it is uncertain whether it will gain widespread acceptance.
- Our attempts to continue to expand our business into existing and new markets and geographies may not be successful.
- We derive a significant portion of our revenue from business conducted outside the United States and are subject to the risks of doing business outside the United States.
- An active, liquid trading market for our common stock may not be sustained.
- Our issuance of additional shares of common stock or convertible securities may dilute your ownership of us and could adversely affect our stock price.
- Future sales, or the perception of future sales, of our common stock by us or our existing stockholders in the public market could cause the market price for our common stock to decline.
- Our operating results and financial condition may fluctuate on a quarterly and annual basis.
- Our stock price has been and may continue to be volatile or may decline regardless of our operating performance. You may lose some or all of your investment.
- If securities or industry analysts publish inaccurate or unfavorable research or reports about our business, our stock price and trading volume could decline.
- Failure to attract, integrate and retain additional personnel in the future could harm our business.
- Interruptions, delays in service or inability to increase capacity, including internationally, at third-party data center facilities could adversely affect our business and reputation.
- Interruptions to or other problems with our website user interface, information technology systems, manufacturing processes, or other operations could damage our reputation and brand and substantially harm our business and results of operations.
- As part of our growth strategy, we may continue to acquire or make investments in other businesses, patents, technologies, products, or services. We may not realize the anticipated benefits of such investments and integration of these investments may disrupt our business and divert management attention.
- The loss of one or more key members of our management team or personnel could harm our business.
- Our actual results may be significantly different from our projections, estimates, targets or forecasts.

Risks Related to Our Business

We have a history of losses and may not achieve or maintain profitability in the future.

We experienced a net loss of $43.9 million and $20.2 million for the years ended December 31, 2023 and 2022, respectively. As of December 31, 2023, we had an accumulated deficit of $176.9 million. We believe we may continue to incur operating losses and negative cash flow in the near-term.

We may incur significant losses in the future for a number of reasons, including due to the other risks described in this Part I, Item 1A: “Risk Factors,” 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 never achieve or maintain 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. If our future growth and operating performance fail to meet investor or analyst expectations, or if we continue to 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.

There is substantial doubt as to our ability to continue as a going concern. We will require substantial additional capital to finance our operations, and this capital might not be available on acceptable terms, if at all. If we are unable to raise substantial additional capital, our financial condition could be adversely affected and we may be forced to curtail our operations or pursue strategic alternatives.

The report of our independent registered public accounting firm on our consolidated financial statements for the fiscal year ended December 31, 2023 included within this Report includes an explanatory paragraph indicating that there is substantial doubt as to our ability to continue as a going concern within one year after the date that the consolidated financial statements are issued. As of December 31, 2023, we had $12.2 million in cash and cash equivalents and a decrease in net change in cash and cash equivalents during the year ended December 31, 2023 of $18.6 million. We have enacted cost savings measures to preserve capital, but to maintain an adequate amount of available liquidity and execute our current operating plan, we will need to raise substantial additional funds from external sources. We have not secured such funding at the time of this filing. We are exploring strategic alternatives for our business, any of which would be based upon various factors, including market conditions and our operating plans. See "—We may not be successful in identifying and implementing one or more strategic alternatives for our business, and any strategic alternative that we may consummate could have material adverse consequences for us."

We may in the future elect to finance operations by selling equity or debt securities or borrowing money. If we raise funds through future issuances of equity, including through our existing at-the-market facility (the "ATM Facility"), or convertible debt securities, our existing stockholders could suffer significant dilution, and any new equity securities or debt securities we issue could have rights, preferences and privileges superior to those of holders of our common stock. Any debt financing that we may secure in the future could involve restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and to pursue business opportunities, including potential acquisitions. There can be no assurance that any future capital-raising opportunities will be available to us on acceptable terms on a timely basis, if at all. Due to the uncertainty in our ability to raise capital, we believe that there is substantial doubt as to our ability to continue as a going concern. If we are unable to obtain substantial additional funding, we may need to curtail our operations and planned activities in order to reduce costs, which could include a further reduction in workforce, portfolio optimization, and further reductions in other operating expenses. Doing so will likely have an unfavorable effect on our ability to execute on our business plan and have an adverse effect on our business, results of operations and future prospects. See "—If we are unable to achieve our cost-reduction goals, we may need to perform additional cost-reduction measures such as a further reduction in force." Our ability to access any future capital is also dependent on the condition of the banking system and financial markets.

We may not be successful in identifying and implementing one or more strategic alternatives for our business, and any strategic alternative that we may consummate could have material adverse consequences for us.

Given our current financial condition, we are exploring strategic alternatives and potential options for our business (a "Strategic Transaction"), including, without limitation, a sale of a material portion of our assets, a merger, business combination, or other strategic transaction, and obtaining additional financing on a secured or unsecured basis. There can be no assurances that any particular Strategic Transaction, or series of Strategic Transactions, will be pursued, successfully consummated, lead to increased shareholder value, or achieve the anticipated results. We are continuing to evaluate strategic alternatives with regard to our manufacturing and software businesses, including, ongoing discussions with potential acquirors. We have not signed a definitive agreement with respect to either our software or manufacturing assets, and there can be no assurance that this process will result in any transaction.

In the event we successfully pursue a Strategic Transaction, the value that will be available to our various stakeholders, including our creditors and stockholders, is uncertain and our operations, our ability to develop and execute our business plan, our continuation as a going concern, and our ability to generate value for shareholders, if any, will be subject to the risks and uncertainties associated with any such transaction. Because of the risks and uncertainties associated with any Strategic Transaction, we cannot accurately predict or quantify the ultimate timing or impact of events that could occur. Any such Strategic Transaction may not be consistent with our stockholders' expectations or may not ultimately be favorable for our stockholders, either in the shorter or longer term. Any failure in our efforts to consummate one or more Strategic Transactions could force us to delay, limit or terminate our operations, make additional reductions in our workforce or other restructuring intended to improve operational efficiencies and operating costs, liquidate all or a portion of our assets or pursue other strategic alternatives.

If we are unable to achieve our cost-reduction goals, we may need to perform additional cost-reduction measures such as a further reduction in force.

In December 2023, we completed a reduction in force as part of our cost-reduction initiatives that were initiated in the third quarter of 2023 to reduce operating expenses. These initiatives included a previous reduction in force completed in October 2023, a reduction in new hires, and a reduction in non-critical capital and discretionary operating expenditures. We believe these actions were necessary to streamline our organization and preserve cash; however, these expense reduction measures may yield unintended consequences and costs, such as the loss of institutional knowledge and expertise, attrition beyond our intended reduction-in-force, a reduction in morale among our remaining employees and the risk that we may not achieve the anticipated benefits, all of which may have an adverse effect on our results of operations or financial condition.

In addition, although positions have been eliminated, the duties performed in these positions remain, and we may be unsuccessful in distributing the duties and obligations of departed employees among our remaining employees or to external service providers. We may also discover that the reductions in workforce and cost-cutting measures will make it difficult for us to pursue new opportunities and initiatives and require us to hire qualified replacement personnel, which may require us to incur additional and unanticipated costs and expenses. Our failure to successfully accomplish any of the above activities and goals may have a material adverse impact on our business, financial condition and results of operations. In addition, we may need to undertake additional workforce reductions or restructuring activities in the future.

If we are required to perform a further reduction in headcount, this could adversely impact employee retention and morale, including through a loss of continuity, a loss of accumulated knowledge and/or inefficiency during transitional periods. Laid-off employees could also make claims against us for additional compensation, causing us to incur additional expense. A reduction could also adversely impact our reputation as an employer and could make it difficult for us to hire new employees in the future.

We face significant competition and expect to face increasing competition in many aspects of our business, which could cause our operating results to suffer.

The digital manufacturing industry in which we operate is fragmented and competitive. We compete for customers with a wide variety of manufacturers, including those that use digital manufacturing and/or 3D printing equipment. Exclusivity arrangements in the digital manufacturing industry are uncommon; we have few exclusivity arrangements with our customers. Some of our existing and potential competitors are researching, designing, developing, and marketing other types of offerings that may render our existing or future services 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 digital manufacturing initiatives, which will further enhance the competition we face.

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, demand for our offerings may decline, and our operating results may suffer.

The digital manufacturing industry is a relatively new and emerging market and it is uncertain whether it will gain widespread acceptance.

The emergence of the digital manufacturing industry is a relatively recent development, and the industry is characterized by rapid technological change. 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 digital 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. If the digital manufacturing industry does not gain widespread acceptance, our business will be adversely affected.

Our attempts to continue to expand our business into existing and new markets and geographies may not be successful.

We seek to grow our business through, among other things, expanding our digital manufacturing capabilities into existing and new markets and expanding our offerings into new geographies. Our efforts to expand our offerings into existing and new markets, including industrial, medical, automotive, and aerospace markets, and new geographies may not succeed. These attempts to expand our business increase the complexity of our business, require significant levels of investment, and can strain our management, personnel, operations, and systems. There can be no assurance that these business expansion efforts will develop as anticipated or that we will succeed, and if we do not, we may be unable to recover our investment, which could adversely impact our business, financial condition, and results of operations.

We may be unable to consistently manufacture our customers' designs to the necessary specifications or in quantities necessary to meet demand at an acceptable cost or at an acceptable performance level and this could adversely affect our service availability, delivery, reliability, and cost.

As we introduce new materials and as our customers' designs become increasingly sophisticated, it will become more difficult to provide products in the necessary quantities to meet customer expectations. We cannot assure you that we or our third-party manufacturers will be able to continue to consistently achieve the product specifications and quality that our customers expect. Any future unforeseen manufacturing problems, such as equipment malfunctions, aging components, component obsolescence, business continuity issues, quality issues with components and materials sourced from third party suppliers, or failures to strictly follow procedures or meet specifications, may have a material adverse effect on our brand, business, financial condition, and operating results. Furthermore, we or our third-party manufacturers may not be able to increase manufacturing to meet anticipated demand or may experience downtime or fail to timely deliver manufactured products to customers. If we fail to meet contractual terms with our customers, including terms related to time of delivery and performance specifications, we may be required to replace defective products and may become liable for damages, even if manufacturing or delivery was outsourced.

Our commercial contracts generally contain product warranties and limitations on liability and we carry liability insurance. However, commercial terms and our insurance coverage may not be adequate or available to protect our company in all circumstances, and we might not be able to maintain adequate insurance coverage for our business in the future at an acceptable cost. Any liability claim against us that is not covered by adequate insurance could adversely affect our consolidated results of operations and financial condition.

Our success depends on our ability to deliver services that meet the needs of customers and to effectively respond to changes in our industry.

Our business may be affected by rapid technological change, changes in user and customer requirements and preferences, frequent new product and service introductions by our competitors, and the emergence of new technologies, any of which could render our existing and proposed offerings and proprietary technology obsolete. Accordingly, our ongoing research and development programs are intended to enable us to maintain technological leadership. Furthermore, in order to enable continuous deep integrations with our customers, we must continually update our platform so that it can interoperate with other software and systems used by our customers. We believe that to remain competitive we must continually enhance and improve the functionality and features of our services and technologies. However, there is a risk that we may not be able to:

- Develop or obtain leading technologies useful in our business;
- Develop new services and technologies that address the increasingly sophisticated and varied needs of prospective customers, particularly in the area of materials diversity;
- Respond to technological advances and emerging industry standards and practices on a cost-effective and timely basis;
- Successfully manage frequent introductions and transitions of technology and software; or
- Recruit or retain key technology employees.

If we are unable to meet changing technology and customer needs, or if we fail to successfully integrate new and upgraded software, our competitive position, revenue, results of operations, and financial condition could be adversely affected.

Failure to attract, integrate and retain additional personnel in the future could harm our business.

To support our business, we must effectively recruit, hire, integrate, develop, motivate, and retain additional new employees. High demand exists for senior management and other key personnel (including technical, engineering, product, finance, and sales personnel) in the digital 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 and 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 and development activities, as well as experienced sales and marketing personnel, we may be unable to develop and commercialize new offerings or new applications for existing offerings. Furthermore, possible shortages of key personnel, including engineers, in the regions surrounding our facilities could require us to pay more to hire and retain key personnel, thereby increasing our costs. In addition, our reductions in force in 2023, and any future reductions in force or other restructuring intended to improve operational efficiencies and operating costs, may adversely affect our ability to attract and retain employees.

All of our U.S. employees are at-will employees, meaning that they may terminate their employment relationship with us at any time, and their knowledge of our business and industry would be extremely difficult to replace. Where permissible by law, 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, in certain circumstances we may choose not to enforce these agreements 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. In addition, in January 2023, the Federal Trade Commission (the "FTC") proposed a rule that would prevent employers from entering into non-competition agreements with employees and require employers to rescind existing non-competition agreements. State legislatures have also shown a growing interest in proposals to ban or limit non-competition agreements. If we cannot demonstrate that our legally protectable interests will be harmed, or if the FTC rule or any applicable state law goes into effect, 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.

Changes in the mix of the offerings we provide may impact our gross margins and financial performance.

Our financial performance has been and may continue to be affected by the mix of offerings we sell during a given period, and we may experience significant quarterly fluctuations in revenues, gross margins, or operating income or loss due to the impact of the mix of offerings, channels, or geographic areas in which we sell our offerings. Our offerings are sold, and will continue to be sold, at different price points. Sales of certain of our offerings have, or are expected to have, higher gross margins than others. If our offerings mix shifts into lower gross margin offerings, and we are not able to sufficiently reduce the engineering, production, and other costs associated with those offerings or substantially increase the sales of our higher gross margin offerings, our profitability could be reduced. In addition, the introduction of new products or services, including as a result of acquisitions, has and may continue to heighten quarterly fluctuations in gross profit and gross margins due to manufacturing ramp-up and start-up costs.

We may experience significant delays in the roll out of our digital manufacturing solutions, and we may be unable to successfully commercialize manufacturing solutions on our planned timelines.

Some of our digital manufacturing solutions have not been widely released, including our software platform offering. There are often delays in the testing, manufacture, and commercial release of new solutions, and any delay in the process could materially damage our brand, business, growth prospects, financial condition, and operating results. Even if we successfully complete the testing of new solutions, they may not achieve widespread commercial success for a number of reasons, including:

- misalignment between the solutions and customer needs;
- lack of innovation of the solutions;
- failure of the solutions to perform in accordance with the customer’s industry standards;
- ineffective distribution and marketing;
- delay in obtaining any required regulatory approvals;
- unexpected production costs; or
- release of competitive products.

We may not timely and effectively scale and adapt our platform, processes, and infrastructure across materials, technologies, markets, and software, to expand our business.

A key element to our growth strategy is the ability to scale our existing platform quickly and efficiently across different materials, technologies, and other applications. This will require us to timely and effectively scale and adapt our existing platform, technology, processes, and infrastructure to expand our business. However, our manufacturing technology may not enable us to process the large numbers of unique designs and efficiently manufacture the related parts in a timely fashion to meet the needs of customers as our business continues to grow. We may not succeed in scaling our business, and any failure in our ability to timely and effectively scale our platform, technology, processes, and infrastructure could damage our reputation and brand, result in lost revenue, and otherwise substantially harm our business and results of operations.

We rely on our collaborations and commercial agreements with third-party additive manufacturing hardware and material providers for many of our manufacturing solutions.

Our ability to deliver manufacturing solutions to our customers and expand our manufacturing capabilities that include new hardware technologies and materials such as industrial metals, is dependent on obtaining digital manufacturing hardware and materials from third-party manufacturers. Delays in readiness, capabilities and availability of technologies, hardware and materials may limit our ability to provide manufacturing capabilities to our customers according to our plan. We have historically focused on manufacturing for customers needing products based in polymers, launching new technologies and materials will require new skills, time, and inherent risks. The success of our business may also depend, in part, on the performance and operations of third-party digital manufacturing hardware and material providers and their suppliers, over which we do not have control. We cannot assure you that our efforts in securing collaboration and commercial relationships will be successful or that we will achieve the anticipated benefits of our collaboration.

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

We believe many of our customers are facing increased pressure from global competitors to be first to market with their finished products, often resulting in a need for quick turnaround of custom parts. We believe our ability to quickly quote, manufacture, and ship high-quality custom parts has been an important factor in our results to date. There are no guarantees we will be able to meet customers' increasing expectations regarding quick turnaround time and quality, especially as we increase the scope of our operations. If we fail to meet our customers' expectations in any given period, our business and results of operations will likely be adversely affected.

Our customers are often price sensitive and if our pricing algorithm produces pricing that fails to meet our customers' price expectations or insufficiently accounts for our costs to deliver our offerings, our business and results of operations may be adversely affected.

Demand for our services 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. We use algorithms to determine how to price customer orders. We may encounter technical obstacles and it is possible that we may discover additional problems that prevent our proprietary algorithms from operating properly.

If we fail to meet our customers' price expectations in any given period, demand for our offerings could decline. If our pricing algorithms do not function reliably, we may incorrectly price offerings for our customers, which could result in loss and cancellation of orders and customer dissatisfaction or cause projects to lose money.

Any of these events could result in a material and adverse effect on our business, results of operations, and financial condition.

Sales efforts to large customers involve risks that may not be present or that are present to a lesser extent with respect to sales to smaller organizations.

We have invested, and plan to continue to invest, in increasing our customer focus towards middle market and enterprise opportunities. Sales to large customers involve risks that may not be present or that are present to a lesser extent with sales to smaller organizations, such as longer sales cycles, more complex customer requirements, substantial upfront sales costs, less predictability in completing some of our sales, and extended payment terms. A number of factors influence the length and variability of our sales cycle, including the need to educate potential customers about the uses and benefits of our platform, the lengthier amount of time for large customers to evaluate and test our platform prior to making a purchase decision and placing an order, the discretionary nature of purchasing and budget cycles, and the competitive nature of evaluation and purchasing approval processes. As a result, the length of our sales cycle, from identification of the opportunity to deal closure, may vary significantly from customer to customer, with sales to large enterprises typically taking longer to complete. Moreover, larger organizations may demand more customization, which would increase our upfront investment in the sales effort with no guarantee that these customers will deploy our products widely enough across their organization to justify our substantial upfront investment. A portion of these customers may purchase our services on payment terms, requiring us to assume a credit risk for non-payment in the ordinary course of business. If we fail to effectively manage these risks associated with sales to large customers, our business, financial condition, and results of operations may be affected.

We derive a significant portion of our revenue from business conducted outside the U.S. and are subject to the risk of doing business outside the United States.

We manufacture offerings for customers in more than 180 countries around the world, and we derive a substantial percentage of our sales from these international markets. We also operate manufacturing facilities in the United States and the Netherlands, have supply chain partners that extend internationally, and deliver to customers in over 180 countries. During the year ended December 31, 2023, we derived approximately 27% of our revenue from outside the United States. Accordingly, we face significant operational risks from doing business internationally.

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 offerings or work with suppliers or other third parties;
- potentially longer sales and payment cycles and potentially greater difficulties in collecting accounts receivable;
- foreign currency exchange risk;
- increasing inflation and interest rates;
- costs and difficulties of customizing offerings 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 market disruptions in the United Kingdom and Europe;
- compliance with U.S. laws affecting activities of U.S. companies abroad, including the U.S. Foreign Corrupt Practices Act;
- tariffs, trade barriers, sanctions, and other regulatory or contractual limitations on our ability to sell or develop our offerings 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;
- supply chain disruptions, which may be exacerbated by the conflict between Russia and Ukraine, the Israel-Hamas conflict, and other geo-political tensions;
- potential adverse tax consequences from global operations including value added tax concerns;
- seasonal reductions in business activity in certain parts of the world, particularly during the summer months in Europe;
- rapid changes in government, economic, and political policies and conditions; and

- political or civil unrest or instability, regional or larger scale conflicts or geo-political actions, including war or other military conflicts (such as the conflicts between Russia and Ukraine and between Israel and Hamas), terrorism or epidemics, and other similar outbreaks or events.

In addition, digital 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 digital manufacturing technologies and related materials and software. These changes, if implemented, may result in our being required to obtain additional approvals to deliver our services in the global market.

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

As part of our business strategy, we may continue to acquire or make investments in other businesses, patents, technologies, products, or services. We may not realize the anticipated benefits of such investments and integration of these investments may disrupt our business and divert management attention.

Our business strategy includes growing 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. To date, we have consummated a limited number of acquisitions, and our relative lack of experience may adversely affect the success of future acquisitions. 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.

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, 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;
- acquisition of a significant amount of goodwill, which could result in future impairment charges that would adversely affect our financial position;
- 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 stockholders, 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 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 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 are also 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 acquisitions will depend, in part, upon our ability to integrate the products and services, technology, administrative functions, and personnel of these businesses into our offering lines in an efficient and effective manner, and to retain the customers of acquired companies. We cannot assure you that we will be able to do so, that any acquired businesses will perform at the 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 gross margins may also be lower, or diluted, following the acquisition of companies whose gross margins are lower than those of our existing business.

Global economic conditions may harm our ability to do business, increase our costs and negatively affect our stock price.

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. The recent volatility in the global economy and credit markets, continuing geopolitical uncertainties, persistent inflation, persistently high interest rates, and other macroeconomic factors all affect the spending behavior of potential customers.

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 otherwise assist us in operating our business, our business could be harmed.

For example, the conflicts between Russia and Ukraine and between Israel and Hamas, the possibility of a trade war or other conflict between the United States and China, potential U.S. government shutdown, and other supply and labor disruptions may directly or indirectly impact our operations by increasing the cost of raw materials, finished products, or other materials used in our offerings and impeding our ability to sell our offerings in Europe, the Middle East and China. Other changes in U.S. social, political, regulatory, and economic conditions or in laws and policies governing foreign trade, manufacturing, environmental matters, development, and investment could also adversely affect our business. We could experience interruptions in production due to the processing of customs formalities or reduced customer spending in the wake of weaker economic performance. If global economic conditions remain volatile for a prolonged period, our results of operations could be adversely affected.

Errors or defects in our software or products we manufacture could cause us to incur additional costs, lose revenue and business opportunities, damage our reputation and expose us to potential liability.

Sophisticated software and complex manufactured products may contain errors, defects, or other performance problems at any point in the life of the product. If errors or defects are discovered in our current or future software or in the products we manufacture for customers, we may not be able to correct them in a timely manner, or provide an adequate response to our customers. We may therefore need to expend significant financial, technical, and management resources, or divert some of our development resources, in order to resolve or work around those defects. We may also experience an increase in our service and warranty costs. Particularly in the medical sector, errors or defects in our software or products could lead to claims by patients against us and our customers and expose us to lawsuits that may damage our and our customers' reputations. Claims may be made by individuals or by classes of users. Our product liability and related insurance policies may not apply or sufficiently cover any product liability lawsuit that arises from defective software or products. Customers such as our collaboration partners may also seek indemnification for third party claims allegedly arising from breaches of warranties under our collaboration agreements.

Errors, defects or other performance problems in our software or products we manufacture may also result in the loss of, or delay in, the market acceptance of our platform and digital manufacturing services. Such difficulties could also cause us to lose customers and, particularly in the case of our largest customers, the potentially substantial associated revenue which would have been generated by our sales to companies participating in our customer's supply chain. Technical problems, or the loss of a customer with a particularly important global reputation, could also damage our own business reputation and cause us to lose new business opportunities.

Workplace accidents or environmental damage could result in substantial remedial obligations and damage to our reputation.

Accidents or other incidents that occur at our manufacturing service centers and other facilities or involve our personnel or operations could result in claims for damages against us. In addition, 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. The amount of any costs, including fines or damages payments that we might incur under such circumstances could substantially exceed any insurance we have to cover such losses. Any of these events, alone or in combination, could have a material adverse effect on our business, financial condition, and results of operations and could adversely affect our reputation.

We have significant customer concentration, with our largest customer accounting for a substantial portion of our revenue.

Our largest customer accounted for approximately 17% of our revenue for the year ended December 31, 2023. Our future operating results will be affected by both the success of our largest customer and our success in diversifying our products and customer base. If demand for our largest customer's products increases, our results are favorably impacted, while if demand for their products decreases, they may reduce their purchases of, or stop purchasing, our services and our operating results would suffer. While we currently have exclusivity arrangements for a limited time period with our largest customer with respect to such customer's use of third parties for 3D printing, such exclusivity does not preclude the customer insourcing 3D printing capabilities or leveraging other technologies to manufacture their products, which may cause us to lose such customer's business. The loss of our largest customer and failure to add new customers to replace lost revenue would have a material adverse effect on our business, financial condition and results of operations. In addition, should this large customer default in their obligation to pay, our results of operations and cash flows could be adversely affected.

If our manufacturing facilities are disrupted, we may be unable to fulfill customer orders, which could have an adverse effect on our results of operations.

We have manufacturing service centers in Eindhoven, the Netherlands, Livonia, Michigan and Charlotte, Michigan. If the operations of these facilities are materially disrupted, whether by fires or other industrial accidents, extreme weather, natural disasters, labor stoppages, acts of terror, war or other military conflict (such as the conflicts between Russia and Ukraine and between Israel and Hamas) a potential U.S. government shutdown, or otherwise, we may be unable to fulfill customer orders for the period of the disruption or need to shift orders to another facility, we would not be able to recognize revenue on unfulfilled orders, we could suffer damage to our reputation, and we might need to modify our standard sales terms to secure the commitment of new customers during the period of the disruption and perhaps longer. Depending on the cause of the disruption, we could incur significant costs to remedy the disruption and resume operations. These delays could be lengthy and costly. If any of our third-party contract manufacturers', suppliers' or customers' facilities are negatively impacted by such a disaster, production, shipment of products could also be delayed. Even if we are able to respond quickly to a disruption at our or any third-party facilities, the continued effects of the disaster could create uncertainty in our business operations.

We could experience unforeseen difficulties in building and operating key portions of our manufacturing infrastructure.

We have designed and built our own manufacturing operations and other key portions of our technical infrastructure through which we manufacture products for customers, and we plan to continue to expand the size of our infrastructure through expanding our digital manufacturing facilities. The infrastructure expansion we may undertake may be complex, and unanticipated delays in the completion of these projects or availability of materials may lead to increased project costs, operational inefficiencies, or interruptions in the delivery or degradation of the quality of our products.

Our business depends in part on our ability to process a large volume of new part designs from a diverse group of customers and successfully identifying significant opportunities for our business based on those submissions.

We believe the volume of new part designs we process and the size and diversity of our customer base give us valuable insight into the needs of our prospective customers. We utilize this industry knowledge to determine where we should focus our development resources. If the number of new part designs we process or the size and diversity of our customer base decrease, our ability to successfully identify significant opportunities for our business and meet the needs of current and prospective customers could be negatively impacted. In addition, even if we do continue to process a large number of new part designs and work with a significant and diverse customer base, there are no guarantees that any industry knowledge we extract from those interactions will be successfully utilized to help us identify significant business opportunities or better understand the needs of current and prospective customers.

Interruptions, delays in service or inability to increase capacity, including internationally, at third-party data center facilities could adversely affect our business and reputation.

Our business, brand, reputation, and ability to attract and retain customers depend upon the satisfactory performance, reliability, and availability of our platform, which in turn, depends upon the availability of the internet and our third-party service providers. To meet the growing market demands for our platform, we migrated our key applications and data to the cloud-based infrastructure services provided by Amazon Web Services ("AWS") and have fully shut down both of our data centers. Consequently, our primary servers are hosted in AWS-operated data centers.

As we continue to validate the migration of third-party data centers to cloud-based infrastructure services, we may discover new information such as loss or corruption of data, service interruptions, increased cyber threats and activity, and unanticipated expenses, including increased costs of implementation which may affect our business. As we increase our reliance on cloud-based infrastructure services, our products and services will become increasingly reliant on continued access to, and the continued stability, reliability, and flexibility of, AWS' cloud-based infrastructure. We may in the future be unable to secure additional cloud hosting capacity on commercially reasonable terms or at all. If AWS increases its pricing terms, terminates or seeks to terminate our contractual relationship or changes or interprets their terms of service or policies in a manner that is unfavorable, we may be required to transfer to another provider and may incur significant costs and experience service interruptions.

We do not control the operation of AWS or any third-party data center hosting facilities, and they may be subject to damage or interruption from earthquakes, floods, fires, power loss, telecommunications failures, terrorist attacks, war or other military conflict, and similar events. They may also be subject to interruptions due to system failures, computer viruses, software errors, or subject to breaches of computer hardware and software security, break-ins, sabotage, intentional acts of vandalism, and similar misconduct. And while we rely on service level agreements with our hosting providers, if they do not properly maintain their infrastructure or if they incur unplanned outages, our customers may experience performance issues or unexpected interruptions and we may not meet our service level agreement terms with our customers. We have experienced, and expect that in the future we may experience interruptions, delays, and outages in service and availability from time to time due to a variety of factors, including infrastructure changes, human or software errors, website hosting disruptions, and capacity constraints. These and other similar events beyond our control could negatively affect the use, functionality, or availability of our services.

Any damage to, or failure of, our systems, or those of our third-party providers, could interrupt or hinder the use or functionality of our services. Impairment of or interruptions in our services may reduce revenue, subject us to claims and litigation, cause customers to terminate their contracts, and adversely affect our ability to attract new customers. Our business will also be harmed if customers and potential customers believe our services are unreliable.

Interruptions to or other problems with our website user interface, information technology systems, manufacturing processes, or other operations could damage our reputation and brand and substantially harm our business and results of operations.

The satisfactory performance, reliability, consistency, security, and availability of our websites and interactive user interface, information technology systems, manufacturing processes, and other operations are critical to our reputation and brand, and our ability to effectively service customers. Any interruptions or other problems that cause any of our websites, interactive user interface, or information technology systems to malfunction or be unavailable, or negatively impact our manufacturing processes or other operations, may damage our reputation and brand, result in lost revenue, cause us to incur significant costs seeking to remedy the problem, and otherwise substantially harm our business and results of operations.

A number of factors or events could cause such interruptions or problems, including among others: human and software errors, design faults, challenges associated with upgrades, changes or new facets of our business, power loss, telecommunication failures, fire, flood, extreme weather, political instability, acts of terrorism, war or other military conflict, break-ins and security breaches, contract disputes, labor strikes and other workforce related issues, capacity constraints due to an unusually large number of customers accessing our websites or ordering parts at the same time, and other similar events. In addition, due to geopolitical conflicts, there is an increased likelihood that escalation of tensions could result in cyberattacks that could either directly or indirectly impact our operations. Bad actors may also leverage artificial intelligence to launch more frequent, targeted and coordinated attacks. These risks are augmented by the fact that our customers come to us largely for our quick-turn manufacturing capabilities and that accessibility and turnaround speed are often of critical importance to these customers. We are dependent upon our facilities through which we satisfy all of our production demands and in which we house all of the computer hardware necessary to operate our websites and systems as well as managerial, customer service, sales, marketing, and other similar functions, and we have not identified alternatives to these facilities or established fully redundant systems in multiple locations. In addition, we are dependent in part on third parties for the implementation and maintenance of certain aspects of our communications and production systems, and therefore preventing, identifying, and rectifying problems with these aspects of our systems is to a large extent outside of our control.

Moreover, the business interruption insurance that we carry may not be sufficient to compensate us for the potentially significant losses, including the potential harm to the future growth of our business that may result from interruptions in our service as a result of system failures.

If we are unable to retain existing customers, sell additional services to our existing customers, or attract new customers, our revenue growth will be adversely affected.

To increase our revenue, we must retain existing customers, convince them to expand their use of our solutions across their organizations and for a variety of use cases, and expand their purchasing on terms favorable to us. We may not meet our customers’ expectations. We have recently experienced a continuous decline in our customer count and it is uncertain whether such decline is temporary. If we are not able to renew our agreements with existing customers or attract new business from existing customers on favorable terms, this could have an adverse effect on our business, revenue, gross margins, and other operating results. The rate at which our customers purchase new or enhanced solutions from us, as well as the expansion of use of our solutions across organizations, depend on a number of factors, including general economic conditions, customer specific conditions, competitive pricing, integration with existing technologies, and satisfaction and market acceptance of our platform generally. If our efforts to sell additional solutions to our customers are not successful, our business and growth prospects may suffer. Additionally, our future revenue depends in part on our ability to turn our pipeline customers into actual customers. Pipeline customers may fail to accept our offerings, choose our competitors’ offerings, or otherwise not turn into customers. If we are not able to turn pipeline or other prospective customers into customers, or customers that provide significant revenues, our business and growth prospects could be adversely affected.

The loss of one or more key members of our management team or personnel could harm our business.

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 executive officers. 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 could delay or prevent the successful implementation of our strategy or our commercialization of new applications for our systems or other offerings, or could otherwise adversely affect our ability to manage our company effectively and carry out our business plan. Two of our senior executives left the Company in 2022, and 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.

In particular, the loss of the services of Greg Kress, our Chief Executive Officer, could severely damage our business and prospects for growth. Mr. Kress is subject to a non-competition agreement and a proprietary information and inventions agreement which include restrictive covenants. We cannot assure you that if Mr. Kress were to breach these restrictive covenants a court would enforce them and enjoin him from engaging in activities in violation thereof. Moreover, we would have to rescind Mr. Kress’ non-competition agreement if the proposed FTC rule goes into effect. The loss of Mr. Kress’ services could delay or prevent the successful implementation of our strategy or our commercialization of new applications for our systems or other offerings, or could otherwise adversely affect our ability to manage our company effectively and carry out our business plan, and consequently could have a materially adverse effect on our business, results of operations and financial condition.

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, and our existing policies may be cancelled or otherwise terminated by the insurer. Maintaining adequate insurance and successfully accessing insurance coverage that may be due for a claim can require a significant amount of our management’s time, and we may be forced to spend a substantial amount of money in that process.

Our actual results may be significantly different from our projections, estimates, targets or forecasts.

Any projections, estimates, targets, and forecasts we may provide from time to time are forward-looking statements that are based on assumptions that are inherently subject to significant uncertainties and contingencies, many of which are beyond our control. While all projections, estimates, targets and forecasts are necessarily speculative, we believe that the preparation of prospective financial information involves increasingly higher levels of uncertainty the further out the projection, estimate, target, or forecast extends from the date of preparation. The assumptions and estimates underlying the projected, expected, or target results are inherently uncertain and are subject to a wide variety of significant business, economic, regulatory and competitive risks and uncertainties that could cause actual results to differ materially from those contained in such projections, estimates, targets and forecasts. Our projections, estimates, targets and forecast should not be regarded as an indication that Shapeways or its representatives, considered or consider the financial projections, estimates, targets to be a reliable prediction of future events.

Risks Related to Our Industry

If demand for our services does not grow as expected, or if market adoption of digital 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 digital manufacturing technology, is undergoing a shift towards digital manufacturing. We may not be able to develop effective strategies to raise awareness among potential customers of the benefits of digital manufacturing technologies or our offerings may not address the specific needs or provide the level of functionality required by potential customers to encourage the continuation of this shift towards digital manufacturing. If digital manufacturing technology does not continue to gain broader market acceptance as an alternative to conventional manufacturing processes, or if the marketplace adopts digital manufacturing technologies developed by our competitors, we may not be able to increase or sustain our revenues, and our operating results would be adversely affected as a result.

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

Customers may use our digital 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 offerings, and it may be difficult, if not impossible, for us to monitor and prevent customers from printing weapons with our services. There can be no assurance that we will not be held liable if someone were injured or killed by a weapon or other dangerous object containing a component part or parts manufactured for a customer using one of our offerings.

Risks Related to Intellectual Property and Infrastructure

We may incur substantial costs enforcing or acquiring intellectual property rights and defending against third-party claims as a result of litigation or other proceedings. Our failure to expand our intellectual property portfolio could adversely affect the growth of our business and results of operations.

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 providing our services to our customers, subject us to injunctions prohibiting or restricting our sale of our services, or require us to redesign our services, causing 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 offerings. Any of these could have an adverse effect on our business and financial condition.

Patent applications in the United States and most other countries are confidential for a period of time until they are published, and the publication of discoveries in scientific or patent literature typically lags actual discoveries by several months or more. As a result, the nature of claims contained in unpublished patent filings around the world is unknown to us, and we cannot be certain that we were the first to conceive inventions covered by our patents or patent applications or that we were the first to file patent applications covering such inventions. Furthermore, it is not possible to know in which countries patent holders may choose to extend their filings under the Patent Cooperation Treaty or other mechanisms.

In addition, we may be subject to intellectual property infringement claims from individuals, vendors and other companies, including those that are in the business of asserting patents, but are not commercializing products or services in the field of digital manufacturing, or our customers may seek to invoke indemnification obligations to involve us in such intellectual property infringement claims. Furthermore, although we maintain certain procedures to screen items we manufacture on behalf of customers for infringement on the intellectual property rights of others, we cannot be certain that our procedures will be effective in preventing any such infringement. Any third-party lawsuits or other assertion to which we are subject, alleging infringement of trademarks, patents, trade secrets or other intellectual property rights either by us or by our customers may have a significant adverse effect on our financial condition.

We may not be able to adequately protect or enforce our intellectual property rights, which could impair our competitive position.

Our success and future revenue growth will depend, in part, on our ability to protect our intellectual property. We rely primarily on patents, licenses, trademarks, and trade secrets, as well as non-disclosure agreements and other methods, to protect our proprietary technologies and processes globally. Despite our efforts to protect our proprietary technologies and processes, it is possible that competitors or other unauthorized third parties may obtain, copy, use, or disclose our technologies and processes or invent around our patents. We cannot assure you that any of our existing or future patents will not be challenged or invalidated in court or patent office proceedings that could be time-consuming, expensive, and distract us from the operating our business. In addition, competitors could circumvent our patents by inventing around them. As such, any rights granted under these patents may not provide us with meaningful protection. We may not be able to obtain foreign patents corresponding to our United States patents. Even if foreign patents are granted, effective enforcement in foreign countries may not be available. If our patents and other intellectual property do not adequately protect our technology, our competitors may be able to offer services similar to ours. Our competitors may also be able to develop similar technology independently or design around our patents. Any of the foregoing events would lead to increased competition and lower revenue or gross margin, which would adversely affect our business and results of operation.

Our digital manufacturing software contains third-party open-source software components. Our use of such open- source software may expose us to additional risks and harm our intellectual property and failure to comply with the terms of the underlying open-source software licenses could restrict our ability to sell our offerings.

Our digital 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. In line with what we believe is standard practice among technology companies, we leverage open source software in the development of our internal software. Open source software is commonly used as a foundation which we develop upon, allowing us to customize the software based on our specific needs. This enables faster development of software, with higher quality, supported by a larger community of developers. 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.

We store confidential customer information in our systems that, if breached or otherwise subjected to unauthorized access, may harm our reputation or brand or expose us to liability.

Our system stores, processes, and transmits our customers' confidential information, including the intellectual property in their part designs, credit card information, and other sensitive data. We rely on encryption, authentication, and other technologies licensed from third parties, as well as administrative and physical safeguards, to secure such confidential information. Any compromise of our information security could damage our reputation and brand and expose us to a risk of loss, costly litigation, and liability that would substantially harm our business and operating results. We may not have adequately assessed the internal and external risks posed to the security of our company's systems and information and may not have implemented adequate preventative safeguards or take adequate reactionary measures in the event of a security incident. During times of war and other major conflicts, we and the third parties upon which we rely may be vulnerable to a heightened risk of these incidents, including cyber-attacks, which could materially disrupt our systems and operations, supply chain, and ability to produce and sell our products and services. We utilize third-party service providers to host, transmit, or otherwise process electronic data in connection with our business. We or our third-party service providers may experience social-engineering attacks, malicious code, malware, denial-of-service attacks, unavailable systems, unauthorized access or disclosure due to employee or other theft, misconduct or misuse, sophisticated attacks by nation-state and nation-state supported actors, advanced persistent threat intrusions, ransomware attacks, supply-chain attacks, software bugs, server malfunctions, software or hardware failures, loss of data or other information technology assets, adware, telecommunications failures, and other similar threats. Future or past business transactions (such as acquisitions) could expose us to additional cybersecurity risks and vulnerabilities, as our systems could be negatively affected by vulnerabilities present in acquired entities' systems and technologies.

While we and our third-party service providers have implemented a number of security measures designed to protect against security breaches, these measures could fail or may be insufficient, resulting in the unauthorized disclosure, modification, misuse, unavailability, destruction, or loss of our or our customers' or employees' data or other sensitive information. A security incident or other interruption could disrupt the ability to provide our platform. We may be unable to detect vulnerabilities in our information technology systems because such threats and techniques change frequently, are often sophisticated in nature, and may not be detected until after a security incident has occurred. Any security breach, or the perception that one has occurred, could result in litigation, indemnity obligations, regulatory enforcement actions, investigations, fines, penalties, mitigation and remediation costs, disputes, reputational harm, diversion of management's attention, and other liabilities and damage to our business. Even though we do not control the security measures of third parties, we may be perceived or asserted to be responsible for any breach of such measures or suffer reputational harm.

In addition, most states have enacted laws requiring companies to notify individuals and often state authorities of data security breaches involving their personal data. These mandatory disclosures regarding a security breach often lead to widespread negative publicity, which may cause our existing and prospective customers to lose confidence in the effectiveness of our data security measures. Any security breach, whether successful or not, would harm our reputation and brand and could cause the loss of customers.

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

Our business relies on software products which are inherently complex and, despite extensive testing and quality control, have in the past and may in the future contain defects or errors, especially when first introduced, or otherwise not perform as contemplated. As the use of our platform expands, we may be subject to increased scrutiny, potential reputational risk, or potential liability should our software fail to perform as contemplated in such deployments. We have in the past and may in the future need to issue corrective releases of our software to fix these defects, errors, or performance failures and we may encounter technical problems when we attempt to perform routine maintenance or enhance our software, internal applications, and systems, which could require us to allocate significant research and development and customer support resources to address these problems and divert the focus of our management and research and development teams. See “Risks Related to Our Business—Interruptions, delays in service or inability to increase capacity, including internationally, at third-party data center facilities could adversely affect our business and reputation.”

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

Risks Related to Our Legal and Regulatory Environment

We are subject to environmental, health, and safety laws and regulations related to our operations and the use of our digital manufacturing systems 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 manufacturing 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 extensive 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 offerings 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 offerings and materials or incur costs to register such chemicals to gain and/or regain compliance. Additionally, we could be subject to significant fines or other civil and criminal penalties should we not achieve such compliance.

The cost of complying with current and future environmental, health, and safety laws applicable to our operations, or the liabilities arising from 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.

Our business involves the use of hazardous materials, and we must comply with environmental, health, and safety laws and regulations, which can be expensive and restrict how we do business.

Our business involves the controlled storage, use, and disposal of hazardous materials. We and our suppliers are subject to federal, state, and local as well as foreign laws and regulations governing the use, manufacture, storage, handling, and disposal of these hazardous materials. Although we believe that the safety procedures utilized by us and our suppliers for handling and disposing of these materials comply with the standards prescribed by these laws and regulations, we cannot eliminate the risk of accidental contamination or injury from these materials. In the event of an accident, state, federal, or foreign authorities may curtail the use of these materials and interrupt our business operations. We do not currently maintain hazardous materials insurance coverage. If we are subject to any liability as a result of activities involving hazardous materials, our business and financial condition may be adversely affected and our reputation and brand may be harmed.

Regulation in the areas of privacy, data protection, and information security could increase our costs and affect or limit our business opportunities and how we collect and/or use personal information.

We collect personal 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 the General Data Protection Regulations, or GDPR in the European Union, the California Consumer Privacy Act of 2018 ("CCPA"), and the California Privacy Rights Act of 2020 ("CPRA"), which substantially expands the CCPA. Similar legislation has been proposed or adopted in other states. Aspects of these new and emerging state privacy laws and regulations, as well as their interpretation and enforcement, are dynamic and evolving. While these new state privacy laws emulate the CCPA/CPRA and GDPR in many respects, each has requirements that will require particular assessment. Additionally, ongoing interpretations and enforcement of international privacy laws continue to amend or add to existing compliance obligations, such as under the GDPR with respect to international data transfers. In July 2023, the European Commission adopted an adequacy decision concluding that the United States ensures an adequate level of protection for personal data transferred from the EEA to the United States under the EU-U.S. Data Privacy Framework. However, the adequacy decision does not foreclose, and is likely to face, future legal challenges. This patchwork of differing and evolving international and domestic privacy and data security requirements may increase the cost and complexity of operating our business and increase our exposure to liability.

These privacy laws create new individual privacy rights and impose increased obligations, including disclosure obligations, on companies handling personal information. Each jurisdiction in the U.S. and European Union have its own obligations surrounding notice of personal data breaches to consumers, 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 personal information and require us to adopt certain cybersecurity and data handling practices that may affect our ability to process certain personal information including with respect to marketing 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, operations, and reputation.

As privacy, data use, and cyber 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 as we continue to expand. In recent years, there has been increasing regulatory enforcement and litigation activity internationally in this area, including in the United States and the Netherlands in which we operate.

We are subject to U.S. and foreign anti-corruption laws, trade controls, economic sanctions, and similar laws and regulations. Our failure to comply with these laws and regulations could subject us to civil, criminal, and administrative penalties and harm our reputation.

We have partners 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 applicable anti-corruption laws and regulations, as well as various trade restrictions, including trade and economic sanctions and export controls, imposed by governments around the world with jurisdiction over our operations, including the U.S. Foreign Corrupt Practices Act. the U.K. Bribery Act 2010, and ITAR administered by the Directorate of Defense Trade Controls, as well as the laws of the countries where we do business. Any failures to comply with these laws and regulations could result in fines, adverse publicity and restrictions on our ability to export our parts, and repeat failures could carry more significant penalties. For example, in accordance with trade sanctions administered by the Office of Foreign Assets Control and the U.S. Department of Commerce, we are prohibited from engaging in transactions involving certain persons and certain designated countries or territories, including Cuba, Iran, Syria, North Korea, and the Crimea Region of Ukraine. In addition, our offerings are subject to export regulations that can involve significant compliance time and may add additional overhead cost to our offerings. 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 offerings may be subject to these heightened regulations, which could increase our compliance costs.

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

We are subject to the reporting requirements of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act") and any rules promulgated thereunder, as well as the rules of The Nasdaq Stock Market ("Nasdaq"). The requirements of these rules and regulations have increased our legal and financial compliance costs, made some activities more difficult, time-consuming, or costly, and increased demand on our systems and resources. We intend to continue investing substantial resources to comply with evolving laws, regulations, and standards, and this investment may result in increased general and administrative expenses and a diversion of management’s time and attention from business operations to compliance activities.

The Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal controls for financial reporting. In order to maintain disclosure controls and procedures and internal control over financial reporting that meet these standards, significant resources and management oversight are required, and, as a result, management’s attention may be diverted from other business concerns. Although we have already hired additional employees to assist us in complying with these requirements, we may need to hire more employees in the future or engage outside consultants, which will increase our operating expenses.

Changing laws, regulations, and standards relating to corporate governance and public disclosure are creating uncertainty for public companies, increasing legal and financial compliance costs, and making some activities more time-consuming. These factors may also make it difficult for us to attract and retain qualified independent members of our Board of Directors.

As a result of disclosure of information in filings required of a public company, our business and financial condition have become more visible than they were in the past, which may result in an increased risk of threatened or actual litigation, including by competitors and other third parties. If such claims are successful, our business and results of operations could be harmed, and even if the claims do not result in litigation or are resolved in our favor, these claims, and the time and resources necessary to resolve them, could divert the resources of our management and harm our business, results of operations, and financial condition.

If our internal control over financial reporting or our disclosure controls and procedures are not effective, we may be unable to accurately report our financial results, prevent fraud, or file our periodic reports in a timely manner, which may cause investors to lose confidence in our reported financial information and may lead to a decline in our stock price.

We are required to comply with certain requirements of the Sarbanes-Oxley Act, and will be required to comply with additional such requirements following the date we are deemed to be an “accelerated filer” or a “large accelerated filer,” each as defined in the Exchange Act. The standards required for a public company under Section 404(a) of the Sarbanes-Oxley Act are significantly more stringent than those previously required of us as a privately-held company, and requires that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, we are required to perform system and process evaluation, document our controls, and perform testing of our key controls over financial reporting to allow management to certify the effectiveness of our internal control over financial reporting, as required by Section 404(a) of the Sarbanes-Oxley Act. When we cease to be an “emerging growth company,” we will also be subject to auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act and the relevant increased disclosure obligations. Deficiencies in our internal control over financial reporting may be found that may be deemed to be material weaknesses. If we are not able to comply with the requirements of Section 404 in a timely manner, or if we identify deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market price of our common stock would likely decline and we could be subject to lawsuits, sanctions, or investigations by regulatory authorities, which would require additional financial and management resources and could harm investor confidence in our business.

We are an “emerging growth company” and a “smaller reporting company” and the reduced disclosure requirements applicable to emerging growth companies and smaller reporting companies may make our common stock less attractive to investors.

We are an “emerging growth company,” as defined in the JOBS Act. As an emerging growth company, we may follow reduced disclosure requirements and do not have to make all of the disclosures that public companies that are not emerging growth companies do. We will remain an emerging growth company until the earlier of (a) the last day of the fiscal year in which we have total annual gross revenues of $1.235 billion or more; (b) the last day of the fiscal year following the fifth anniversary of the date of the completion of the initial public offering of our predecessor, Galileo Acquisition Corp. ("Galileo"); (c) the date on which we have issued more than $1 billion in nonconvertible debt during the previous three years; or (d) the date on which we are deemed to be a "large accelerated filer" under the rules of the SEC, which means the market value of our common stock that is held by non-affiliates exceeds $700 million as of the prior June 30th. For so long as we remain an emerging growth company, we are permitted and intend to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to use the extended transition period for complying with new or revised accounting standards; as a result of this election, our financial statements may not be comparable to companies that comply with public company effective dates.

We have chosen and may continue to choose to take advantage of certain of the available exemptions for emerging growth companies. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our share price may be more volatile.

Risks Relating to Ownership of Our Common Stock

An active, liquid trading market for our common stock may not be sustained.

Our common stock is listed on the Nasdaq under the symbol “SHPW.” However, we cannot assure you that an active trading market for our common stock will be sustained. Our securities are very thinly traded. Accordingly, it may be difficult to sell shares of our common stock without significantly depressing the value of the stock. A public trading market having the desirable characteristics of depth, liquidity and orderliness depends upon the existence of willing buyers and sellers at any given time, such existence being dependent upon the individual decisions of buyers and sellers over which neither we nor any market maker has control. Unless we are successful in developing continued investor interest in our stock, sales of our stock could result in major fluctuations in the price of the stock. The inactive market for our stock may also impair our ability to raise capital to continue to fund operations by issuing equity and may impair our ability to acquire other companies or technologies by using common stock as consideration.

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

From time to time in the future, we may issue additional shares of our common stock or securities convertible into or exercisable for our common stock pursuant to a variety of transactions, including acquisitions. Additional shares of our common stock may also be issued upon exercise of outstanding stock options and warrants to purchase our common stock. The issuance by us of additional shares of our common stock or securities convertible into or exercisable for our 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 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.

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

On October 6, 2022, we filed an universal shelf registration statement, which permits us to offer up to $50.0 million in the aggregate of certain securities in one or more offerings and in any combination, including in units from time to time, subject to certain limitations. Further, as part of the shelf registration statement, we may also sell up to $13.25 million in the aggregate of shares of common stock pursuant to our ATM Facility, subject to certain limitations. The sale of a substantial number of shares pursuant to our ATM Facility, any securities pursuant to the shelf registration statement or otherwise, or anticipation of any such sales, could cause the trading price of our common stock to decline or make it more difficult for us to sell equity or equity-related securities in the future at a time and at a price that we might otherwise desire. In addition, issuances of any shares of our common stock sold pursuant to the ATM Facility or any securities sold pursuant to the shelf registration statement may have a dilutive effect on our existing stockholders. To date, sales conducted under the ATM Facility have been immaterial.

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

The sale of substantial amounts of shares of our common stock in the public market, including in connection with the ATM Facility, or the perception that such sales could occur, could harm the prevailing market price of shares of our common stock. Furthermore, shares of our common stock reserved for future issuance under our equity plans may become available for sale in the future. 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. Additionally, to the extent our warrants are exercised, additional shares of common stock will be issued, which will result in dilution to the holders of common stock and increase the number of shares eligible for resale in the public market. However, there is no guarantee that the warrants will ever be in the money prior to their expiration, and as such, the warrants may expire worthless.

Our operating results and financial condition may fluctuate on a quarterly and annual basis.

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 are not within our control. Both our business and the digital 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 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 digital manufacturing and, specifically, our services;
- our ability to compete with competitors and new entrants into our markets;

- the mix of offerings that we sell during any period;
- the timing of our sales and deliveries of our offerings to customers;
- the geographic distribution of our sales;
- seasonality of our manufacturing business and timing of certain new product offerings;
- 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 technologies;
- changes in the amounts that we spend to promote our services;
- 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;
- general economic and industry conditions that affect customer demand, including increasing inflation and interest rates; 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 digital manufacturing solutions are subject to the adoption and capital expenditure cycles of our customers. Additionally, for our more complex solutions, which may require 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 Part I, Item 1A: "Risk Factors," you should not rely on quarter-to-quarter or year-over-year comparisons of our operating results as an indicator of our future performance.

Our stock price has been and may continue to be volatile or may decline regardless of our operating performance. You may lose some or all of your investment.

The trading price of our common stock has been and may continue 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:

- 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 services;
- 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 market's reaction to our reduced disclosure and other requirements as a result of being an "emerging growth company" under the JOBS Act or a "smaller reporting company";
- 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 the manufacturing industry generally or Shapeways specifically;
- 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 or other military conflicts, and responses to such events.

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

If securities or industry analysts publish inaccurate or unfavorable research or reports about our business, our stock price and trading volume could decline.

The trading market for our common stock depends, in part, on the research and reports that third-party securities analysts publish about us and the industry 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 common stock adversely, or provide more favorable relative recommendations about our competitors, the price of our 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 common stock to decline. Moreover, if one or more of the analysts who cover us downgrades our common stock, or if our reporting results do not meet their expectations, the market price of our common stock could decline.

We do not expect to pay any cash dividends 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 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. In addition, we may incur additional indebtedness, the terms of which may further restrict or prevent us from paying dividends on our common stock. As a result, you may have to sell some or all of your 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 common stock.

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

The market price of our common stock has been and may continue to be volatile and, in the past, companies that have experienced volatility in the market price of their stock have been subject to securities litigation, including class action litigation. Litigation of this type could result in substantial costs and diversion of management's attention and resources, which could have a material adverse effect on our business, financial condition, and results of operations. Any adverse determination in litigation could also subject us to significant liabilities.

Delaware law and provisions in our charter and bylaws could make a merger, tender offer, or proxy contest difficult, thereby depressing the trading price of our common stock.

Our charter, bylaws, and Delaware law contain provisions that could depress the trading price of our common stock by acting to discourage, delay, or prevent a change of control of Shapeways or changes in Shapeways that our management or stockholders may deem advantageous. Among other things, our charter and bylaws include the following provisions which:

- provide for a classified board of directors so that not all members of our Board of Directors are elected at one time;
- permit the Board of Directors to establish the number of directors and fill any vacancies and newly created directorships;
- provide that directors may only be removed for cause and only by a super majority vote;
- require super-majority voting to amend certain provisions of our charter and any provision of our bylaws;

- authorize the issuance of “blank check” preferred stock that our Board of Directors could use to implement a stockholder rights plan;
- eliminate the ability of our stockholders to call special meetings of stockholders;
- prohibit stockholder action by written consent, which requires all stockholder actions to be taken at a meeting of our stockholders;
- provide that the Board of Directors is expressly authorized to make, alter, or repeal our bylaws; and
- establish advance notice requirements for nominations for election to our Board of Directors or for proposing matters that can be acted upon by stockholders at annual stockholder meetings.

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 Delaware General Corporation Law ("DGCL") which prevents interested stockholders, such as certain stockholders holding more than 15% of our outstanding 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 common stock, or (iii) following board approval, such business combination receives the approval of the holders of at least two-thirds of our outstanding common stock not held by such interested stockholder at an annual or special meeting of stockholders.

Any provision of our charter, 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 common stock and could also affect the price that some investors are willing to pay for our common stock.

Our charter provides that the Court of Chancery of the State of Delaware and the federal district courts of the United States will be the 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 charter provides that the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of fiduciary duty, any action asserting a claim against us arising pursuant to the DGCL, our charter or bylaws, or any action asserting a claim against us that is governed by the internal affairs doctrine. In addition, if an action is brought outside of Delaware, the stockholder bringing the suit will be deemed to have consented to service of process on such stockholder’s counsel.

Our charter provides that any person or entity purchasing or otherwise acquiring or holding any interest in shares of our capital stock shall be deemed to have notice of and consented to the foregoing choice of forum provision.

This provision would not apply to claims brought to enforce a duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. Our charter provides further that, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall, to the fullest extent permitted by law, be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. These choices of forum provisions may limit a stockholder’s ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees and may discourage these types of lawsuits. Furthermore, the enforceability of similar choice of forum provisions in other companies’ certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive-forum provisions, and there can be no assurance that such provisions will be enforced by a court in those other jurisdictions. If a court were to find the exclusive-forum provision contained in our charter 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.

Item 1B. Unresolved Staff Comments

None.

Item 1C. CYBERSECURITY

Risk Management and Strategy

We have implemented and maintain a cybersecurity program (the "Cybersecurity Program") that includes various processes designed to identify, assess, and manage material risks from cybersecurity threats. The Cybersecurity Program processes utilize a risk-based approach including a cybersecurity incident response plan.

We work with a third-party vendor, which has extensive cybersecurity expertise to help protect and defend our networks, physical systems, infrastructure, and data from cybersecurity threats. This vendor has advised us on material cybersecurity-related risks and helped us establish controls designed to protect, detect, respond to, and recover from cybersecurity incidents. These controls include a firewall protection that is implemented in all three of our facilities, antivirus software protection, two-factor authentication enforced on all endpoints including Windows PCs and laptops, and intrusion prevention software designed to automatically block any unauthorized access attempts on our servers. Our cybersecurity controls are embedded within our overall risk management processes and technology, including a 24/7 threat monitoring system provided by the vendor. We are in the process of developing and implementing procedures to oversee or identify material risks from cyber threats associated with use of third party service providers.

Governance

The audit committee of our board of directors is responsible for oversight of the Company's cybersecurity and other information technology risks, controls and procedures, including the Company's plans to mitigate cybersecurity risks and to respond to data breaches. The audit committee receives quarterly updates on our Cybersecurity Program from our Chief Technology Officer ("CTO") at its regularly-scheduled committee meetings or more frequently as needed. The chair of the audit committee then briefs the full board of directors on matters covered at the audit committee meeting, including cybersecurity matters.

Our Cybersecurity and Information Technology team is led by our CTO, who is responsible for cybersecurity risk management. Our CTO has held multiple leadership positions in the information technology ("IT") industry with responsibilities for and influence over cybersecurity implementation delivery.

Our CTO executes the Cybersecurity Program and is informed about and monitors the prevention, detection, mitigation and remediation of cybersecurity incidents, with the support of the IT team and our third-party cybersecurity vendor. Our cybersecurity incident response framework is governed by our cybersecurity incident response plan, which sets out our approach for categorizing, responding to, and mitigating cybersecurity incidents. We have an incident response team whose primary responsibilities include:

- Evaluating and validating the impact of an incident;
- Approving and implementing certain incident response countermeasures and remediation actions; and
- Escalating incidents and response countermeasures for approval;

As of the date of this Report, we are not aware of any cybersecurity threats that have materially affected or are reasonably likely to materially affect us, including our business strategy, results of operations, or financial condition. However, the sophistication of cyber threats continues to increase, and the preventative actions we take to reduce the risk of cyber incidents and protect our systems and information may be insufficient. Accordingly, no matter how well our controls are designed or implemented, we will not be able to anticipate all security breaches, and we may not be able to implement effective preventive measures against such security breaches in a timely manner.

Item 2. Properties.

As of December 31, 2023, we leased a 17,250 square foot manufacturing facility in Livonia, Michigan (which lease expires in March 2026) and a 100,000 square foot manufacturing facility in Charlotte, Michigan (which lease expires in April 2026). We previously leased a 25,000 square foot manufacturing facility in Long Island City, New York, for which the lease expired in January 2023. We did not renew our lease at the Long Island City facility, and now house our production in the Livonia facility. We also lease an 18,837 square foot facility in Eindhoven, Netherlands, and the lease of this facility expires in September 2024.

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. Due to the inherent uncertain nature of litigation, the ultimate outcome or actual cost of settlement may materially vary from estimates.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

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

Market Information

Our common stock and warrants are listed on the Nasdaq under the symbols “SHPW” and “SHPWW,” respectively.

Holders

As of March 22, 2024, there were 156 holders of record of our common stock and 7 holders of record of our warrants. We believe a substantially greater number of beneficial owners hold shares of common stock or warrants through brokers, banks or other nominees.

Dividends

We have not paid any cash dividends on our common stock to date. We may retain future earnings, if any, for future operations, expansion and debt repayment and have no current plans to pay cash dividends for the foreseeable future. Any decision to declare and pay dividends in the future will be made at the discretion of the Board of Directors and will depend on, among other things, our results of operations, financial condition, cash requirements, contractual restrictions and other factors that the Board of Directors may deem relevant. In addition, our ability to pay dividends may be limited by covenants of any existing and future outstanding indebtedness we or our subsidiaries incur.

Securities Authorized for Issuance Under Equity Compensation Plans

The information concerning our equity compensation plans is incorporated by reference herein to the section of the Proxy Statement entitled “Equity Compensation Plan Information.”

Recent Sales of Unregistered Securities; Use of Proceeds from Registered Offerings

Unregistered Sales

None.

Use of Proceeds

None.

Issuer Purchases of Equity Securities

None.

Item 6. Reserved.

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

The following management's discussion and analysis of financial condition and results of operations describes the principal factors affecting the results of our operations, financial condition, and changes in financial condition for the year ended December 31, 2023. This discussion should be read in conjunction with the accompanying consolidated financial statements, and the notes thereto set forth in Part I, Item 8 of this Report. Some of the information contained in this discussion and analysis or set forth elsewhere in this Report, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. See "Special Note Regarding Forward-Looking Statements" and "Risk Factors" for a discussion of forward-looking statements and important factors that could cause actual results to differ materially from the results described in or implied by these forward-looking statements.

Company Overview

Shapeways is a leading digital manufacturer combining high quality, flexible, on-demand manufacturing with purpose-built proprietary software to offer customers an end-to-end digital manufacturing platform on which they can rapidly transform digital designs into physical products. Our manufacturing platform offers customers access to high quality manufacturing from start to finish through automation, innovation, and digitization. Our proprietary software, wide selection of materials and technologies, and global supply chain lower manufacturing barriers and accelerate delivery of manufactured parts from prototypes to finished end parts. We combine deep digital manufacturing know-how and software expertise to deliver high quality, flexible on-demand digital manufacturing to a range of customers, from project-focused engineers to large enterprises. Digital manufacturing is the complete digitization of the end-to-end manufacturing process that enables the transition of a digital file to a physical product.

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 the following:

Commercial Launch of Offerings

We plan to continue to launch new manufacturing technologies, materials, and finishes. Prior to commercialization, we must complete testing and manufacturing ramp-up either in house or through our network of third-party manufacturing partners. Any delays in the successful completion of these steps or the results of testing may impact our ability or the pace at which we will generate revenue from these offerings. Even if we successfully introduce these new offerings, there is no assurance that they will be accepted by the broader market.

Adoption of Our Digital Manufacturing Solutions

We believe that the market is shifting toward digitization of manufacturing and approaching an inflection point in the overall adoption of digital manufacturing solutions. We believe that we are well-positioned to take advantage of this market opportunity across an array of industries due to our platform that combines high-quality, flexible, on-demand manufacturing with purpose-built proprietary software. 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 traditional manufacturing processes towards digital manufacturing. The degree to which current and potential customers recognize the benefits of the digitization of manufacturing, and then use our solutions in particular will affect our financial results.

Pricing, Product Cost and Margins

To date, the majority of our revenue has been generated by the manufacturing and sales of additively-manufactured end parts.

Manufacturing pricing may vary due to market-specific supply and demand dynamics, customer order size, and other factors. As a result, our financial performance depends, in part, on the mix of offerings 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 our offerings, and on cost improvements as well as on our ability to efficiently and reliably introduce cost-effective digital manufacturing solutions for our customers.

Continued Investment and Innovation

We believe that we are a leader in digital manufacturing solutions, offering high-quality, flexible, on-demand manufacturing coupled with purpose-built proprietary software. It is essential that we continually identify and respond to rapidly evolving customer requirements, develop and introduce innovative new offerings, enhance existing solutions and generate customer demand for our offerings. We believe that investment in our digital manufacturing solutions will contribute to long-term revenue growth but, depending on the level of such investment, may adversely affect near-term profitability.

We have also invested, and plan to continue to invest, in increasing our customer focus on middle market and enterprise opportunities, including by hiring business development personnel. We believe we will start to benefit from these investments in the coming quarters, but we expect to continue experiencing near-term impact on our gross margins as we continue to invest in this strategy. Our customer count may continue to decline as we increase our focus on middle market and enterprise opportunities. Additionally, these businesses involve risks that may not be present with smaller customers, including longer sales cycles, which create difficulties in assessing deal cyclicality and may cause our revenue and operating results to vary significantly in future periods.

Raw Material, Inflation, and Supply Chain Trends

Inflationary factors such as increases in the costs of raw materials, packaging materials, purchased product, energy costs, shipping costs and labor costs affect our operating results and financial condition. The ongoing impact of the Russian invasion of Ukraine, the potential impacts of the Israel-Hamas conflict, geopolitical tensions between the United States and China, a potential U.S. government shutdown and other supply and labor disruptions along with inflationary or recessionary factors, could have a material impact on our future costs and thus a material adverse effect on our financial condition and results of operations in the future. Although we make efforts to minimize the impact of inflationary factors which may include raising prices to our customers in the future, a high rate of pricing volatility associated with raw materials used in our products may have an adverse effect on our operating results. We will continue to work closely with our suppliers and customers, leveraging our global capabilities and expertise to work through supply and other resulting issues.

Strategic Alternatives Update

As previously disclosed, we have been working with advisors in considering strategic alternatives, including, without limitation, a sale of a material portion of our assets, merger, business combination, liquidation of certain assets or other strategic transaction to maximize shareholder value. Based on market checks conducted by our advisors, as well as preliminary discussions with and feedback from potential purchasers, and in light of continued macroeconomic and industry pressures, we are actively taking steps to sell a material portion of our assets. In the course of these preliminary discussions, potential purchasers have indicated an interest in acquiring either our manufacturing business or software business, but not both.

We are continuing to evaluate strategic alternatives with regard to our core manufacturing and software businesses, including ongoing discussions with potential acquirers. We have not signed a definitive agreement with respect to either our software or manufacturing assets, and there can be no assurance that any of these processes will result in any transaction. Please see Part I, Item 1A: "Risk Factors—Risks Related to Our Business—We may not be successful in identifying and implementing one or more strategic alternatives for our business, and any strategic alternative that we may consummate could have material adverse consequences for us" and Note 3 of our consolidated financial statements included in Part II, Item 8: Financial Statements and Supplementary Data, of this Annual Report on Form 10-K.

Components of Results of Operations

Revenue

The majority of our revenue results from the sales of products that we manufacture for customers, which is designated as "Direct Sales." Approximately 77% of our revenue was designated as Direct Sales during each of the years ended December 31, 2023 and 2022. This revenue is recognized upon shipment of the manufactured product to the customer.

During the years ended December 31, 2023 and 2022, approximately 14% and 18% of our revenue was designated as “Marketplace Sales,” respectively. This revenue is from our customers who sell products that we manufacture for them through our e-commerce website.

Software revenue is recognized (i) upon implementation for implementation fees, (ii) ratably over the term of the agreement for licensing fees, and (iii) upon order processing for the revenue-sharing component of our arrangements. To date, we have not recognized a material amount of revenue from software. We launched the first phase of our software offering under the brand OTTO in the fourth quarter of 2021 and this phase of the software offering provides a limited ordering service for additive manufacturing capabilities fulfilled by us. In April 2022 we acquired MFG.com ("MFG") and MakerOS, Inc. ("MakerOS"), which expanded our software offering’s customer base and feature set.

Cost of Revenue

Our cost of revenue consists of the cost to produce manufactured products and related services. Cost of revenue includes machine costs, material costs, rent costs, personnel costs, and other costs directly associated with manufacturing operations in our factories as well as amounts paid to our third-party contract manufacturers and suppliers. Our cost of revenue also includes depreciation and amortization of equipment, cost of spare or replacement machine parts, machine service costs, shipping and handling costs, and some overhead costs.

Gross Profit and Gross Margin

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 manufacturing product offerings and new manufacturing and software product offerings;
- Mix changes between products we manufacture in house and through outsourced manufacturers;
- Our cost structure, including rent, materials costs, machine costs, labor rates, and other manufacturing operations costs;
- Our level of investment in new technologies; and
- Our level of acquisition activity and the timing of any such transaction.

Selling, General and Administrative

Selling, general and administrative (“SG&A”) expenses consist primarily of employee-related costs for individuals working in our sales and marketing departments, third party consultants and vendors, marketing costs such as search engine marketing and search engine optimization and other advertising costs, as well as personnel-related expenses associated with our executive, finance and accounting, legal, human resources, and supply chain functions, as well as professional fees for legal, audit, accounting and other consulting services along with administrative costs of doing business which include, but are not limited to, rent, utilities, and insurance.

Research and Development

Our research and development expenses consist primarily of employee-related personnel expenses, and software and subscription services used by our research and development personnel, data center, and other technology costs and are typically expensed as incurred.

Impairment on Assets Held for Sale

In March 2021, we entered into a non-binding Memorandum of Understanding (“MOU”) with Desktop Metal, Inc. ("Desktop Metal"), pursuant to which Desktop Metal agreed to invest $20.0 million in the PIPE Investment (as defined in Note 1 to our consolidated financial statements included elsewhere in this Report). Upon consummation of this investment, we became obligated to purchase $20.0 million of equipment, materials and services from Desktop Metal. We have no further obligations under the MOU. We recognized $11.6 million of impairment charges on these assets during the twelve months ended December 31, 2023. We also recorded impairment on intangible assets held for sale of $1.2 million during the twelve months ended December 31, 2023. No impairment charges on assets held for sale were recorded for the twelve months ended December 31, 2022.

Impairment on Goodwill

We recognized goodwill impairment charges amounting to $1.1 million for the twelve months ended December 31, 2023 related to the purchase of MFG, which we believe has declined in value due to current market conditions and based on feedback from our strategic alternatives process. No impairment charges related to goodwill were recorded for the twelve months ended December 31, 2022.

Change in Fair Value of Earnout Liability

Change in fair value of earnout liability is a non-cash gain or loss impacted by the fair value of the earnout liability related to the Linear acquisition.

Change in Fair Value of Warrant Liabilities

Change in fair value of warrant liability is a non-cash gain or loss impacted by the fair value of the Private Warrants assumed pursuant to the Merger (as defined in Note 1 to our consolidated financial statements included elsewhere in this Report). We do not expect to report changes in fair value of warrant liabilities going forward.

Interest Income

Interest income primarily consists of interest earned on our investments in marketable securities.

Interest Expense

Interest expense consists primarily of interest expense associated with our finance lease and other finance obligations.

Other Income

Other income primarily consists of rental income associated with our sublease of our facility in Michigan.

Income Tax Expense

We file consolidated income tax returns in the United States and in various state jurisdictions. Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates in effect for the year in which those temporary differences are expected to be recovered or settled. Where applicable, we record a valuation allowance to reduce any deferred tax assets that we determine will not be realizable in the future.

Due to our cumulative losses, we maintain a valuation allowance against our U.S. and state deferred tax assets. We have provided a valuation allowance for all of our deferred tax assets as a result of our historical net losses in the jurisdictions in which we operate. 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 enact in future periods, 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.

Results of Operations

Comparison of the Year Ended December 31, 2023 and 2022

Revenue

	Year Ended December 31,		Change	
(Dollars in thousands)	2023	2022	$	%
Revenue	$ 34,460	$ 33,157	$ 1,303	4 %

Revenue for the years ended December 31, 2023 and 2022 was $34.5 million and $33.2 million, respectively, representing an increase of $1.3 million, or 4% from the prior year period. The increase in revenue was primarily due to a 14% increase in customer count due to growth in software and enterprise sales partially offset by a 10% decrease in average revenue per customer during the period.

Cost of Revenue

	Year Ended December 31,		Change	
(Dollars in thousands)	2023	2022	$	%
Cost of Revenue	$ 19,955	$ 18,859	$ 1,096	6 %

Cost of revenue for the years ended December 31, 2023 and 2022 was $20.0 million and $18.9 million, respectively, representing an increase of $1.1 million, or 6%. The increase in cost of revenue was primarily due to a 3% combined increase in costs of materials and labor and 3% increase in shipping costs.

Gross Profit and Gross Margin

	Year Ended December 31,		Change	
(Dollars in thousands)	2023	2022	$	%
Gross Profit	$ 14,505	$ 14,298	$ 207	1 %

Gross profit for the years ended December 31, 2023 and 2022 was $14.5 million, and $14.3 million, respectively, representing an increase of $0.2 million, or 1%. The increase in gross profit was driven by an increase in revenue partially offset by an increase in cost of revenue due to a more varied product mix and inflationary impacts.

	Year Ended December 31,		Change	
	2023	2022	Points	%
Gross Margin	42 %	43 %	(1)	(2)%

Selling, General and Administrative

SG&A expenses for the years ended December 31, 2023 and 2022 were $36.7 million and $27.8 million, respectively, representing an increase of $8.9 million, or 32%. The increase in SG&A expenses primarily resulted from a $4.0 million write-off of prepaid services related to Desktop Metal equipment that would not be utilized in our operations, an increase of $1.5 million in audit and consulting fees and restructuring costs related to our move out of the Long Island City facility and consolidation of our U.S. manufacturing capabilities in Livonia, Michigan.

Research and Development

Research and development expenses for the years ended December 31, 2023 and 2022 were $9.3 million and $10.4 million, respectively, representing a decrease of $1.1 million, or 11%. The decrease in research and development expenses was primarily due to a decrease in personnel cost due to reduction in force.

Impairment on Assets Held for Sale

Impairment on assets held for sale for the year ended December 31, 2023 was $12.8 million. We did not record an impairment on assets held for sale for the year ended December 31, 2022.

Impairment on Goodwill

Impairment on goodwill for the year ended December 31, 2023 was $1.1 million We did not record an impairment on goodwill for the year ended December 31, 2022.

Change in Fair Value of Earnout Liability

There was no change in the fair value of the earnout liability for the year ended December 31, 2023. The change in fair value of the earnout liability resulted in a gain of $1.8 million for the year ended December 31, 2022. The gain related to the decrease in fair value of the estimated earnout liability related to the Linear acquisition.

Change in Fair Value of Warrant Liabilities

There was no change in the fair value of the warrant liability for the year ended December 31, 2023. The change in fair value of the warrant liability resulted in a gain of $1.6 million for the year ended December 31, 2022. The gain related to the decrease in fair value of the Private Warrants and Sponsor Warrants (as defined in Note 1 to our consolidated financial statements included elsewhere in this Report) assumed pursuant to the Merger.

Interest Income

Interest income for the years ended December 31, 2023 and 2022 was $1.1 million and $0.1 million, respectively, and related to interest earned on our investments in short-term marketable securities.

Interest Expense

Interest expense for the year ended December 31, 2023 was $0.1 million which was primarily related to interest expense associated with our finance lease liability and other financing obligations. We recorded an insignificant amount of interest expense for the year ended December 31, 2022.

Other Income

Other income for the years ended December 31, 2023 and 2022 was $0.7 million and $0.3 million, respectively, and related to rental income associated with our sublease of our facility in Michigan.

Income Taxes

We recorded an insignificant amount of income tax expense for the years ended December 31, 2023 and 2022.

Non-GAAP Financial Information

In addition to our results determined in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP"), we believe that Adjusted EBITDA, a non-GAAP financial measure, is 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 reviewed collectively with our U.S. GAAP results, may be helpful to investors in assessing our operating performance.

We define Adjusted EBITDA as net loss excluding interest expense, net of interest income, impairment costs, write-offs, depreciation and amortization, stock-based compensation expense, change in fair value of warrant liabilities, change in fair value of earnout liability, income tax expense, acquisition costs, restructuring costs and other (which includes other income and non-operating gains and losses).

We believe that the use of Adjusted EBITDA provides an additional tool for investors to use in evaluating ongoing operating results and trends because it eliminates the effect of financing and capital expenditures 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 Adjusted EBITDA we may incur future expenses similar to those excluded when calculating this measure. In addition, our presentation of Adjusted EBITDA should not be construed as an inference that our future results will be unaffected by unusual or non-recurring items.

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

The following table reconciles net loss to Adjusted EBITDA for the years ended December 31, 2023 and 2022:

	Year Ended December 31,	
(Dollars in thousands)	**2023**	**2022**
Net loss	$ (43,911)	$ (20,221)
Interest expense, net	(928)	(142)
Depreciation and amortization	1,870	1,514
Stock based compensation	2,430	2,155
Impairment on assets held for sale	12,814	—
Impairment on goodwill	1,072	—
Write-offs of prepaid services	3,954	—
Write-offs of intangible assets	481	—
Change in fair value of earnout liability	—	(1,824)
Change in fair value of warrant liabilities	—	(1,584)
Income tax expense	24	31
Acquisition costs	—	373
Restructuring costs	305	198
Other	(591)	(254)
Adjusted EBITDA	$ (22,480)	$ (19,754)

Liquidity and Capital Resources

We have incurred losses from operations in each of our annual reporting periods since our inception. As of December 31, 2023, we had an accumulated deficit of $176.9 million. We had net losses of $43.9 million and $20.2 million for the years ended December 31, 2023 and 2022, respectively. We believe we may continue to incur operating losses and negative cash flow in the future.

In accordance with Accounting Standards Update 2014-15 ("ASC Topic 205-40"), *Presentation of Financial Statements - Going Concern: Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern*, we are required to evaluate whether there is substantial doubt about our ability to continue as a going concern each reporting period, including interim periods. Management considered our current projections of future cash flows, current financial condition and sources of liquidity for at least one year from the issuance date of the consolidated financial statements included within this Report in considering whether we have the ability to meet our obligations. As of December 31, 2023, we had $12.2 million in cash and cash equivalents and a decrease in net change in cash and cash equivalents during the year ended December 31, 2023 of $18.6 million. These conditions, among others, raise substantial doubt about our ability to continue as a going concern for one year following the issuance of these financial statements.

Our primary use of cash is to fund our operations. Cash used to fund operating expenses is affected by the timing of when we pay expenses, as reflected in the change in our working capital items.

Management initiated a number of cost reduction measures during 2023, including a reduction in force completed in October and December 2023, reduction of new hires and reduction in non-critical capital and discretionary operating expenditures. We anticipate realizing approximately $6.2 million in annualized cost savings as a result of the reduction in force, combined with the elimination of certain open positions. We have also identified several further potential actions that could be initiated in a timely manner to extend the cash runway necessary to fund operations and to address our liquidity needs one year following the issuance of our consolidated financial statements included in this Annual Report on Form 10-K. These actions include raising substantial additional capital to fund our operations through equity or debt financings or other sources, strategic collaborations, deferral and reprioritization of certain additional research and development programs that would involve reduced program and headcount spend, further reduction in force, realignment of operating infrastructure including closing or downsizing manufacturing facilities, and further reduction in non-critical capital and discretionary operating expenditures including personnel costs, travel and recruitment, additional equipment and business support spend. Although we are continuing to explore actions to maximize shareholder value and management has taken actions to reduce cash use, we cannot be sure these actions will sufficiently reduce or eliminate future losses.

Furthermore, we have been working with advisors to consider strategic alternatives. Potential strategic alternatives may include, without limitation, a sale of a material portion of assets, merger, business combination, liquidation of certain assets or other strategic transaction to maximize shareholder value. We are also continuing to consider other strategic alternatives, and we cannot be sure when or if any type of transaction will result. Even if we pursue a transaction, such transaction may not be consistent with our stockholders' expectations or may not ultimately be favorable for our stockholders, either in the shorter or longer term.

On October 6, 2022, we filed a universal shelf registration statement which permits us to offer up to $50 million in the aggregate of certain securities, in one or more offerings and in any combination. As part of the shelf registration statement, we filed a prospectus supplement registering for sale from time to time up to $13.25 million in the aggregate of shares of common stock pursuant to an at-the-market facility (the "ATM Facility"), subject to certain limitations. To date, sales conducted under the ATM Facility have been immaterial.

On March 26, 2021, we entered into the MOU with Desktop Metal, pursuant to which Desktop Metal agreed to invest $20.0 million in the PIPE Investment. Upon consummation of this investment, we became obligated to purchase $20.0 million of equipment, materials and services from Desktop Metal. In conjunction with these obligations, we and Desktop Metal agreed to develop a strategic partnership. We have no further obligations under the MOU. We recognized $11.6 million of impairment charges on these assets during the twelve months ended December 31, 2023.

We will continue to make significant efforts to identify and evaluate potential strategic alternatives; however, there can be no assurance that we will be successful in obtaining capital sufficient to meet our operating needs on terms or a timeframe acceptable to us or at all. Further, in the event that market conditions preclude our ability to consummate a capital-raising transaction, we may be required to evaluate additional alternatives in restructuring our business and our capital structure. Any failure in these efforts could force us to delay, limit or terminate our operations, make additional reductions in our workforce or other restructuring intended to improve operational efficiencies and operating costs, liquidate all or a portion of our assets or pursue other strategic alternatives.

Cash Flow Summary

The following table sets forth a summary of cash flows for the period:

	Year Ended December 31,	
(Dollars in thousands)	**2023**	**2022**
Net cash used in operating activities	$ (26,849)	$ (20,575)
Net cash provided by (used in) investing activities	7,435	(28,759)
Net cash provided by financing activities	787	339
Net change in cash and cash equivalents and restricted cash	$ (18,627)	$ (48,995)

Operating Activities

Net cash used in operating activities was $26.8 million for the year ended December 31, 2023, primarily consisting of net loss of $43.9 million, net cash outflow from working capital of $6.2 million and interest receivable on short-term investments of $0.8 million, partially offset by impairment on assets held for sale of $12.8 million, write-off of prepaid services of $4.0 million, stock-based compensation expense of $2.4 million, depreciation and amortization expense of $1.9 million, impairment of goodwill of $1.1 million, lease expense of $1.0 million, and loss on disposal of assets of $0.1 million.

Net cash used in operating activities was $20.6 million during the year ended December 31, 2022, primarily consisting of net loss of $20.2 million adjusted for non-cash items including a gain on change in fair value of earnout liability of $1.8 million and gain on change in fair value of warrant liability of $1.6 million, interest receivable of $0.1 million, stock-based compensation expense of $2.2 million, depreciation and amortization expense of $1.5 million and lease expense of $1.0 million. The net change in working capital resulted in a cash outflow of $1.6 million.

Investing Activities

During the year ended December 31, 2023, net cash provided by investing activities was $7.4 million, which primarily consisted of proceeds from the settlement of short-term investments of $20.0 million partially offset by purchases of short-term investments of $9.8 million and purchases of property and equipment of $2.8 million.

During the year ended December 31, 2022, net cash used in investing activities was $28.8 million, which consisted of $10.1 million for purchases of property and equipment, purchase of marketable securities of $9.8 million, and $8.9 million related to net cash paid for the 2022 acquisitions.

Financing Activities

During the year ended December 31, 2023, net cash provided by financing activities was $0.8 million resulting primarily from proceeds from other financing obligations of $1.0 million and $0.1 million of proceeds from issuance of common stock, partially offset by $0.2 million from shares subject to restricted stock units withheld to pay employee taxes.

During the year ended December 31, 2022, net cash provided by financing activities was $0.3 million resulting from proceeds from exercises of employee stock options.

Contractual Obligations and Commitments

See Note 12, Commitments and Contingencies, of the notes to the consolidated financial statements for the years ended December 31, 2023 and 2022 included elsewhere in this Report for further discussion of our commitments and contingencies.

Off-Balance Sheet Arrangements

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

Critical Accounting 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 U.S. GAAP. 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 its judgments, the results could be materially different from our estimates. To the extent that there are material differences between these estimates and actual results, our consolidated financial statements will be affected.

Revenue Recognition

We recognize revenue from sale of products (both direct sales and marketplace sales) upon transfer of control, which is generally at the point of shipment.

Our software contracts with customers often include promises to transfer multiple software elements to the customer. Revenue from sale of software may be recognized over the life of the associated software contract or as services are performed, depending on the nature of the services being provided. 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 ("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 provide a platform for shop owners to list their designs through our marketplace website. We print the 3D models and ship the product directly to the customer, handling the financial transaction, manufacturing, distribution and customer service. Judgment is applied to determine whether we are the principal or the agent, which could impact the recognition of revenue and cost of revenue within the consolidated statements of operations and comprehensive loss. We assess whether we have the primary responsibility for fulfilling the promise to provide the specified product or service to the end user, whether we have inventory risk prior to transferring the product or service to the customer and if we have the discretion in establishing prices. We act as an agent in these arrangements where we facilitate the sale of the goods and services on behalf of third-party shop owners to end customers. We are considered an agent and recognize revenue generated from these transactions on a net basis since we lack the ability to establish the overall selling price of the goods or services provided to the end user.

Goodwill Impairment

Goodwill, which represents the excess of purchase prices over the fair value of net assets acquired, is carried at cost. Goodwill is not amortized; rather, it is subject to a periodic assessment for impairment by applying a fair value-based test. Goodwill is evaluated for impairment on an annual basis at a level of reporting referred to as the reporting unit, and more frequently if adverse events or changes in circumstances indicate that the asset may be impaired.

Under ASC 350, Intangibles - Goodwill and Other, we have the option to first assess the qualitative factors to determine whether it is more likely than not that the fair value of the reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform a quantitative goodwill impairment test. If we determine that it is more likely than not that the fair value of a reporting unit is less than its carrying amount, then the goodwill impairment test is performed. Impairment tests are performed on a quarterly basis. Management uses the future discounted cash flows valuation approach to determine the fair value of reporting units and determines whether the fair value of reporting units exceeded its carrying amounts. If the fair value exceeds the carrying amount, then no impairment is recognized. If the carrying amount recorded exceeds the fair value calculated, then an impairment charge is recognized for the difference. The impairment review requires management to make judgments in determining various assumptions with respect to revenues, operating margins, growth rates and discount rates. The judgments made in determining the projected cash flows used to estimate the fair value can materially impact our financial condition and results of operations.

Recent Accounting Pronouncements

Refer to Note 2 of the consolidated financial statements included elsewhere in this Report.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

We are a smaller reporting company as defined in Rule 12b-2 under the Exchange Act. As a result, pursuant to Item 305(e) of Regulation S-K, we are not required to provide the information required by this Item.

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

Disclosure Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our reports filed under the Securities Exchange Act of 1934, as amended, is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer or persons performing similar functions, to allow for timely decisions regarding required disclosure. In accordance with Rules 13a-15(b) under the Exchange Act, we carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of our disclosure controls and procedures as of December 31, 2023.

Based on this evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that during the period covered by this Report, our disclosure controls and procedures were effective at a reasonable assurance level and, accordingly, provided reasonable assurance that the information required to be disclosed by us in reports filed under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms.

Management's 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 and 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 Shapeways' 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 receipts and expenditures of the company are being made only in accordance with authorizations of Shapeways' management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of Shapeways' assets that could have a material effect on the financial statements.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in Internal Control—Integrated Framework, issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework). Based on our evaluation, our management concluded that our internal control over financial reporting was effective as of December 31, 2023.

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

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting identified in management's evaluation pursuant to Rules 13a-15(d) or 15d-15(d) of the Exchange Act during the quarter ended December 31, 2023 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

During the fiscal quarter ended December 31, 2023, none of our directors or officers adopted or terminated a "Rule 10b5-1 trading arrangement" or "non-Rule 10b5-1 trading arrangement," as those terms are defined in Item 408 of Regulation S-K.

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 2024 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2023, and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by this item will be included in our Proxy Statement for the 2024 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2023, 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 2024 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2023, 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 2024 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2023, 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 2024 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2023, and is incorporated herein by reference.

Part IV

Item 15. Exhibits and Financial Statement Schedules.

a. The following documents are filed as part of this Report:
   - i. Financial Statements (see pages F-1 through F-34 of this Report):
     1. Report of Independent Registered Public Accounting Firm
     2. Consolidated Balance Sheets
     3. Consolidated Statements of Operations and Comprehensive Loss
     4. Consolidated Statements of Preferred and Common Stock and Stockholder’s Equity
     5. Consolidated Statements of Cash Flows
     6. Notes to Consolidated Financial Statements
   - ii. Financial Statement Schedules:
     1. All financial statement schedules are omitted because the information is inapplicable or presented in the notes to the financial statements.

b. The exhibits listed in the accompanying index to exhibits are filed or incorporated by reference as part of this Report.

Item 16. Form 10-K Summary

None.

INDEX TO EXHIBITS

Exhibit No.	Description
2.1+	Agreement and Plan of Merger and Reorganization, dated as of April 28, 2021, by and among Galileo, Galileo Founders Holdings, L.P., in the capacity as the Purchaser Representative thereunder, Shapeways, Inc., and Fortis Advisors LLC, in the capacity as the Seller Representative thereunder (incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
3.1	Certificate of Incorporation of Shapeways Holdings, Inc. (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
3.2	Certificate of Amendment to the Certificate of Incorporation of the Company, effective June 22, 2023 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 001-390092), filed with the SEC on June 22, 2023).
3.3	Bylaws of Shapeways Holdings, Inc. (incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
4.1	Warrant Agreement, dated as of October 17, 2019, between Galileo and Continental Stock Transfer & Trust Company, as Warrant Agent (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
4.2	Form of Letter Agreement with respect to Private Placement Warrants by and between Shapeways Holdings, Inc. and each holder of the Company's Private Placement Warrants (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on December 13, 2022).
4.3	Certificate of Corporate Domestication of Galileo Acquisition Corp. (incorporated by reference to Exhibit 3.3 to the Company's Registration Statement on Form S-1 (File No. 333-260387), filed with the SEC on October 20, 2021).
4.4	Description of Registrant's Securities registered pursuant to Section 12 of the Securities Exchange Act of 1934 (incorporated by reference to Exhibit 4.4 to the Company's Annual Report on Form 10-K (File No. 001-390092), filed with the SEC on March 30, 2023).
10.1	Share Escrow Agreement, dated October 17, 2019, by and between Galileo, the Sponsor and Continental Stock Transfer & Trust Company (incorporated by reference to Exhibit 10.4 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
10.2	Amendment to Share Escrow Agreement, dated as of September 29, 2021, by and among Galileo Acquisition Corp., Galileo Founders Holdings, L.P., Continental Stock Transfer & Trust Company, as escrow agent (incorporated by reference to Exhibit 10.5 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
10.3	Registration Rights Agreement, dated September 29, 2021, by and among Galileo Acquisition Corp. and the investors party thereto (incorporated by reference to Exhibit 10.22 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
10.4	First Amendment to Registration Rights Agreement, dated September 29, 2021, by and among Galileo Acquisition Corp., Galileo Founders Holdings, L.P. and the investors party thereto (incorporated by reference to Exhibit 10.21 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
10.5#	Shapeways, Inc. 2010 Stock Plan, as amended (incorporated by reference to Exhibit 10.17.1 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
10.6#	Shapeways Holdings, Inc. 2021 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.19 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
10.7#	Shapeways Holdings, Inc. 2022 New Employee Equity Incentive Plan and forms of agreements thereunder (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on September 16, 2022).
10.8#	Shapeways Holdings, Inc. 2021 Equity Incentive Plan and forms of agreements thereunder (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022 (File No. 001-39092), filed with the SEC on November 14, 2022).
10.9#	Form of Stock Option Agreement under the Shapeways Holdings, Inc. 2021 Equity Incentive Plan, as amended (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on March 30, 2023).
10.10#	Form of Stock Option Agreement with Greg Kress under the Shapeways, Inc. 2010 Stock Plan, as amended (incorporated by reference to Exhibit 10.17.2 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
10.12#	Employment Agreement, dated as of July 19, 2021, by and between Shapeways Holdings, Inc. and Greg Kress (incorporated by reference to Exhibit 10.11 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
10.14#	Offer Letter, dated April 27, 2022, by and between Shapeways Holdings, Inc. and Joseph Andrew Nied (incorporated by reference to Exhibit 99.2 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on May 16, 2022).
10.15#	Offer Letter, dated as of September 15, 2022, by and between Shapeways Holdings, Inc. and Alberto Recchi (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on September 16, 2022).
10.16#	Separation Agreement, dated as of October 12, 2022, by and between Shapeways Holdings, Inc. and Jennifer Walsh (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 13, 2022).
10.17	Warrant Subscription Agreement, dated October 17, 2019, by and between Galileo and Galileo Founders Holdings, L.P. (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
10.18	Warrant Subscription Agreement, dated October 17, 2019, by and between Galileo and EarlyBirdCapital, Inc. (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
10.19#	Non-Competition Agreement, effective as of April 28, 2021, by and among Galileo, Shapeways, and Greg Kress (incorporated by reference to Exhibit 10.7 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).

10.20	Form of Subscription Agreement, dated as of April 28, 2021, by and among Galileo, Shapeways, Inc., and the subscriber party thereto (incorporated by reference to Exhibit 10.9 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
10.22#	Form of Indemnification Agreement (incorporated by reference to Exhibit 10.23 to the Company's Current Report on Form 8-K (File No. 001-39092), filed with the SEC on October 5, 2021).
21.1	Subsidiaries of the Registrant (incorporated by reference to Exhibit 21.1 to the Company's Annual Report on Form 10- K for the year ended December 31, 2022 (File No. 001-39092), filed with the SEC on March 30, 2023).
23.1*	Consent of Withum Smith+Brown
24.1*	Power of Attorney (contained in the signature page to this Report).
31.1	Certification of the Chief Executive Officer required by Rule 13a-14(a) or Rule 15d-14(a)*
31.2	Certification of the Chief Financial Officer required by Rule 13a-14(a) or Rule 15d-14(a)*
32.1	Certification of the Chief Executive Officer required by Rule 13a-14(b) or Rule 15d-14(b) and 18 U.S.C. 1350**
32.2	Certification of the Chief Financial Officer required by Rule 13a-14(b) or Rule 15d-14(b) and 18 U.S.C. 1350**
97.1	Shapeways Holdings, Inc. Policy for the Recovery of Erroneously Awarded Compensation.*
101.INS	Inline XBRL Instance Document
101.SCH	Inline XBRL Taxonomy Extension Schema
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

*	Filed herewith.
**	Furnished herewith.
+	The schedules and exhibits to this agreement have been omitted pursuant to Item 601(a)(5) of Regulations S-K. A copy of any omitted schedule and/or exhibit will be furnished to the SEC upon request.
#	Indicates a management or compensatory plan.

SIGNATURES

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

Shapeways Holdings, Inc.

Dated: March 28, 2024

By: /s/ Alberto Recchi
Alberto Recchi
Chief Financial Officer
(Principal Financial and Accounting Officer)

KNOW ALL PERSONS BY THESE PRESENTS that each person whose signature appears below constitutes and appoints Greg Kress and Alberto Recchi and each of them, his or her true and lawful attorneys-in-fact and agents, each with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this report, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that each of said attorneys-in-fact and agents or their substitute or substitutes may lawfully do or cause to be done by virtue hereof.

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

Name	**Title**	**Date**
/s/ Greg Kress Greg Kress	Chief Executive Officer and Director (*Principal Executive Officer*)	March 28, 2024
/s/ Alberto Recchi Alberto Recchi	Chief Financial Officer and Director (*Principal Financial and Accounting Officer*)	March 28, 2024
/s/ Leslie Campbell Leslie Campbell	Chairman of the Board	March 28, 2024
/s/ Rajeev Batra Rajeev Batra	Director	March 28, 2024
/s/ Christine Gorjanc Christine Gorjanc	Director	March 28, 2024
/s/ Ryan Kearny Ryan Kearny	Director	March 28, 2024
/s/ Josh Wolfe Josh Wolfe	Director	March 28, 2024

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors of Shapeways Holdings, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Shapeways Holdings, Inc. and Subsidiaries (the "Company") as of December 31, 2023 and 2022, and the related consolidated statements of operations and comprehensive loss, changes in stockholders' equity, and cash flows for each of the two years in the period ended December 31, 2023, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

Substantial Doubt Regarding Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 3 to the consolidated financial statements, the Company has suffered negative cash flows from operations and recurring losses from operations since inception, resulting in an accumulated deficit of approximately $176.9 million as of December 31, 2023, that raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 3. The accompanying consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ WithumSmith+Brown, PC

We have served as the Company's auditor since 2021.

East Brunswick, New Jersey

March 28, 2024

PCAOB ID - 100

SHAPEWAYS HOLDINGS, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share amounts)

	December 31,	
	2023	**2022**
Assets		
Current assets		
Cash and cash equivalents	$ 12,200	$ 30,630
Restricted cash	41	139
Short-term investments	—	9,816
Accounts receivable, net	4,680	1,606
Inventory	2,036	1,307
Prepaid expenses and other current assets	4,058	6,255
Current assets held for sale	118	—
Total current assets	23,133	49,753
Property and equipment, net	5,709	15,627
Operating lease, right-of-use assets, net	1,739	2,365
Goodwill	5,214	6,286
Intangible assets, net	2,973	5,398
Security deposits	99	99
Total assets	$ 38,867	$ 79,528
Liabilities and stockholders' equity		
Current liabilities		
Accounts payable	$ 2,635	$ 2,354
Accrued expenses and other liabilities	3,875	5,950
Current portion of long-term debt	650	—
Operating lease liabilities, current	864	719
Finance lease liability, current	64	—
Other financing obligations, current	44	—
Deferred revenue	1,773	972
Total current liabilities	9,905	9,995
Operating lease liabilities, net of current portion	979	1,715
Deferred tax liabilities, net	52	27
Finance lease liability, net of current portion	245	—
Other financing obligations, net of current portion	432	—
Long-term debt, net of current portion	426	—
Total liabilities	12,039	11,737
Commitments and contingencies		
Stockholders' equity		
Preferred stock ($0.0001 par value; 10,000,000 shares authorized; none issued and outstanding as of December 31, 2023 and 2022, respectively)	—	—
Common stock ($0.0001 par value; 120,000,000 shares authorized; 6,597,409 and 6,180,646 shares issued and outstanding as of December 31, 2023 and 2022, respectively) (1)	1	5
Additional paid-in capital	204,230	201,362
Accumulated deficit	(176,943)	(133,032)
Accumulated other comprehensive loss	(460)	(544)
Total stockholders' equity	26,828	67,791
Total liabilities and stockholders' equity	$ 38,867	$ 79,528

See accompanying notes to the consolidated financial statements.

(1) Retroactively adjusted shares issued and outstanding to give effect to the Company's 1-for-8 reverse stock split. See Note 2.

SHAPEWAYS HOLDINGS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(in thousands, except share and per share amounts)

	Year Ended December 31,	
	2023	2022
Revenue, net	$ 34,460	$ 33,157
Cost of revenue	19,955	18,859
Gross profit	14,505	14,298
Operating expenses		
Selling, general and administrative	36,722	27,847
Research and development	9,302	10,409
Impairment on assets held for sale	12,814	—
Impairment on goodwill	1,072	—
Total operating expenses	59,910	38,256
Loss from operations	(45,405)	(23,958)
Other income (expense)		
Interest income	1,071	149
Interest expense	(143)	(7)
Loss on disposal of assets	(85)	(49)
Change in fair value of earnout liabilities	—	1,824
Change in fair value of warrant liabilities	—	1,584
Other income	675	267
Total other income, net	1,518	3,768
Loss before income tax expense	(43,887)	(20,190)
Income tax expense	24	31
Net loss	$ (43,911)	$ (20,221)
Net loss per share:		
Basic[(1)]	$ (6.51)	$ (3.05)
Diluted[(1)]	$ (6.51)	$ (3.05)
Weighted average common shares outstanding:[(1)]		
Basic[(1)]	6,749,836	6,624,820
Diluted[(1)]	6,749,836	6,624,820
Other comprehensive income (loss)		
Foreign currency translation adjustment	84	(175)
Comprehensive loss	$ (43,827)	$ (20,396)

See accompanying notes to the consolidated financial statements.

[(1)] Retroactively adjusted shares issued and outstanding, and per share information to give effect to the Company's 1-for-8 reverse stock split. See Note 2.

SHAPEWAYS HOLDINGS, INC.
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY
(in thousands, except share and per share amounts)

	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares (1)	Amount				
Balance at January 1, 2022	6,078,467	$ 5	$ 198,179	$ (112,811)	$ (369)	$ 85,004
Issuance of common stock for stock-based compensation	102,395	—	339	—	—	339
Cancellation of restricted stock	(216)	—	—	—	—	—
Stock-based compensation expense	—	—	2,155	—	—	2,155
Transfer of Private Warrants to Public Warrants	—	—	689	—	—	689
Net loss	—		—	(20,221)	—	(20,221)
Foreign currency translation	—	—	—	—	(175)	(175)
Balance at December 31, 2022	6,180,646	5	201,362	(133,032)	(544)	67,791
Issuance of common stock upon exercise of stock options	298,536	—	—	—	—	—
Issuance of common stock upon settlement of earnout consideration liability	156,658	—	537	—	—	537
Restricted stock units withheld for employee tax liability	(76,090)		(217)			(217)
Cancellation of restricted stock	(1,843)					—
Issuance of common stock under the ATM Facility, net of offering costs	39,587	—	118	—	—	118
Stock-based compensation expense	—	—	2,430	—	—	2,430
Redemption of fractional shares on reverse stock split	(85)		(4)			(4)
Net loss	—	—	—	(43,911)	—	(43,911)
Impact of reverse stock split on Common stock		(4)	4			—
Foreign currency translation	—	—	—	—	84	84
Balance at December 31, 2023	6,597,409	$ 1	$ 204,230	$ (176,943)	$ (460)	$ 26,828

See accompanying notes to the consolidated financial statements.

(1) Retroactively adjusted shares issued and outstanding to give effect to the Company's 1-for-8 reverse stock split. See Note 2.

SHAPEWAYS HOLDINGS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands, except share and per share amounts)

	Year Ended December 31, 2023	Year Ended December 31, 2022
Cash flows from operating activities:		
Net loss	$ (43,911)	$ (20,221)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	1,870	1,514
Loss from impairment on assets held for sale	12,814	—
Loss from impairment on goodwill	1,072	—
Write-off of prepaid services	3,954	—
Write-off of intangible assets	481	—
Bad debt expense	337	—
Loss on disposal of property and equipment	85	49
Stock-based compensation expense	2,430	2,155
Non-cash lease expense	996	1,000
Deferred income taxes	25	27
Interest receivable on short-term investments	(767)	(105)
Change in fair value of earnout liability	—	(1,824)
Change in fair value of warrant liabilities	—	(1,584)
Change in operating assets and liabilities:		
Accounts receivable	(3,491)	873
Inventory	(737)	(192)
Prepaid expenses and other assets	(850)	(1,686)
Accounts payable	541	1
Accrued expenses and other liabilities	(1,535)	996
Operating lease liabilities	(964)	(1,049)
Deferred revenue	801	(522)
Security deposits	—	(7)
Net cash used in operating activities	(26,849)	(20,575)
Cash flows from investing activities:		
Purchases of property and equipment	(2,796)	(10,118)
Purchase of short-term investments	(9,769)	(9,780)
Proceeds from settlement of short-term investments	20,000	—
Cash paid for acquisitions, net of cash acquired	—	(8,861)
Net cash provided by (used in) investing activities	7,435	(28,759)
Cash flows from financing activities:		
Proceeds received from other finance obligations	993	—
Principal payments on finance leases	(45)	—
Payments on other finance obligations	(62)	—
Payments of taxes on restricted stock units withheld for employee taxes	(217)	—
Proceeds from issuance of common stock	118	339
Net cash provided by financing activities	787	339
Net change in cash and cash equivalents and restricted cash	(18,627)	(48,995)
Effect of change in foreign currency exchange rates on cash and cash equivalents and restricted cash	99	(55)
Cash and cash equivalents and restricted cash at beginning of year	30,769	79,819
Cash and cash equivalents and restricted cash at end of year	$ 12,241	$ 30,769
Supplemental disclosure of cash and non-cash transactions:		
Cash paid for interest	$ 143	$ —
Purchase of property and equipment included in accounts payable	$ 22	$ 225
Issuance of common stock upon settlement of earnout consideration liability	$ 537	$ —

See accompanying notes to the consolidated financial statements.

SHAPEWAYS HOLDINGS, INC.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Note 1. Organization

On September 29, 2021 (the “Closing” or the “Closing Date”), Galileo Acquisition Corp., a Cayman Islands exempted company (“Galileo” and after the Domestication (as defined below) “Shapeways”), a publicly-traded special purpose acquisition company, consummated the transactions described in the Agreement and Plan of Merger and Reorganization (the “Merger Agreement”) dated April 28, 2021, by and among Galileo Founders Holdings, L.P. (the “Sponsor”), Galileo Acquisition Corp., Galileo Acquisition Holdings, Inc., a Delaware corporation and wholly-owned subsidiary of Galileo (“Merger Sub”), and Shapeways, Inc., a Delaware corporation (“Legacy Shapeways”), whereby Merger Sub merged with and into Legacy Shapeways, the separate corporate existence of Merger Sub ceasing and Legacy Shapeways being the surviving corporation and a wholly owned subsidiary of Shapeways (the “Merger”).

Further, on the Closing Date, Galileo was domesticated and continued as a Delaware corporation (the “Domestication” and, together with the Merger, the “Business Combination”), changing its name to “Shapeways Holdings, Inc.” (the “Company” and/or “Shapeways”). Simultaneously with the execution of the Business Combination, Galileo entered into subscription agreements pursuant to which certain investors agreed to purchase an aggregate of 7,500,000 shares of common stock for a purchase price of $10.00 per share and $75,000,000 in the aggregate (the “PIPE Investment”). At the Closing, the Company consummated the PIPE Investment. Shapeways also operates through its wholly owned subsidiaries, Shapeways BV, which was incorporated in the Netherlands on December 10, 2008 and Linear Mold & Engineering, LLC, also referred to as Linear AMS ("Linear"), which was acquired in May 2022.

Shapeways is a leader in the large and fast-growing digital manufacturing industry combining high quality, flexible on-demand manufacturing powered by purpose-built proprietary software which enables customers to rapidly transform digital designs into physical products, globally. Shapeways makes industrial-grade additive manufacturing and traditional manufacturing accessible by fully digitizing the end-to-end manufacturing process, and by providing a broad range of solutions utilizing 12 additive manufacturing technologies, 13 injection molding and computer numerical control ("CNC") manufacturing technologies, and more than 120 materials and finishes, with the ability to easily scale new innovation. Shapeways has delivered over 24 million parts to over 1 million customers in over 180 countries, from inception through December 31, 2023.

Note 2. Summary of Significant Accounting Policies

Basis of Presentation and Principles of Consolidation

The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”) as defined by the Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) and in accordance with the instruction to Form 10-K and Article 8 of Regulation S-X of the Securities and Exchange Commission ("SEC"). The consolidated financial statements include the accounts of its wholly owned subsidiaries, Legacy Shapeways, Shapeways BV and Linear. All intercompany accounts and transactions have been eliminated in consolidation. In the opinion of management, the accompanying consolidated financial statements include all adjustments, consisting of a normal recurring nature, which are necessary for a fair presentation of the financial position, operating results and cash flows for the periods presented.

Use of Estimates

The preparation of the Company’s consolidated financial statements, in conformity with U.S. GAAP, requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and reported amounts of revenues and expenses during the reporting periods. Actual results may differ from those estimates.

Functional Currency

The Euro is the functional currency for Shapeways BV’s operations outside the United States. Assets and liabilities of these operations are translated into U.S. Dollars at the exchange rate in effect at the end of each period. Income statement accounts are translated at the average exchange rate prevailing during the period. Translation adjustments arising from the use of differing exchange rates from period to period are included as a component of other comprehensive loss within stockholders’ equity. Gains and losses from foreign currency transactions are included in net loss for the period.

Cash, Cash Equivalents and Restricted Cash

Cash includes cash on hand and demand deposits and highly liquid securities with original maturities at the date of acquisition of ninety days or less. The Company maintains its deposits at high quality financial institutions and monitors the credit ratings of those institutions. The Company considers all highly liquid investments with original maturities of three months or less to be cash equivalents. While cash held by financial institutions may at times exceed federally insured limits, the Company believes that no material credit or market risk exposure exists due to the high quality of the institutions. The Company has not experienced any losses on such accounts. Restricted cash represents cash required to be held as collateral for the Company's credit cards and security deposit for its facility in the Netherlands. Accordingly, these balances contain restrictions as to their availability and usage and are classified as restricted cash in the consolidated balance sheets.

The reconciliation of cash, cash equivalents and restricted cash reported within the applicable consolidated balance sheets that sum to the total of the same such amount shown in the consolidated statements of cash flows is as follows:

	December 31,	
	2023	2022
Cash and cash equivalents	$ 12,200	$ 30,630
Restricted cash	41	139
	$ 12,241	$ 30,769

Short-term Investments

The Company invests its excess cash in fixed income instruments including U.S. treasury securities with a maturity of six months or less. The Company has the means to and intends to hold all investments to maturity, and as such its investments are classified as held-to-maturity investments. Held-to-maturity investments are recorded at amortized cost and adjusted for the amortization or accretion of premiums or discounts.

Accounts Receivable

Accounts receivable are recorded at the invoiced amount and are generally unsecured as they are uncollateralized. The Company provides an allowance for credit losses to reduce receivables to their estimated net realizable value. Judgement is exercised in establishing allowances and estimates are based on the customers' payment history and liquidity. Any amounts that were previously recognized as revenue and subsequently determined to be uncollectible are charged to bad debt expense included in selling, general and administrative expense in the accompanying consolidated statements of operations and comprehensive loss. Given the nature and historical collectability of the Company's accounts receivable, an allowance for credit losses of $337 was recorded at December 31, 2023. An allowance for credit losses wasnot deemed necessary at December 31, 2022.

Inventory

Inventory consists of raw materials, work in process and finished goods at the Company's distribution centers. Raw materials are stated at the lower of cost or net realizable value, determined by the first-in-first-out method. Finished goods and work in process are valued using a methodology to determine the cost of each 3D printed object using allocations for material, labor, machine time and overhead. The Company periodically reviews its inventory for slow-moving, damaged and discontinued items and provides allowances to reduce such items identified to their recoverable amounts. As of December 31, 2023 and 2022, the Company determined an allowance was not deemed necessary.

Property and Equipment, net

Property and equipment are stated at cost, less accumulated depreciation. Maintenance and repairs are charged to expense when incurred. Additions and improvements that extend the economic useful life of the asset are capitalized and depreciated over the remaining useful lives of the assets. The cost and accumulated depreciation of assets sold or retired are removed from the respective accounts, and any resulting gain or loss is reflected in current earnings.

In March 2021, the Company entered into a non-binding Memorandum of Understanding ("MOU") with Desktop Metal Inc. ("Desktop Metal"), pursuant to which Desktop Metal agreed to invest $20.0 million in the PIPE Investment. Upon consummation of this investment, the Company became obligated to purchase $20.0 million of equipment, materials and services from Desktop Metal. The Company has no further obligations under the MOU. The Company recognized $11.6 million of impairment charges on these assets during the twelve months ended December 31, 2023. No impairment charges were recorded for the twelve months ended December 31, 2022. The Company also wrote off $4.0 million of prepaid services related to such equipment for the twelve months ended December 31, 2023, which were included in selling, general and administrative expense on the consolidated statements of operations and comprehensive loss.

Costs for capital assets not yet placed into service are capitalized and depreciated once placed into service.Depreciation is recognized using the straight-line method in amounts considered to be sufficient to allocate the cost of the assets to operations over the estimated useful lives or lease terms, as follows:

Asset Category	Depreciable Life
Machinery and equipment	5 to 10 years
Computers and IT equipment	3 to 10 years
Furniture and fixtures	7 to 10 years
Vehicles	10 years
Leasehold improvements	**

** Leasehold improvements are amortized using the straight-line method over the shorter of the lease term or estimated useful life of the asset.

Long-Lived Assets, Including Definite-Lived Intangible Assets

Intangible assets, which consist of technology, customer relationships, trademarks, favorable and unfavorable operating leases, and non-competition agreements are stated at cost less accumulated amortization. Amortization is generally recorded on a straight-line basis over estimated useful lives ranging from two to ten years. The Company periodically reviews the estimated useful lives of intangible assets and adjusts when events indicate that a shorter life is appropriate. Capitalization of costs to develop software begins when preliminary development efforts are successful and completed. Costs related to the design or maintenance of internal-use software are expensed as incurred.

Long-lived assets, other than goodwill and other indefinite-lived intangibles, are evaluated for impairment whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable through the estimated undiscounted future cash flows derived from such assets.

Factors that the Company considers in deciding when to perform an impairment review include significant changes in the Company's forecasted projections for the asset or asset group for reasons including, but not limited to, significant underperformance of a product in relation to expectations, significant changes, or planned changes in the Company's use of the assets, significant negative industry or economic trends, and new or competing products that enter the marketplace. The impairment test is based on a comparison of the undiscounted cash flows expected to be generated from the use of the asset group. If impairment is indicated, the asset is written down by the amount by which the carrying value of the asset exceeds the related fair value of the asset with the related impairment charge recognized within the statements of operations and comprehensive loss. The Company recorded impairment charges of $1,249 for the year ended December 31, 2023 and this amount is included in the impairment on assets held for saleon the consolidated statement of operations and comprehensive loss. No impairment charges were recorded for the years ended December 31, 2022.

Goodwill

Goodwill, which represents the excess of purchase prices over the fair value of net assets acquired, is carried at cost. Goodwill is not amortized; rather, it is subject to a periodic assessment for impairment by applying a fair value-based test. Goodwill is evaluated for impairment on an annual basis at a level of reporting referred to as the reporting unit, and more frequently if adverse events or changes in circumstances indicate that the asset may be impaired.

Under ASC 350, *Intangibles - Goodwill and Other*, the Company has the option to first assess the qualitative factors to determine whether it is more likely than not that the fair value of the reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform a quantitative goodwill impairment test. If the Company determines that it is more likely than not that the fair value of a reporting unit is less than its carrying amount, then the goodwill impairment test is performed. Impairment tests are performed on a quarterly basis. Management uses the future discounted cash flows valuation approach to determine the fair value of reporting units and determines whether the fair value of reporting units exceeded its carrying amounts. If the fair value exceeds the carrying amount, then no impairment is recognized. If the carrying amount recorded exceeds the fair value calculated, then an impairment charge is recognized for the difference. The impairment review requires management to make judgments in determining various assumptions with respect to revenues, operating margins, growth rates and discount rates. The judgments made in determining the projected cash flows used to estimate the fair value can materially impact the Company's financial condition and results of operations.

The Company recognized goodwill impairment charges amounting to $1,072 for the twelve months ended December 31, 2023. No impairment charges related to goodwill were recorded for the twelve months ended December 31, 2022. See Note 10 for more information.

Fair Value Measurements

The Company applies ASC 820, *Fair Value Measurement* ("ASC 820"), which establishes a framework for measuring fair value and clarifies the definition of fair value within that framework. ASC 820 defines fair value as an exit price, which is the price that would be received for an asset or paid to transfer a liability in the Company's principal or most advantageous market in an orderly transaction between market participants on the measurement date. The fair value hierarchy established in ASC 820 generally requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. Observable inputs reflect the assumptions that market participants would use in pricing the asset or liability and are developed based on market data obtained from sources independent of the reporting entity. Unobservable inputs reflect the entity's own assumptions based on market data and the entity's judgments about the assumptions that market participants would use in pricing the asset or liability and are to be developed based on the best information available in the circumstances.

The valuation hierarchy is composed of three levels. The classification within the valuation hierarchy is based on the lowest level of input that is significant to the fair value measurement. The levels within the valuation hierarchy are described below:

Level 1 **-** Assets and liabilities with unadjusted, quoted prices listed on active market exchanges. Inputs to the fair value measurement are observable inputs, such as quoted prices in active markets for identical assets or liabilities.

Level 2 **-** Inputs to the fair value measurement are determined using prices for recently traded assets and liabilities with similar underlying terms, as well as direct or indirect observable inputs, such as interest rates and yield curves that are observable at commonly quoted intervals.

Level 3 **-** Inputs to the fair value measurement are unobservable inputs, such as estimates, assumptions, and valuation techniques when little or no market data exists for the assets or liabilities.

Business Acquisitions

The purchase price of an acquisition is allocated to the assets acquired, including intangible assets, and liabilities assumed, based on their respective fair values at the acquisition date. Acquisition-related costs are expensed as incurred. The excess of the cost of an acquired entity, net of the amounts assigned to the assets acquired and liabilities assumed, is recognized as goodwill. The net assets and results of operations of an acquired entity are included on the Company's consolidated financial statements from the acquisition date.

Revenue Recognition

Revenue is derived from two primary sources: (a) products and services and (b) software.

The Company recognizes revenue following the five-step model prescribed under ASC 606, *Revenue from Contracts with Customers ("*ASC 606*")*: (i) identify contract(s) with a customer; (ii) identify the performance obligation(s) in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligation(s) in the contract; and (v) recognize revenue when (or as) the Company satisfies a performance obligation. The Company only applies the five-step model to contracts when it is probable that the Company will collect the consideration it is entitled to in exchange for the products or services it transfers to the customer. These contracts have different terms based on the scope, performance obligations, and complexity of the project, which often requires the Company to make judgments and estimates in recognizing revenues.

Performance obligations are satisfied both at a point of time and over time. All revenue is recognized based on the satisfaction of the performance obligation to date (see Note 6).

Leases

The Company's lease arrangements relate primarily to office and manufacturing space and equipment. The Company's leases have initial terms ranging from 2 to 10 years and may include renewal options and rent escalation clauses. The Company is typically required to make fixed minimum rent payments relating to its right to use an underlying leased asset. Additionally, the Company's leases do not contain significantly restrictive covenants or residual value guarantees.

The Company determines if an arrangement is a lease at inception and classifies its leases at commencement. Operating leases are presented as operating lease right-of-use assets, net and the corresponding lease liabilities are included in operating lease liabilities, current and operating lease liabilities, net of current on the Company's consolidated balance sheets. Finance lease right-of-use assets are presented within property and equipment, net and the corresponding finance lease liabilities are included in finance lease liability, current and finance lease liability, noncurrent on the Company's consolidated balance sheets. Operating lease right-of-use assets and finance lease right-of-use assets, (collectively "ROU assets") represent the Company's right to use an underlying asset and lease liabilities represent the Company's obligation for lease payments in exchange for the ability to use the asset for the duration of the lease term. The Company does not recognize short term leases that have a term of twelve months or less as ROU assets or lease liabilities. The Company's short-term leases are not material and do not have a material impact on its ROU assets or lease liabilities.

ROU assets and lease liabilities are recognized at commencement date and determined using the present value of the future minimum lease payments over the lease term. The Company uses an incremental borrowing rate based on estimated rate of interest for collateralized borrowing since the Company's leases do not include an implicit interest rate. The estimated incremental borrowing rate considers market data, actual lease economic environment, and actual lease term at commencement date. The lease term may include options to extend when it is reasonably certain that the Company will exercise that option. ROU assets include lease payments made in advance, and excludes any incentives received or initial direct costs incurred. The Company recognizes lease expense on a straight-line basis over the lease term.

The Company has lease agreements which contain both lease and non-lease components, which it has elected to account for as a single lease component. As such, minimum lease payments include fixed payments for non-lease components within a lease agreement, but exclude variable lease payments not dependent on an index or rate, such as common area maintenance, operating expenses, utilities, or other costs that are subject to fluctuation from period to period.

Stock-based Compensation

The Company recognizes stock-based compensation expense for all stock options, restricted stock units and other arrangements within the scope of ASC 718, *Stock Compensation* ("ASC 718"). Stock-based compensation expense is measured at the date of grant, based on the fair value of the award, and is recognized using the straight-line method over the employee's requisite service period. Compensation for stock-based awards with vesting conditions other than service are recognized based on the probability of the performance condition being met over the vesting period. Forfeitures are recognized as they are incurred.

Common Stock Warrant Liabilities

The Company evaluates its warrants under ASC 815-40, *Derivatives and Hedging—Contracts in Entity's Own Equity* ("ASC 815-40"). The Private Warrants (as defined in Note 14) previously met the definition of a derivative under ASC 815, and the Company recorded these warrants as liabilities on the consolidated balance sheets at fair value, with subsequent changes in their respective fair values recognized in the consolidated statement of operations and comprehensive loss at each reporting date.

In December 2022, the Company and the holders of the Private Warrants entered into letter agreements, pursuant to which such holders agreed that the Private Warrants will be exercisable for cash or on a cashless basis and redeemable on the same terms and subject to the same conditions as the Public Warrants (as defined in Note 14). The Company has therefore concluded that as of December 31, 2023 and 2022, all its warrants met the criteria to be classified in stockholders' equity.

Research and Development Costs

Research and development expenses consist primarily of allocated personnel costs, and allocations for rent and overhead.Research and development costs are expensed as incurred. Advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received. For the years ended December 31, 2023 and 2022, research and development costs were $9,302 and $10,409, respectively.

Advertising Costs

Advertising costs are expensed as incurred. Advertising costs were $1,279 and $2,046 for the years ended December 31, 2023 and 2022, respectively, which are included in selling, general and administrative expense on the Company's consolidated statements of operations and comprehensive loss.

Income Taxes

The Company files income tax returns in the U.S. federal jurisdiction, various state jurisdictions, and the Netherlands. Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates in effect for the year in which those temporary differences are expected to be recovered or settled. Where applicable, the Company records a valuation allowance to reduce any deferred tax assets that it determines will not be realizable in the future.

The Company recognizes the benefit of an uncertain tax position that it has taken or expects to take on income tax returns it files if such tax position is more likely than not to be sustained on examination by the taxing authorities, based on the technical merits of the position. These tax benefits are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate resolution. Although the Company believes that it has adequately reserved for uncertain tax positions (including interest and penalties), it can provide no assurance that the final tax outcome of these matters will not be materially different. The Company makes adjustments to these reserves in accordance with the income tax accounting guidance when facts and circumstances change, such as the closing of a tax audit or the refinement of an estimate. To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will affect the provision for income taxes in the period in which such determination is made, and could have a material impact on the Company's financial condition and operating results. Carryforward attributes that were generated in tax years prior to those that remain open for examination may still be adjusted by relevant tax authorities upon examination if they either have been, or will be, used in a future period.

Reverse Stock Split

On June 14, 2023, the Company's Board of Directors approved a reverse stock split ratio of 1-for-8 (the "Reverse Stock Split"). On June 22, 2023, the effective date of the Reverse Stock Split, the number of the Company's issued and outstanding shares of common stock decreased from 51,540,172 shares to 6,442,436 shares, net of fractional shares redeemed. The number of authorized shares and par value per common share remained unchanged. No fractional shares were issued as a result of the Reverse Stock Split. Stockholders who would otherwise have been entitled to receive a fractional share received a cash payment in lieu thereof. Prior to the effective date of the Reverse Stock Split, the Company had listed warrants to purchase a total of 18,410,000 shares of Common Stock, with each whole warrant being exercisable forone share of Common Stock at $11.50 per share. After the effective date of the Reverse Stock Split, every eight shares of Common Stock that may have been purchased pursuant to the warrants immediately prior to the Reverse Stock Split represented one share of Common Stock that may be purchased pursuant to such warrants immediately following the Reverse Stock Split. Correspondingly, the exercise price per share of Common Stock attributable to such warrants was proportionately increased, such that the exercise price immediately following the Reverse Stock Split was $92.00, which equals the product of eight multiplied by $11.50, the exercise price per share immediately prior to the Reverse Stock Split. The number of shares of Common Stock subject to the warrants was proportionately decreased by eight times, to an aggregate of 2,301,250 shares.

The share, per share and trading price amounts in the consolidated financial statements and the accompanying notes, have been retrospectively adjusted to reflect the Reverse Stock Split for all periods presented.

Net Loss per Share

In accordance with the provisions of ASC 260, *Earnings Per Share*, net loss per common share is computed by dividing net loss by the weighted-average shares of common stock outstanding during the period. Basic net loss per share is computed by dividing net loss by the weighted average number of shares outstanding during the period. Diluted net loss per share gives effect to all dilutive potential common shares outstanding during the period including stock options and warrants, using the treasury stock method, and convertible debt and convertible securities, using the if-converted method. During a loss period, the effect of the potential exercise of stock options and convertible debt are not considered in the diluted net loss per share calculation since the effect would be anti-dilutive. A reconciliation of net loss and number of shares used in computing basic and diluted net loss per share is as follows:

	Year Ended December 31,	
	2023	**2022**
Basic and Diluted net loss per share computation:		
Numerator for basic and diluted net loss per share:		
Net loss	$ (43,911)	$ (20,221)
Denominator for basic and diluted net loss per share:		
Weighted average common shares - basic and diluted	6,749,836	6,624,820
Basic and diluted net loss per share	$ (6.51)	$ (3.05)

The following table presents the outstanding shares of common stock equivalents that were excluded from the computation of the diluted net loss per share attributable to common stock for the periods in which a net loss is presented because their effect would have been anti-dilutive:

	Year Ended December 31,	
	2023	2022
Potentially dilutive securities:		
Common stock warrants [(1)]	2,301,250	2,301,250
Earnout shares	438,800	438,800
Unvested RSUs	568,570	655,882

(1) The number of shares of common stock subject to the warrants was proportionately decreased as a result of the Reverse Stock Split.

Included in loss per common share are350,511 and 485,632 shares subject to options due to their nominal exercise prices as of December 31, 2023 and 2022, respectively.

Segment Information

The Company operates and reports in one segment, which focuses on providing additive and traditional manufacturing services to customers. The Company's operating segment is reported in a manner consistent with the internal reporting provided to the chief operating decision maker ("CODM"). The Company's CODM has been identified as its Chief Executive Officer. The Company is continually evaluating its operating and reporting segments.

Recent Accounting Pronouncements

Accounting Pronouncements Recently Adopted

In June 2016, the FASB issued Accounting Standards Update ("ASU") No. 2016-13,*Financial Instruments – Credit Losses (Topic 326) – Measurement of Credit Losses on Financial Instruments*. This ASU significantly changes how entities measure credit losses for most financial assets and certain other instruments that are not measured at fair value through net income. This standard was adopted by the Company as of January 1, 2023 and it had an immaterial impact on the Company's financial statements.

Accounting Pronouncements Recently Issued Not Yet Adopted

In December 2023, the FASB issued ASU 2023-09,*Income Taxes (Topic 740): Improvements to Income Tax Disclosures*. The amendments in this ASU require disaggregated information about the effective tax rate reconciliation and additional information on taxes paid that meet a quantitative threshold. The new guidance is effective for annual reporting periods beginning after December 15, 2024, with early adoption permitted. The Company is currently evaluating the impact of the new guidance on its consolidated financial statements.

In November 2023, the FASB issued ASU 2023-07,*Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures*. The amendment in this ASU requires new tabular and narrative segment disclosures of significant expenses that are regularly reported to the chief operating decision maker and the nature of segment expense information used to manage operations. The new guidance is effective for annual reporting periods beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024. The Company is currently evaluating the impact of the new guidance on its consolidated financial statements.

In October 2023, the FASB issued Accounting Standards Update ("ASU") 2023-06,*Disclosure Improvements.* The amendments in this ASU modify the disclosure or presentation requirements of a variety of topics in the codification. Certain of the amendments represent clarifications to or technical corrections of the current requirements. The amendments in this ASU are effective for the interim period June 30, 2027, with early adoption prohibited. The Company is currently evaluating the impact the standard will have on its consolidated financial statements.

Note 3. Going Concern

The Company's consolidated financial statements are prepared in accordance with U.S. GAAP applicable to a going concern that contemplates the realization of assets and liquidation of liabilities in the normal course of business.

The Company had net loss of $43,911 and $20,221 for the years ended December 31, 2023 and 2022, respectively. The Company has incurred losses from operations since inception and as of December 31, 2023, had an accumulated deficit of $176,943 and a decrease in net change in cash and cash equivalents during the year ended December 31, 2023 of $18,627. These conditions, among others, raise substantial doubt about the Company's ability to continue as a going concern for one year following the issuance of these financial statements.

The Company initiated a number of cost reduction measures during the year ended December 31, 2023, including reductions in force completed in October and December, 2023, reduction of new hires and reduction in non-critical capital and discretionary operating expenditures. The Company has also identified several further potential actions that could be initiated in a timely manner to extend the cash runway necessary to fund operations and to address the Company's liquidity needs over the twelve-month period from the date of issuance of these consolidated financial statements. These actions include raising substantial additional capital to fund its operations through equity or debt financings or other sources, strategic collaborations, deferral and reprioritization of certain additional research and development programs that would involve reduced program and headcount spend, further reduction in force, realignment of operating infrastructure including closing or downsizing manufacturing facilities, and further reduction in non-critical capital and discretionary operating expenditures including personnel costs, travel and recruitment, additional equipment and business support spend. Although the Company is continuing to explore actions to maximize shareholder value and management has taken actions to reduce cash use, it cannot be sure these actions will sufficiently reduce or eliminate future losses.

As previously disclosed, the Company has been working with advisors in considering its strategic alternatives, including, without limitation, a sale of a material portion of the Company's assets, merger, business combination, liquidation of certain assets or other strategic transaction to maximize shareholder value. Based on market checks conducted by the Company's advisors, as well as preliminary discussions with and feedback from potential purchasers, and in light of continued macroeconomic and industry pressures, the Company is actively taking steps to sell a material portion of the Company's assets. In the course of these preliminary discussions, potential purchasers have indicated an interest in acquiring either the Company's manufacturing business or its software business, but not both. Even if the Company pursues a transaction, such transaction may not be consistent with stockholders' expectations or may not ultimately be favorable for stockholders, either in the shorter or longer term.

The Company is continuing to evaluate strategic alternatives with regard to its core manufacturing and software businesses, including ongoing discussions with potential acquirers. The Company has not signed a definitive agreement with respect to either its software or manufacturing assets, and there can be no assurance that any of these processes will result in any transaction. Please see Part I, Item 1A: "Risk Factors—Risks Related to Our Business—We may not be successful in identifying and implementing one or more strategic alternatives for our business, and any strategic alternative that we may consummate could have material adverse consequences for us".

The Company believes management's plans may not provide sufficient liquidity to meet its financial obligations and maintain levels of liquidity over the twelve-month period from the date of issuance of these financial statements. As such, the Company demonstrates adverse conditions that raise substantial doubt about the Company's ability to continue as a going concern for one year following the issuance of these consolidated financial statements.

The consolidated financial statements do not include any adjustments relating to the recoverability and classification of recorded assets, or the amounts and classification of liabilities that might be necessary in the event that the Company cannot continue as a going concern.

Note 4. Short-term Investments

The Company considers all investments with original maturities of three months or less to be cash and cash equivalents and investments with original maturities of more than three months but less than one year to be short-term investments. As of December 31, 2022, the Company's investment in short-term investments consisted of U.S. Treasury Securities classified as held-to-maturity. Held-to-maturity investments are recorded at amortized cost and adjusted for the amortization or accretion of premiums or discounts. The carrying value, excluding gross unrealized holding gains or losses and fair value as of December 31, 2023 and 2022 were as follows:

	December 31, 2023			
	Amortized Cost and Carrying Value	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value December 31, 2023
Classified as Cash and cash equivalents				
U.S. Treasury Securities	$ 9,950	$ 16	$ —	$ 9,966
Classified as short-term investments				
U.S. Treasury Securities	$ —	$ —	$ —	$ —

	December 31, 2022			
	Amortized Cost and Carrying Value	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value December 31, 2022
Classified as Cash and cash equivalents				
U.S. Treasury Securities	$ 19,864	$ 73	$ —	$ 19,937
Classified as short-term investments				
U.S. Treasury Securities	$ 9,816	$ 33	$ —	$ 9,849

Note 5. Business Acquisitions

Acquisition of MFG.com

On April 22, 2022, the Company completed the acquisition of the outstanding assets of MP2020, Inc. ("MFG.com" or "MFG") under an Asset Purchase Agreement ("MFG Purchase"). MFG.com is expected to help the Company's software strategy by providing an immediate supply chain of a wide range of traditional manufacturing services that its customers can leverage.

The following table summarizes the total consideration for the MFG Purchase:

	April 22, 2022
Cash consideration	$ 2,700
Holdback consideration	300
Total consideration	$ 3,000

The holdback consideration represents the portion of the purchase price to be paid within 12 months from the closing date, subject to reduction for certain indemnifications and other potential obligations of the acquired businesses. The holdback consideration was recorded in accrued expenses and other liabilities on the consolidated balance sheets as of December 31, 2022 and was paid January 2023.

The Company has accounted for the MFG Purchase as a business combination in accordance with ASC Topic 805, *Business Combinations* ("ASC 805"). The following table summarizes the allocation of the purchase price to the estimated fair values of assets acquired and liabilities assumed:

		April 22, 2022
Assets acquired:		
Goodwill	$	1,954
Intangible assets		1,604
Other assets		15
Total assets acquired		3,573
Liabilities assumed:		
Deferred revenue		573
Total liabilities assumed		573
Net assets acquired	$	3,000

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

		Gross Value	Estimated Life (in years)
Customer relationships	$	264	10
Trade name		240	10
Acquired software platform		910	10
Customer list		190	3
Total intangible assets	$	1,604	

The goodwill will not be deductible for tax purposes. The Company incurred $212 of transaction costs related to this acquisition, which are included in general and administrative expenses on the consolidated statements of operations.

The Company has determined that the impact of the MFG Purchase was not material to its consolidated financial statements; therefore, separate presentation of revenue and earnings since the acquisition date and pro forma information are not required nor included herein.

Acquisition of Linear AMS

On May 9, 2022, the Company completed the acquisition of the membership interest of Linear Mold & Engineering, LLC ("Linear AMS" or "Linear") under a Membership Interest Purchase Agreement (the "Linear AMS Purchase"). Linear is expected to help the Company expand its go to market strategy by leveraging Linear's highly technical business development and user application experience and extend its enterprise customer base in key markets.

The following table summarizes the total consideration for the Linear AMS Purchase:

		May 9, 2022
Cash consideration	$	6,090
Holdback consideration		800
Earnout consideration liability		2,900
Total consolidation	$	9,790

The holdback consideration represents the portion of the purchase price payable 12 months from the closing date, subject to reduction for certain indemnifications and other potential obligations of Linear AMS. The estimated fair value of the earnout consideration liability at acquisition was determined using a Monte Carlo simulation based on certain performance metrics for the 12 months ended December 31, 2022. During 2022, the Company recognized a non-cash gain of $1,824 as a result of the actual revenue performance of Linear for the year ended December 31, 2022. The final earnout consideration liability was paid in cash of $39 and a non-cash issuance of equity valued at $537 in April 2023.

The Company has accounted for the Linear AMS Purchase as a business combination in accordance with ASC 805.The following table summarizes the fair values of assets acquired and liabilities assumed as of the acquisition date:

	May 9, 2022
Assets acquired:	
Cash and cash equivalents	$ 29
Accounts receivable	1,117
Inventory	214
Prepaid expenses	34
Security deposits	92
Property and equipment, net	2,086
Right-of-use assets	2,131
Goodwill	2,497
Intangible assets, net	4,199
Total assets acquired	12,399
Liabilities assumed:	
Accounts payable	308
Accrued expenses and other liabilities	170
Operating lease liability	2,131
Total liabilities assumed	2,609
Net assets acquired	$ 9,790

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

	May 9, 2022	Estimated Life (in years)
Customer relationships	$ 2,822	10
Trade name	647	10
Noncompetition agreement	52	2
Favorable operating lease	699	4
Unfavorable operating lease	(21)	4
Total intangible assets	$ 4,199	

The goodwill will not be deductible for tax purposes. The Company incurred $161 of transaction costs related to this acquisition, which are included in general and administrative expenses on the consolidated statements of operations.

The Company has determined that the impact of the Linear AMS Purchase was not material to its consolidated financial statements; therefore, separate presentation of revenue and earnings since the acquisition date and pro forma information are not required nor included herein.

Acquisition of Maker OS

On April 13, 2022, the Company completed the acquisition of the outstanding assets of Maker OS under an Asset Purchase Agreement ("Maker OS Asset Purchase"). Maker OS is expected to help the Company expand on its manufacturing capabilities and help it build comprehensive ordering services within its software offerings. The total cash consideration paid related to this transaction was $100.

The Company has accounted for the Maker OS Asset Purchase as an asset purchase and no liabilities were assumed as part of the acquisition.The following table summarizes the fair values of assets acquired as of the acquisition date:

	April 13, 2022
Assets acquired:	
Intangible assets	$ 100
Total assets acquired	$ 100

The Company incurred immaterial transaction costs related to the Maker OS Asset Purchase, which are included in selling, general and administrative expenses on the consolidated statements of operations.

Note 6. Revenue Recognition

Under ASC 606, revenue is recognized throughout the life of the executed agreement. The Company measures revenue based on consideration specified in a contract with a customer. Furthermore, the Company recognizes revenue when a performance obligation is satisfied by transferring control of the product or service to the customer which could occur over time or at a point in time.

A performance obligation is a promise in a contract to transfer a distinct service to the customer. The transaction price of a contract is allocated to each distinct performance obligation and recognized as revenue when or as the customer receives the benefit of the performance obligation. Customers typically receive the benefit of the Company's services as (or when) they are performed. Substantially all customer contracts provide that compensation is received for services performed to date. Payments from customers are based on billing terms established in the contracts with each customer, which vary by the type of customer and the product or services offered. Taxes assessed by a governmental authority that are both imposed on and concurrent with a specific revenue-producing transaction, that are collected by the Company from a customer, are excluded from revenue.

Nature of Products and Services

The following is a description of the Company's products and services from which the Company generates revenue, as well as the nature, timing of satisfaction of performance obligations, and significant payment terms for each:

Direct sales

The Company provides customers with an additive manufacturing service, allowing for the customer to select the specifications of the model which they wish to have printed. Shapeways prints the 3D model and ships the product directly to the customer.

The Company recognizes the sale of products through its e-commerce website over time. Contracts involving the sale of products through its e-commerce website do not include other performance obligations. As such, allocation of the transaction price was not necessary as the entire contract price is attributed to the sole performance obligation identified.

Marketplace sales

The Company provides a platform for shop owners to list their designs through Shapeways' marketplace website. The Company prints the 3D models and ships the product directly to the customer, handling the financial transaction, manufacturing, distribution and customer service on behalf of the shop owners. Judgment is applied to determine whether the Company is the principal or the agent, which could impact the recognition of revenue and cost of revenue within the consolidated statements of operations and comprehensive loss. The Company considers whether it has the primary responsibility for fulfilling the promise to provide the specified product or service to the end user, whether it has inventory risk prior to transferring the product or service to the customer and if the Company has discretion in establishing prices. The Company acts as an agent in these arrangements where it facilitates the sales of the goods and services on behalf of third-party shop owners to end customers. The Company is considered an agent and recognizes revenue generated from these transactions on a net basis since the Company lacks the ability to establish the overall selling price of the goods or services provided to the end user.

The Company recognizes the sale of 3D printed products to customers at a point in time, specifically upon shipping the goods to the customer (FOB Origin) given the transfer of significant risks and rewards of ownership at that point in time. Contracts involving the manufacturing and delivery of 3D printed products to customers do not include other performance obligations. As such, allocation of the transaction price is not necessary as the entire contract price is attributed to the sole performance obligation identified.

Software revenue

The Company launched the first phase of its software offering under the brand "OTTO" in the fourth quarter of 2021. The software enables other manufacturers to leverage Shapeways' existing end-to-end manufacturing software to scale their businesses and shift to digital manufacturing. Shapeways' software offers improved customer accessibility, increased productivity, and expanded manufacturing capabilities for its customers. The Company expanded its software offering's customer base and feature set with the acquisitions of MFG and MakerOS, both completed in April 2022.

For each of the performance obligations classified as software revenue, the performance obligations are satisfied evenly over the term of the contract. For contracts including performance obligations classified as software revenue, the Company identified that each performance obligation has an explicitly stated standalone selling price. As such, allocation is not necessary as the prices included in the contract are attributed to each separate performance obligation.

The following table presents the Company's revenue disaggregated by revenue source:

	Year Ended December 31,	
	2023	2022
Major products and service lines:		
Direct sales	$ 26,598	$ 25,429
Marketplace sales	4,777	5,932
Software	3,085	1,796
Total revenue	$ 34,460	$ 33,157
Timing of revenue recognition:		
Products transferred at a point in time	$ 4,777	$ 5,932
Products and services transferred over time	29,683	27,225
Total revenue	$ 34,460	$ 33,157

Deferred Revenue

The Company records deferred revenue when cash payments are received in advance of performance.Deferred revenue consisted of the following:

	December 31,	
	2023	2022
Balance at beginning of year	$ 972	$ 921
Deferred revenue recognized during year	(34,460)	(33,157)
Additions to deferred revenue during year	35,261	33,208
Total deferred revenue	$ 1,773	$ 972

The Company expects to satisfy its remaining performance obligations within the next twelve months. The $972 of deferred revenue as of January 1, 2023 was recognized during the year ended December 31, 2023. The opening balance of accounts receivable as of January 1, 2022 was $1,372.

Practical Expedients and Exemptions

The Company applies the practical expedient related to incremental costs of obtaining a contract. Although certain of its commission costs qualify for capitalization under ASC 340-40, *Contracts with Customers*, their amortization period is less than one year. Therefore, utilizing the practical expedient, the Company expenses these costs as incurred.

Note 7. Inventory

Components of inventory consisted of the following:

	December 31, 2023	December 31, 2022
Raw materials	$ 1,270	$ 849
Work-in-process	608	209
Finished goods	158	249
Total	$ 2,036	$ 1,307

Note 8. Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consisted of the following:

	December 31, 2023	December 31, 2022
Prepaid expenses	$ 2,985	$ 1,384
VAT receivable	1,040	990
Prepaid insurance	12	401
Prepaid operating expenses	—	3,231
Security deposits	—	175
Other current assets	21	74
Total	$ 4,058	$ 6,255

Note 9. Property and Equipment, Net

Property and equipment, net consisted of the following:

	December 31, 2023	December 31, 2022
Machinery and equipment	$ 10,867	$ 10,450
Computers and IT equipment	1,149	1,138
Leasehold improvements	2,810	2,429
Furniture and fixtures	133	81
Vehicles	42	42
Assets to be placed in service	52	11,749
Property and equipment	15,053	25,889
Less: Accumulated depreciation	(9,344)	(10,262)
Property and equipment, net	$ 5,709	$ 15,627

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For the years ended December 31, 2023 and 2022, depreciation expense totaled $1,185 and $1,009, respectively. Of these amounts, depreciation charged to cost of revenue was $983 and $866 for the years ended December 31, 2023 and 2022, respectively.

On March 26, 2021, the Company entered into a MOU with Desktop Metal, pursuant to which Desktop Metal agreed to invest $20.0 million in the PIPE Investment. Upon consummation of this investment, the Company became obligated to purchase $20.0 million of equipment, materials and services from Desktop Metal. In conjunction with these obligations, the Company and Desktop Metal agreed to develop a strategic partnership. The Company has no further obligations under the MOU. The Company recognized $11.6 million of impairment charges on these assets during the twelve months ended December 31, 2023. No impairment charges were recorded for the twelve months ended December 31, 2022. The Company also wrote off $4.0 million of prepaid services related to such equipment for the twelve months ended December 31, 2023, which was included in selling, general and administrative expense on the consolidated statements of operations and comprehensive loss.

Note 10. Goodwill and Intangible Assets

Changes in the carrying amount of goodwill as of December 31, 2023 and December 31, 2022 are as follows:

	December 31, 2023	December 31, 2022
Balance, beginning of period	$ 6,286	$ 1,835
Acquired goodwill	—	4,451
Impairment on goodwill	1,072	—
Balance, end of period	$ 5,214	$ 6,286

The Company recognized goodwill impairment charges amounting to $1,072 for the twelve months ended on December 31, 2023 related to the purchase of MFG, which we believe has declined in value due to current market conditions and based on feedback from our strategic alternatives process. No impairment charges related to goodwill were recorded for the twelve months ended December 31, 2022.

Intangible assets consisted of the following as of December 31, 2023:

	Gross carrying amount	Accumulated amortization	Intangible assets, net	Weighted average amortization period (in years)
Customer relationships	$ 2,822	$ (469)	$ 2,353	10
Trade name	747	(124)	623	10
Noncompetition agreement	52	(43)	9	2
Unfavorable operating lease	(21)	9	(12)	4
Total	$ 3,600	$ (627)	$ 2,973	

The Company recorded impairment charges of $1,249 and wrote off intangibles of $481 for the year ended December 31, 2023. There wereno intangible assets written off or impaired during the year ended December 31, 2022.

Intangible assets consisted of the following as of December 31, 2022:

	Gross carrying amount	Accumulated amortization	Intangible assets, net	Weighted average amortization period (in years)
Customer relationships	$ 3,086	$ (206)	$ 2,880	10
Trade name	987	(66)	921	10
Acquired software platform	910	(61)	849	10
Customer lists	190	(42)	148	3
Noncompetition agreement	52	(17)	35	2
Favorable operating lease	699	(117)	582	4
Unfavorable operating lease	(21)	4	(17)	4
Total	$ 5,903	$ (505)	$ 5,398	

The Company recognized $685 and $505 of amortization expense during the years ended December 31, 2023 and 2022. The Company estimates the future aggregate amortization expense related to its intangible assets as of December 31, 2023 will be as follows:

	Amortization expense
2024	$ 360
2025	352
2026	357
2027	357
2028	357
Thereafter	1,190
Total	$ 2,973

Note 11. Accrued Expenses and Other Liabilities

Accrued expenses consisted of the following:

	December 31,	
	2023	2022
Accrued compensation	$ 1,652	$ 1,504
Holdback consideration	—	1,100
Accrued selling expenses	689	487
Taxes payable	482	339
Accrued acquisition of property and equipment	—	225
Earnout consideration liability	—	1,076
Other accrued expenses and other liabilities	1,052	1,219
Total	$ 3,875	$ 5,950

Note 12. Commitments and Contingencies

Leases

During the year ended December 31, 2023, the Company maintained six leases of facilities located in the United States and the Netherlands, as well as, two leases of equipment classified as finance leases. In addition, the Company has two failed sale-leaseback transactions that have been recorded as finance obligations within its consolidated balance sheets. See Note 13 for additional information.

The table below presents certain information related to the Company's lease costs:

	Twelve Months Ended December 31,	
	2023	2022
Operating lease expense	$ 996	$ 1,000
Finance lease expense	46	—
Interest expense on finance lease liabilities	21	—
Total lease cost	$ 1,063	$ 1,000

The Company recorded sublease income of $283 and $255 during the years ended December 31, 2023 and 2022, respectively. The sublease income is associated with the Company's sublease of its facility in Michigan.

Right-of-use assets and lease liabilities for operating leases were recorded in the consolidated balance sheets as follows:

	December 31, 2023	December 31, 2022
Assets:		
Operating lease right-of-use assets, net	$ 1,739	$ 2,365
Finance lease right-of-use assets, net	306	—
Total lease assets	$ 2,045	$ 2,365
Liabilities:		
Current liabilities:		
Operating lease liabilities, current	$ 864	$ 719
Finance lease liability, current	64	—
Non-current liabilities:		
Operating lease liabilities, net of current portion	979	1,715
Finance lease liability, net of current portion	245	—
Total lease liability	$ 2,152	$ 2,434

The Company's lease agreements do not state an implicit borrowing rate; therefore, an internal incremental borrowing rate was determined based on information available at the lease commencement date for the purposes of determining the present value of lease payments. The incremental borrowing rate reflects the cost to borrow on a securitized basis in each market. The weighted-average remaining lease term for operating and finance leases was 2.14 years and 4.24 years, and the weighted-average incremental borrowing rate for the operating and finance leases was 6.97% and 8.24% as of December 31, 2023, respectively. The weighted-average remaining lease term for operating leases was3.06 years, and the weighted-average incremental borrowing rate was7.07% as of December 31, 2022.

Supplemental cash flow information related to the Company's leases was as follows:

	Years Ended December 31, 2023	Years Ended December 31, 2022
Operating cash flows from operating leases	$ 964	$ 1,049
Financing cash flows from finance leases	$ 45	$ —
Lease liabilities arising from obtaining right-of-use assets	$ 598	$ 285

As of December 31, 2023, future minimum lease payments required under operating leases are as follows:

	Operating Leases	Finance Leases
2024	$ 970	$ 87
2025	792	87
2026	237	87
2027	—	87
Thereafter	—	20
Total minimum lease payments	1,999	368
Less effects of discounting	(156)	(59)
Present value of future minimum lease payments	$ 1,843	$ 309

Legal Proceedings

The Company is involved in various legal proceedings which arise from time to time in the normal course of business. While the results of such matters generally cannot be predicted with certainty, management does not expect any such matters to have a material adverse effect on the Company's consolidated financial position or results of operations as of and for the years ended December 31, 2023 and 2022.

Note 13. Financing Obligations

Failed Sale-Leaseback

In February and March 2023, the Company entered into two lease transactions with Rabo Lease BV (“Rabo”), whereby it sold equipment to Rabo and leased back the equipment for an initial term of four years. The Company concluded that the lease arrangements would be classified as a failed sale-leaseback transaction and accounted as a financing obligation as it has the option to repurchase the assets at a fixed price at the end of the term. The assets continue to be depreciated over their useful lives, and payments are allocated between interest expense and repayment of the financing obligation. The assets under failed sale-leaseback transactions are included within property and equipment, net and the proceeds from the transactions are recorded as a financing obligation on the Company's consolidated balance sheets.

The weighted average interest rate of 20.5% was used to impute interest on the failed sale-leaseback transactions. Interest expense recognized for the year ended December 31, 2023 was $91.

As of December 31, 2023, future financing obligation payments under the failed sale-leaseback transactions are as follows:

	Finance Obligations
2024	$ 137
2025	137
2026	137
2027	14
Total payments	425
Less: imputed interest	(255)
Financing obligation at end of term	306
Total financing obligations	$ 476

Other Financing Arrangements

In August 2023, the Company entered into a financing agreement with Mitsubishi HC Capital America (“Financing Agreement”) for $500 using certain equipment as collateral. The Financing Agreement became payable in monthly installments beginning September 1, 2023 and has a maturity date of August 31, 2030. The effective interest rate on the Financing Agreement is 8.45%. Interest expense of $14 was recognized for the year ended December 31, 2023.As of December 31, 2023, the amount outstanding under the Financing Agreement was $482.

The scheduled maturities of the Company’s Financing Agreement are as follows:

	Financing Agreement
2024	$ 56
2025	61
2026	67
2027	72
Thereafter	226
Total payments	$ 482

In October 2023, the Company entered into a financing arrangement with First Insurance Funding in order to buy insurance for $839. This arrangement became payable in monthly installments beginning October 1, 2023 and has a maturity date of July 29, 2024. The effective interest rate on this arrangement is 8.09%. Interest expense of $15 was recognized for the year ended December 31, 2023. As of December 31, 2023, the amount outstanding under this financing arrangement was $594.

Note 14. Stockholders' Equity

Common Stock

Upon closing of the Business Combination, pursuant to the terms of the Certificate of Incorporation, the Company authorized 120,000,000 shares of common stock with a par value $0.0001. The holders of common stock are entitled to one vote per share on all matters submitted to the stockholders for their vote or approval and are entitled to receive dividends, as and if declared by the Board of Directors out of legally available funds.

The Company has issued and outstanding 6,597,409 and 6,180,646 shares of common stock as of December 31, 2023 and 2022, respectively.

Public and Private Warrants

Prior to the Merger, the Company had outstanding 13,800,000 warrants entitling the holder to exercise eight warrants to purchase one share of common stock at an exercise price of $92.00 per share (the "Public Warrants"). The Public Warrants became exercisable 30 days after the Closing Date, and expire five years after the Closing Date or earlier upon redemption or liquidation.

The Company may redeem the Public Warrants as follows: in whole and not in part; at a price of $0.01 per warrant; at any time while the Public Warrants are exercisable, upon not less than 30 days' prior written notice of redemption to each Public Warrant holder; if, and only if, the reported last sale price of the Company's common stock equals or exceeds $144.00 per share, for any 20 trading days within a 30-day trading period ending on the third business day prior to the notice of redemption to the warrant holders; and if, and only if, there is a current registration statement in effect with respect to the common stock underlying such warrants at the time of redemption and for the entire 30-day trading period referred to above and continuing each day thereafter until the date of redemption. Certain of these conditions have not been met to redeem the Public Warrants. If the Company calls the Public Warrants for redemption, management will have the option to require all holders that wish to exercise the Public Warrants to do so on a "cashless basis," as described in the warrant agreement.

The Company had outstanding 4,110,000 private warrants that were issued upon the consummation of the initial public offering of Galileo (the "Private Warrants"). Additionally, at the Closing, a lender holding a convertible note issued by the Company with an aggregate principal amount of $500 converted the note into 500,000 sponsor warrants exercisable for common stock at a purchase price of $1.00 per warrant (the "Sponsor Warrants"), with terms equivalent to the Private Warrants. The Sponsor Warrants are no longer held by the initial purchaser or any of its permitted transferees, and therefore have terms equivalent to the Public Warrants. In December 2022, the Company and the holders of the Private Warrants entered into letter agreements, pursuant to which such holders agreed that the Private Warrants will be exercisable for cash or on a cashless basis and redeemable on the same terms and subject to the same conditions as the Public Warrants.

There were 18,410,000 warrants outstanding, representing 2,301,250 shares subject to warrants, as of December 31, 2023 and December 31, 2022.

Note 15. Stock-Based Compensation

2010 Stock Plan

Prior to the Business Combination, Legacy Shapeways maintained its 2010 Stock Plan (the "2010 Plan"), under which Legacy Shapeways granted statutory and non-statutory stock to employees, outside directors and consultants. The maximum number of shares of common stock that was issuable under the 2010 Plan was 2,117,818 shares.

In connection with the Business Combination, each Legacy Shapeways stock option that was outstanding immediately prior to Closing, whether vested or unvested, was converted into an option to acquire a number of shares of common stock (each such option, an “Exchanged Option”) equal to the product of (i) the number of shares of Legacy Shapeways common stock subject to such Legacy Shapeways option immediately prior to the Business Combination and (ii) 90% of the recapitalization conversion ratio of 0.8293 established in the Merger (the "Conversion Ratio"), at an exercise price per share (rounded up to the nearest whole cent) equal to (A) the exercise price per share of such Legacy Shapeways option immediately prior to the consummation of the Business Combination, divided by (B) 90% of the Conversion Ratio. Except as specifically provided in the Business Combination Agreement, following the Business Combination, each Exchanged Option will continue to be governed by the same terms and conditions (including vesting and exercisability terms) as were applicable to the corresponding former Legacy Shapeways option immediately prior to the consummation of the Business Combination. All stock option activity was retroactively restated to reflect the Exchanged Options.

In addition, each holder of an in-the-money Legacy Shapeways option held by individuals remaining in continuous service to the Company through the Closing, was granted a right to receive an award of restricted stock units denominated in shares of common stock granted under the 2021 Equity Incentive Plan (the "2021 Plan") (each, an “Earnout RSU”) equal to the product of (A) the number of shares of Legacy Shapeways common stock that were subject to the option immediately prior to Closing, multiplied by (B) 10% of the Conversion Ratio. The Earnout RSUs are subject to substantially the same service-based vesting conditions and acceleration provisions as applied to the Legacy Shapeways option provided that, in addition to such service-based vesting conditions, Earnout RSUs will be subject to vesting and forfeiture conditions based upon the dollar volume-weighted price of the Company’s common stock reaching certain targets (the “RSU Performance Milestones”). The Company records stock compensation expense for Earn-Out RSUs based upon an assessment of the grant date fair value using the Monte Carlo valuation model in accordance with FASB ASC 718. The Company did not grant any additional Earn-Out RSUs during the year ended December 31, 2023.

Upon the Closing of the Business Combination, the outstanding and unexercised Legacy Shapeways options became options to purchase an aggregate of 612,650 shares of the Company’s common stock under the 2010 Plan at an average exercise price of $4.96 per share.

2021 Equity Incentive Plan

Upon the closing of the Business Combination, the Company adopted the 2021 Plan. The 2021 Plan permits the granting of incentive stock options, restricted stock awards, other share-based awards or other cash-based awards to employees, consultants, and non-employee directors. On the first day of each calendar year, beginning on January 1, 2022 and continuing until (and including) January 1, 2031, the number of shares available under the 2021 Plan will automatically increase by a number equal to the lesser of (a) 5% of the total number of shares of the Company’s common stock issued and outstanding on December 31 of the calendar year immediately preceding the date of such increase and (b) a number of shares of the Company's common stock determined by the Company’s Board of Directors. As of December 31, 2023, 1,565,630 shares of common stock are authorized for issuance pursuant to awards under the 2021 Plan. Any shares of common stock related to awards that are forfeited, cancelled, terminated, expire or shares withheld by the Company to satisfy tax withholding obligations or to pay any exercise price are deemed available for issuance under the 2021 Plan. As of December 31, 2023, 689,007 shares remain available for issuance under the 2021 Plan.

2022 New Employee Equity Incentive Plan

In September 2022, the Company adopted the 2022 New Employee Equity Incentive Plan (the "2022 Plan"). The 2022 Plan permits the granting of restricted stock awards, stock options and other share-based rewards to individuals who were not previously employees of the Company, as an inducement material to the individual's entry into employment with the Company within the meaning of Listing Rule 303A.08 of the New York Stock Exchange ("NYSE"). The 2022 Plan was adopted by the Board of Directors without stockholder approval pursuant to NYSE Listing Rule 303A.08 (which was the stock exchange on which the Company's securities were then trading). As of December 31, 2023, 625,000 shares of common stock are authorized for issuance pursuant to awards under the 2022 Plan. Any shares of common stock related to awards that are forfeited, cancelled, terminated, expire or shares withheld by the Company to satisfy tax withholding obligations or to pay any exercise price are deemed available for issuance under the 2022 Plan. As of December 31, 2023, 419,704 shares remain available for issuance under the 2022 Plan.

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Option Awards

The Company accounts for share-based payments pursuant to ASC 718 and, accordingly, the Company records stock compensation expense for share-based awards based upon an assessment of the grant date fair value for stock options using the Black-Scholes option pricing model. Due to its limited trading history, the Company lacks company-specific historical and implied volatility information. Therefore, it estimates its expected stock volatility based on the historical volatility of a publicly traded set of peer companies. Due to the lack of historical exercise history, the expected term of the Company's stock options for employees has been determined utilizing the "simplified" method for awards. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve. Expected dividend yield is zero based on the fact that the Company has never paid cash dividends and does not expect to pay any cash dividends in the foreseeable future.

The fair value of stock options under the Black-Scholes model requires management to make assumptions regarding projected employee stock option exercise behaviors, risk-free interest rates, volatility of the Company's stock price and expected dividends. The Company generally recognizes stock compensation expense on the grant date and over the period of vesting or period that services will be provided. There were 435,168 stock options granted during the year ended December 31, 2023. There wereno stock options granted during the year ended December 31, 2022. The assumptions used to estimate the fair value of stock options granted during the year ended December 31, 2023 were as follows:

	Year Ended December 31, 2023
Strike price	$2.64 - $3.40
Expected term (in years)	6.25
Expected volatility	110.67% - 132.00%
Risk-free interest rate	3.79% - 4.19%
Dividend yield	— %

The following table summarizes the Company's stock option activity during the period presented:

	Shares Underlying Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding at January 1, 2023	497,402	$ 5.16	5.67	
Granted	435,168	2.74		
Forfeited	(211,020)	5.56		
Exercised	(32)	3.92		
Outstanding at December 31, 2023	721,518	$ 3.58	7.29	$ 116
Exercisable at December 31, 2023	350,511	$ 4.50	5.09	$ —

The aggregate intrinsic value of options in the table above is calculated as the difference between the fair value of the Company's common stock price and the exercise price of the stock option. As of December 31, 2023, approximately $503 of unrecognized stock compensation expense related to non-vested awards is expected to be recognized over the weighted average period of 3.11 years.

Restricted Stock Units

The following table summarizes the Company’s restricted stock unit activity during the period presented:

	Restricted Stock Units	Weighted Average Grant Fair Value per Share	Aggregate Intrinsic Value
Outstanding at January 1, 2023	870,126	$ 12.08	
Granted	48,974	3.56	
Forfeited	(298,536)	10.56	
Settled	(180,990)	10.55	
Outstanding at December 31, 2023	439,574	$ 12.69	$ 879

The total fair value of restricted stock unit awards settled during the years ended December 31, 2023 and 2022 was $1,415 and $2,121. The total restricted stock unit awards settled include 76,090 shares withheld for employee tax liability during the year ended December 31, 2023.

Total unrecognized stock compensation expense related to outstanding restricted stock unit awards was approximately $1,978 as of December 31, 2023 and is expected to be recognized over the weighted average period of 2.37 years.

2021 Employee Stock Purchase Plan

Upon the closing of the Business Combination, the Company adopted the 2021 Employee Stock Purchase Plan (the “ESPP”). The purpose of the ESPP is to provide eligible employees with an opportunity to increase their proprietary interest in the success of the Company by purchasing common stock from the Company on favorable terms and to pay for such purchases through payroll deductions or other approved contributions. As of December 31, 2023, 172,749 shares of common stock are available for purchase under the ESPP. As of December 31, 2023, no shares have been purchased under the ESPP.

Note 16. Fair Value Measurements

Fair value measurements discussed herein are based upon certain market assumptions and pertinent information available to management as of December 31, 2023 and 2022. The carrying amounts of accounts receivable, inventory, prepaid expenses and other current assets, accounts payable, accrued expenses and other liabilities, and deferred revenue approximated fair value as they are short term in nature. The fair value of warrants issued for settlement and services is estimated based on the Black-Scholes model. The carrying value of the Company’s debt and operating lease liabilities approximated its fair value, as the obligation bears interest at rates currently available for debt with similar maturities and collateral requirements.

Fair Value on a Recurring Basis

The Company follows the guidance in ASC 820 for its financial assets and liabilities that are re-measured and reported at fair value at each reporting period, and non-financial assets and liabilities that are re-measured and reported at fair value at least annually. The estimated fair value of the warrant liabilities represents Level 3 measurements.

SHAPEWAYS HOLDINGS, INC.
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The following table presents information about the Company's liabilities that are measured at fair value on a recurring basis at December 31, 2023 and 2022, and indicates the fair value hierarchy of the valuation inputs the Company utilized to determine such fair value:

Description	Level	December 31, 2023	December 31, 2022
Assets:			
Marketable securities - U.S. Treasury Securities	2	$ 9,950	$ 29,680
Liabilities:			
Earnout consideration liability	3	$ —	$ 1,076

Earnout Consideration Liability

There was no change in the fair value of the earnout consideration liability during the year ended December 31, 2023. For the year ended December 31, 2022, the Company recognized income resulting from a change in the fair value of the earnout liability of $1,824. The final earnout consideration liability was paid in cash of $539 and a non-cash issuance of equity valued at $537 in April 2023.

Warrant Liabilities

There was no change in fair value of warrant liabilities recognized during the twelve months ended December 31, 2023. The Company recognized income resulting from a change in the fair value of warrant liabilities of $1,584 during the twelve months ended December 31, 2022. See Note 14 for more information.

Fair Value on a Non-Recurring Basis

At the Closing, there were 438,800 shares of common stock issued as part of the Merger consideration (the "Earnout Shares") subject to vesting and forfeiture conditions (the "Earnout Terms") based upon the volume-weighted average trading price of common stock reaching targets of $112.00 and $128.00, respectively (with 50% released at each target) for a period of 30 consecutive trading days during the three-year period after the Closing, with the portion of such shares that would otherwise be deliverable to Legacy Shapeways stockholders at the Closing being withheld and deposited into escrow. The fair value of the Earnout Shares was estimated using the trading price of the common stock at Closing ($61.60), discounted based on the probability of the Earnout Terms being met as determined at Closing, and thus represents a Level 2 fair value measurement as defined in ASC 820. The Earnout Shares, if achieved, would be issued to Legacy Shapeways stockholders. The Earnout Shares are a fixed number of shares to be issued to such stockholders on a pro rata basis. The fair value of the Earnout Shares was recognized as a deemed dividend. Upon closing of the Merger, the estimated fair value of the Earnout Shares was $18,132 with such amount recognized as a deemed dividend. As the Company was in an accumulated deficit position as of the measurement date, the resulting deemed dividend was recorded as a reduction of additional paid-in capital with a corresponding offset recorded to additional paid-in capital. As of December 31, 2023, there were 438,800 Earnout Shares unvested and remaining subject to the Earnout Terms.

Note 17. Income Taxes

The provision for income taxes consists of the following:

	Year Ended December 31,	
	2023	2022
Income tax provision:		
Current		
Non-U.S.	$ —	$ 5
Federal	—	(1)
State	—	—
Deferred		
Non-U.S.	—	—
Federal	23	23
State	1	4
Provision for income taxes	$ 24	$ 31

A reconciliation of the income tax expense calculated using the applicable federal statutory rate to the Company’s actual income tax expense is as follows:

	December 31,	
	2023	2022
Federal statutory income tax rate	21.00 %	21.00 %
State and local income taxes, net of federal benefit	4.82 %	3.48 %
Nondeductible expenses	(0.03)%	(0.10)%
Other	— %	(0.03)%
Warrant liabilities	— %	1.65 %
Stock-based compensation	0.05 %	(0.01)%
Change in state tax rates	5.16 %	1.74 %
State net operating loss true-up	(5.58)%	— %
Change in valuation allowance	(24.75)%	(26.83)%
True-up adjustments	(0.45)%	(1.06)%
PSU Cancellation	(0.12)%	— %
Foreign rate differential	(0.16)%	(0.01)%
	(0.06)%	(0.17)%

Deferred income taxes are recognized for the future tax consequences of temporary differences between the financial statement and tax bases of assets and liabilities.The tax effect of temporary differences that give rise to a significant portion of the deferred tax assets and tax liabilities are as follows:

	December 31,	
	2023	2022
Deferred tax assets:		
Intangible assets and goodwill	$ 607	$ 15
Sec. 174 research and development costs	3,835	2,159
Accrued expense	124	112
Sec. 263(a)	18	17
Stock compensation	1,796	1,157
ASC 842 – Operating lease liabilities	464	565
Property and equipment	3,026	216
Net operating losses	32,250	27,036
Earnout consideration	260	261
Tax credits	893	893
Acquisition costs	90	90
Other	—	251
Less: valuation allowance	(42,969)	(32,196)
Total deferred tax assets	394	576
Deferred tax liabilities:		
Intangible assets and goodwill	$ —	$ (28)
Property equipment	—	(25)
ASC 842 Right-of-use assets	(444)	(550)
Other	(2)	—
Total deferred tax liabilities	(446)	(603)
Net deferred tax liabilities	$ (52)	$ (27)

The valuation allowance for deferred tax assets increased by $10,773 to $42,969 in 2023. In determining the carrying value of the Company's deferred tax assets, the Company evaluated all available evidence that led to a conclusion that based upon the more-likely-than-not standard of the accounting literature, these deferred tax assets were unrecoverable. The valuation allowance has no impact on the Company’s net operating loss (“NOL”) position for tax purposes, and if the Company generates taxable income in future periods, it will be able to use the NOLs to offset taxes due at that time.

As of December 31, 2023, the Company had federal net operating loss carryforwards of approximately $132,126, $71,122 of which, if not utilized, expire by 2038. Federal net operating loss carryforwards totaling approximately $61,004 can be carried forward indefinitely. In addition, the Company has state net operating loss carryforwards of approximately $87,236, with varying expiration dates as determined by each state; some of which may be indefinite lived. Internal Revenue Code of 1986 Section 382 (“Section 382”) and Section 383 provide an annual limitation with respect to the ability of a corporation to utilize its tax attributes, as well as certain built-in losses, against future U.S. taxable income in the event of a change of ownership. These carryforwards are not subject to limitation by Section 382 and are all expected to be available to offset future U.S. taxable income.

Utilization of U.S. net operating losses may be limited by “ownership change” rules, as defined in Section 382. Similar rules may apply under state tax laws. The Company has not conducted a study to-date to assess whether a limitation would apply under Section 382 of the Code and when it starts utilizing its net operating losses. The Company will continue to monitor activities in the future. In the event the Company previously experienced an ownership change, or should experience an ownership change in the future, the amount of net operating losses carryovers available in any taxable year could be limited and may expire unutilized. Any limitation that may arise or be determined in the future would not have a material impact on the Company's financial statements due to the full valuation allowance recorded against the related deferred tax assets.

Note 18. Significant Concentrations

One customer accounted for approximately 17% and 20% of revenue for the years ended December 31, 2023 and 2022, respectively. No other customers represented more than 10% of revenue for the years ended December 31, 2023 and 2022.

No vendor accounted for more than 10% of purchases for the year ended December 31, 2023. One vendor accounted for 28% of purchases for the year ended December 31, 2022. No other vendors represented more than 10% of purchases for the year ended December 31, 2022.

As of December 31, 2023, no customers accounted for more than 10% of accounts receivable. As of December 31, 2022, zero customers accounted for approximately 17% and 16% of accounts receivable. No other customers represented more than 10% of outstanding accounts receivable as of December 31, 2023 and 2022.

As of December 31, 2023, no vendor represented 10% of accounts payable. As of December 31, 2022, one vendor represented 10% of accounts payable. No other vendors represented more than 10% of outstanding accounts payable balance as of December 31, 2023 and 2022.

Note 19. Subsequent Events

In January 2024, a second lot of assets related to the Desktop Metal MOU was auctioned and sold to the highest bidder, resulting in approximately $481 in cash to the Company as of the date of this filing. See Note 9 for more information.

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-260387 and 333-267763) and Form S-8 (No. 333-261563, 333-264160, 333-268055, and 333-271126) of Shapeways Holdings, Inc. (the "Company"), our report dated March 28, 2024, which includes an explanatory paragraph relating to the Company's ability to continue as a going concern relating to the consolidated financial statements, which appear in this Form 10-K.

/s/ WithumSmith+Brown, PC

East Brunswick, New Jersey
March 28, 2024

Exhibit 31.1

CERTIFICATION OF THE CHIEF EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a) AND 15d-14(a),
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Greg Kress, Chief Executive Officer of Shapeways Holdings, Inc., certify that:

1. I have reviewed this Annual Report on Form 10-K of Shapeways Holdings, Inc. (the "Registrant") for the year ended December 31, 2023;

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 Annual 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 Annual 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 is made known to us by others within those entities, particularly during the period in which this Annual Report is being prepared;

   b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c. Evaluated the effectiveness of the Registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d. Disclosed in this report any change in the Registrant's internal control over financial reporting that occurred during the Registrant's most recent fiscal quarter (the Registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the Registrant's internal control over financial reporting; and

5. The Registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant's auditors and the audit committee of the Registrant's board of directors (or persons performing equivalent functions):

   a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant's ability to record, process, summarize and report financial information; and

   b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant's internal control over financial reporting.

Shapeways Holdings, Inc.

Dated: March 28, 2024

By: /s/ Greg Kress
Greg Kress
Chief Executive Officer and Director
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF THE CHIEF FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(a) AND 15d-14(a),
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Alberto Recchi, Chief Financial Officer of Shapeways Holdings, Inc., certify that:

1. I have reviewed this Annual Report on Form 10-K of Shapeways Holdings, Inc. (the “Registrant”) for the year ended December 31, 2023;

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 Annual 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 Annual 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 is made known to us by others within those entities, particularly during the period in which this Annual Report is being prepared;

    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c. Evaluated the effectiveness of the Registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d. Disclosed in this report any change in the Registrant’s internal control over financial reporting that occurred during the Registrant’s most recent fiscal quarter (the Registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the Registrant’s internal control over financial reporting; and

5. The Registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant’s auditors and the audit committee of the Registrant’s board of directors (or persons performing equivalent functions):

    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant’s ability to record, process, summarize and report financial information; and

    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant’s internal control over financial reporting.

Shapeways Holdings, Inc.

Dated: March 28, 2024

By: /s/ Alberto Recchi
Alberto Recchi
Chief Financial Officer and Director
(Principal Financial and Accounting Officer)

Exhibit 32.1

CERTIFICATION OF THE CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K for the period ended December 31, 2023 (the "Report") by Shapeways Holdings, Inc. (the "Registrant"), I, Greg Kress as Chief Executive Officer of the Registrant hereby certify 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 my knowledge:

1. the Report fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934, as amended; and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Registrant.

Shapeways Holdings, Inc.

Dated: March 28, 2024

By: /s/ Greg Kress

Greg Kress
Chief Executive Officer and Director
(Principal Executive Officer)

Exhibit 32.2

CERTIFICATION OF THE CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K for the period ended December 31, 2023 (the "Report") by Shapeways Holdings, Inc. (the "Registrant"), I, Alberto Recchi as Chief Financial Officer of the Registrant hereby certify 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 my knowledge:

1. the Report fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934, as amended; and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Registrant.

Shapeways Holdings, Inc.

Dated: March 28, 2024

By: /s/ Alberto Recchi

Alberto Recchi
Chief Financial Officer and Director
(Principal Financial and Accounting Officer)

SHAPEWAYS HOLDINGS, INC. POLICY FOR THE
RECOVERY OF ERRONEOUSLY AWARDED COMPENSATION

1. **Purpose**. The purpose of this Policy is to describe the circumstances in which Executive Officers will be required to repay or return Erroneously Awarded Compensation to members of the Company Group. This Policy is designed to comply with, and shall be interpreted to be consistent with, Section 10D of the Securities Exchange Act of 1934, as amended, Rule 10D-1 promulgated thereunder and the Listing Standards. Each Executive Officer shall be required to sign and return to the Company the Acknowledgment Form attached hereto as Exhibit A pursuant to which such Executive Officer will agree to be bound by the terms of and comply with this Policy.

2. **Administration**. This Policy shall be administered by the Committee. The Committee is authorized to interpret and construe this Policy and to make all determinations, and take all actions, necessary, appropriate or advisable for the administration of this Policy. Any determinations and interpretations made by the Committee shall be final and binding on all affected individuals, and need not be uniform with respect to each individual covered by the Policy.

3. **Definitions**. As used in this Policy, the following capitalized terms shall have the meanings set forth below.

   a) "***Accounting Restatement***" shall mean an accounting restatement of the Company's financial statements due to the Company's material noncompliance with any financial reporting requirement under U.S. securities laws, including any required accounting restatement (i) that corrects an error in previously issued financial statements that is material to the previously issued financial statements (a "Big R" restatement), or (ii) that corrects an error that is not material to previously issued financial statements, but would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period (a "little r" restatement). An Accounting Restatement does not include situations in which financial statement changes did not result from material noncompliance with financial reporting requirements, such as, but not limited to, retrospective: (i) application of a change in accounting principles; (ii) revision to reportable segment information due to a change in the structure of the Company's internal organization; (iii) reclassification due to a discontinued operation; (iv) application of a change in reporting entity, such as from a reorganization of entities under common control; (v) adjustment to provisional amounts in connection with a prior business combination; and (vi) revision for stock splits, reverse stock splits, stock dividends or other changes in capital structure.

   b) "***Board***" shall mean the Board of Directors of the Company.

   c) "***Clawback Eligible Incentive Compensation***" shall mean, in connection with an Accounting Restatement and with respect to each individual who served as an Executive Officer at any time during the applicable performance period for any Incentive-Based Compensation (whether or not such Executive Officer is serving at the time the Erroneously Awarded Compensation is required to be repaid to the Company Group), all Incentive-Based Compensation Received by such Executive Officer (i) on or after the Effective Date (even if such Incentive-Based Compensation was approved, awarded, granted or paid prior to the effective date of the Listing Standards), (ii) after beginning service as an Executive Officer, (iii) while the Company has a class of securities listed on a national securities exchange or a national securities association, and (iv) during the applicable Clawback Period.

   d) "***Clawback Period***" shall mean, with respect to any Accounting Restatement, the three completed fiscal years of the Company immediately preceding the Restatement Date and any transition period (that results from a change in the Company's fiscal year) of less than nine months within or immediately following those three completed fiscal years.

   e) "***Committee***" shall mean the Compensation and Human Capital Committee of the Board.

   f) "***Company***" shall mean Shapeways Holdings, Inc., a Delaware corporation.

   g) "***Company Group***" shall mean the Company, together with each of its direct and indirect subsidiaries.

   h) "***Effective Date***" shall mean the effective date of this Policy, which date is October 2, 2023.

i) "***Erroneously Awarded Compensation***" shall mean, with respect to each Executive Officer in connection with an Accounting Restatement, the amount of Clawback Eligible Incentive Compensation that exceeds the amount of Incentive-Based Compensation that otherwise would have been Received had it been determined based on the restated amounts as reflected in the Accounting Restatement, computed without regard to any taxes paid. For Incentive-Based Compensation based on (or derived from) stock price or total shareholder return, where the amount of Erroneously Awarded Compensation is not subject to mathematical recalculation directly from the information in the applicable Accounting Restatement, the amount shall be determined by the Committee based on a reasonable estimate of the effect of the Accounting Restatement on the stock price or total shareholder return upon which the Incentive-Based Compensation was Received (in which case, the Company shall maintain documentation of such determination of that reasonable estimate and provide such documentation to Nasdaq).

j) "***Executive Officer***" shall mean each individual who is or was designated as an "officer" of the Company in accordance with 17 C.F.R. 240.16a-1(f). Identification of an executive officer for purposes of this Policy would include, at a minimum, executive officers identified pursuant to 17 C.F.R. 229.401(b). As of the Effective Date (and subject to later amendments to the above-referenced rules), Executive Officer covers the Company's president, principal financial officer, principal accounting officer (or if there is no such accounting officer, the controller), any vice-president of the Company in charge of a principal business unit, division or function (such as sales, administration or finance), any other officer who performs a significant policy-making function, or any other person (including any executive officer of the Company's affiliates including a parent or subsidiary of the Company) who performs similar policy-making functions for the Company.

k) "***Financial Reporting Measures***" shall mean measures that are determined and presented in accordance with the accounting principles used in preparing the Company's financial statements (including "non-GAAP financial measures," such as those appearing in earnings releases), and any measures that are derived wholly or in part from such measures. For the avoidance of doubt, a Financial Reporting Measure need not be presented within the Company's financial statements or included in a filing with the SEC. Stock price and total shareholder return shall for purposes of this Policy also be considered Financial Reporting Measures.

l) "***Incentive-Based Compensation***" shall mean any compensation that is granted, earned or vested based wholly or in part upon the attainment of a Financial Reporting Measure. For the sake of clarity, examples of compensation that is not Incentive-Based Compensation include, but are not limited to: (i) base salaries; (ii) discretionary cash bonuses; (iii) awards (either of cash or equity) that are based solely upon subjective, strategic or operational metrics or measures; and (iv) equity awards that vest solely upon continued service or the passage of time.

m) "***Listing Standards***" shall mean Nasdaq Listing Rule 5608.

n) "***Nasdaq***" shall mean The Nasdaq Stock Market.

o) "***Policy***" shall mean this Policy for the Recovery of Erroneously Awarded Compensation, as the same may be amended, restated, supplemented or otherwise modified from time to time.

p) "***Received***" shall, with respect to any Incentive-Based Compensation, mean actual or deemed receipt, and Incentive-Based Compensation shall be deemed received in the Company's fiscal period during which the Financial Reporting Measure specified in the Incentive-Based Compensation award is attained, even if grant or payment of the Incentive-Based Compensation occurs after the end of that period.

q) "***Restatement Date***" shall mean the earlier to occur of (i) the date the Board, a committee of the Board or the officers of the Company authorized to take such action if Board action is not required, concludes, or reasonably should have concluded, that the Company is required to prepare an Accounting Restatement, or (ii) the date a court, regulator or other legally authorized body directs the Company to prepare an Accounting Restatement, in each case regardless of if or when the restated financial statements are filed.

r) "***SEC***" shall mean the U.S. Securities and Exchange Commission.

4. Required Recovery of Erroneously Awarded Compensation.

a) In the event the Company is required to prepare an Accounting Restatement, the Committee shall determine the amount of any Erroneously Awarded Compensation for each Executive Officer in connection with such Accounting Restatement, shall thereafter provide each Executive Officer with a written notice containing the amount of Erroneously Awarded Compensation and a demand for repayment or return, as applicable, and shall take all other actions necessary and appropriate to recover such Erroneously Awarded Compensation from the applicable Executive Officers reasonably promptly.

b) The Committee shall determine, in its sole discretion, the timing and method for recovering Erroneously Awarded Compensation reasonably promptly based on all applicable facts and circumstances and taking into account the time value of money and the cost to shareholders of delaying recovery. Such methods may include, without limitation, (i) seeking reimbursement of all or part of any cash or equity-based award, (ii) cancelling prior cash or equity-based awards, whether vested or unvested or paid or unpaid, (iii) cancelling or offsetting against any planned future cash or equity-based awards, (iv) forfeiture of deferred compensation, subject to compliance with Section 409A of the Internal Revenue Code and the regulations promulgated thereunder, and (v) any other method authorized by applicable law or contract. For the avoidance of doubt, except as set forth in Section 4(d) below, in no event may the Company Group accept an amount that is less than the amount of Erroneously Awarded Compensation in satisfaction of an Executive Officer's obligations hereunder.

c) To the extent that an Executive Officer fails to repay all Erroneously Awarded Compensation to the Company Group when due, the Company shall, or shall cause one or more other members of the Company Group to, take all actions reasonable and appropriate to recover such Erroneously Awarded Compensation from the applicable Executive Officer. The applicable Executive Officer shall be required to reimburse the Company Group for any and all expenses reasonably incurred (including legal fees) by the Company Group in recovering such Erroneously Awarded Compensation in accordance with the immediately preceding sentence.

d) Notwithstanding anything herein to the contrary, the Company shall not be required to recover Erroneously Awarded Compensation from any Executive Officer if the following conditions are met and the Committee determines that recovery would be impracticable:

i) The direct expenses paid to a third party to assist in enforcing the Policy against an Executive Officer would exceed the amount to be recovered, after the Company has made a reasonable attempt to recover the applicable Erroneously Awarded Compensation, documented such attempt(s) and provided such documentation to Nasdaq;

ii) Recovery would violate home country law of the Company where that law was adopted prior to November 28, 2022, after the Company has obtained an opinion of home country counsel, acceptable to Nasdaq, that recovery would result in such a violation and a copy of the opinion is provided to Nasdaq; or

iii) Recovery would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees of the Company Group, to fail to meet the requirements of 26 U.S.C. 401(a)(13) or 26 U.S.C. 411(a) and regulations thereunder.

5. **Reporting and Disclosure.** The Company shall file all disclosures with respect to this Policy in accordance with the requirements of the federal securities laws, including the disclosure required by the applicable SEC filings. The Company shall also file a copy of this Policy and any amendments thereto as an exhibit to its annual report on Form 10-K.

6. **No Indemnification of Executive Officers.** Notwithstanding the terms of any indemnification or insurance policy or any contractual arrangement with any Executive Officer that may be interpreted to the contrary, no member of the Company Group shall be permitted to indemnify any Executive Officer against, or pay or reimburse the premiums for an insurance policy to cover, (i) the loss of any Erroneously Awarded Compensation that is repaid, returned or recovered pursuant to the terms of this Policy, or (ii) any claims relating to the Company Group's enforcement of its rights under this Policy. Further, no member of the Company Group shall enter into any agreement that exempts any Incentive-Based Compensation from the application of this Policy or that waives the Company Group's right to recovery of any Erroneously Awarded Compensation, and this Policy shall supersede any such agreement (whether entered into before, on or after the Effective Date).

7. **Committee Indemnification**. Any members of the Committee, and any other members of the Board who assist in the administration of this Policy, shall not be personally liable for any action, determination or interpretation made with respect to this Policy and shall be fully indemnified by the Company to the fullest extent under applicable law and Company policy with respect to any such action, determination or interpretation. The foregoing sentence shall not limit any other rights to indemnification of the members of the Board under applicable law or Company policy.

8. **Effective Date**. This Policy shall be effective as of the Effective Date.

9. **Amendment**; **Termination**. The Committee may amend, modify, supplement, rescind or replace all or any portion of this Policy at any time and from time to time in its discretion and shall amend this Policy as it deems necessary, including as and when it determines that it is legally required by any federal securities laws, SEC rule or the rules of any national securities exchange or national securities association on which the Company's securities are listed. The Committee may terminate this Policy at any time. Notwithstanding anything in this Section 9 to the contrary, no amendment or termination of this Policy shall be effective if such amendment or termination would (after taking into account any actions taken by the Company contemporaneously with such amendment or termination) cause the Company to violate any federal securities laws, SEC rule or the rules of any national securities exchange or national securities association on which the Company's securities are listed.

10. **Other Recoupment Rights; Company Claims**.

    a) The Committee intends that this Policy will be applied to the fullest extent of the law and with respect to all Incentive-Based Compensation granted to an Executive Officer, whether pursuant to a pre-existing contract or arrangement, or one that is entered into after the Effective Date. Any right of recoupment under this Policy is in addition to, and not in lieu of, any other remedies or rights of recoupment that may be available to the Company Group under applicable law, regulation or rule or pursuant to the terms of any similar policy in any employment agreement, equity award agreement or similar agreement and any other legal remedies available to the Company Group.

    b) Nothing contained in this Policy, and no recoupment or recovery as contemplated by this Policy, shall limit any claims, damages or other legal remedies the Company or any of its affiliates may have against an Executive Officer arising out of or resulting from any actions or omissions by the Executive Officer.

11. **Successors.** This Policy shall be binding and enforceable against all Executive Officers and their beneficiaries, heirs, executors, administrators or other legal representatives.

* * *

Exhibit A

**SHAPEWAYS HOLDINGS, INC. POLICY FOR THE
RECOVERY OF ERRONEOUSLY AWARDED COMPENSATION**

ACKNOWLEDGMENT FORM

By signing below, the undersigned acknowledges and confirms that the undersigned has received and reviewed a copy of the Shapeways Holdings, Inc. Policy for the Recovery of Erroneously Awarded Compensation (as may be amended, restated, supplemented or otherwise modified from time to time, the "***Policy***"). Capitalized terms used but not otherwise defined in this Acknowledgment Form (this "***Acknowledgment Form***") shall have the meanings ascribed to such terms in the Policy.

By signing this Acknowledgment Form, the undersigned acknowledges and agrees that the undersigned is and will continue to be subject to the Policy and that the Policy will apply both during and after the undersigned's employment with the Company Group. Further, by signing below, the undersigned agrees to abide by the terms of the Policy, including, without limitation, by promptly returning any Erroneously Awarded Compensation (as defined in the Policy) to the Company Group to the extent required by, and in a manner permitted by, the Policy. In the event of any inconsistency between the Policy and the terms of any employment agreement to which the undersigned is a party, or the terms of any compensation plan, program or agreement under which any compensation has been granted, awarded, earned or paid, the terms of the Policy shall govern.

____
Signature

____
Print Name

____
Title

____
Date