

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, 2016

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 No. 001-34220



3D SYSTEMS CORPORATION

(Exact Name of Registrant as Specified in Its Charter)

DELAWARE

(State or Other Jurisdiction of
Incorporation or Organization)

95-4431352

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

**333 THREE D SYSTEMS CIRCLE
ROCK HILL, SOUTH CAROLINA**
(Address of Principal Executive Offices)

29730
(Zip Code)

(Registrant's Telephone Number, Including Area Code): **(803) 326-3900**

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

<u>Title of each class</u>	<u>Name of each exchange on which registered</u>
Common stock, par value \$0.001 per share	The New York Stock Exchange

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

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

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

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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

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

(Do not check if smaller reporting company)

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

The aggregate market value of the registrant's common stock held by non-affiliates of the registrant on June 30, 2016 was \$1,437,534,741. For purposes of this computation, it has been assumed that the shares beneficially held by directors and executive officers of the registrant were "held by affiliates." This assumption is not to be deemed an admission by these persons that they are affiliates of the registrant.

The number of outstanding shares of the registrant's common stock as of February 22, 2017 was 113,163,336.

DOCUMENTS INCORPORATED BY REFERENCE: Portions of the registrant's definitive proxy statement for its 2017 Annual Meeting of Stockholders are incorporated by reference into Part III of this Form 10-K.

3D SYSTEMS CORPORATION
Annual Report on Form 10-K for the
Year Ended December 31, 2016

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This Annual Report on Form 10-K (“Form 10-K”) contains forward-looking statements, within the meaning of the Private Securities Litigation Reform Act of 1995, that involve risks and uncertainties. Many of the forward-looking statements are located in Part II, Item 7 of this Form 10-K under the heading “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” Forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from historical results or from any future results expressed or implied by such forward-looking statements. In many cases, you can identify forward-looking statements by terms such as “believes,” “belief,” “expects,” “may,” “will,” “estimates,” “intends,” “anticipates,” or “plans” or the negative of these terms or other comparable terminology. Forward-looking statements are based upon management’s beliefs, assumptions and current expectations concerning future events and trends, using information currently available, and are necessarily subject to uncertainties, many of which are outside our control. Although we believe that the expectations reflected in the forward-looking statements are reasonable, forward-looking statements are not, and should not be relied upon as a guarantee of future performance or results, nor will they necessarily prove to be accurate indications of the times at or by which any such performance or results will be achieved. A number of important factors could cause actual results to differ materially from those expressed in or implied by the forward-looking statements. Factors that might cause such differences include, but are not limited to, those discussed in Part I, Item 1A of this Form 10-K under the heading “Risk Factors.” All subsequent written and oral forward-looking statements attributable to the Company or to individuals acting on our behalf are expressly qualified in their entirety by this discussion. The Company assumes no obligation to revise or update any forward-looking statements for any reason, except as required by law.

PART I

Item 1. Business

General

3D Systems Corporation (“3D Systems” or the “Company” or “we” or “us”) is a holding company incorporated in Delaware in 1993 that operates through subsidiaries in North America and South America (collectively referred to as “Americas”), Europe and the Middle East (collectively referred to as “EMEA”) and the Asia Pacific region (“APAC”). We market our products and services in those areas as well as in other parts of the world. We provide comprehensive 3D printing solutions, including 3D printers, print materials, software, on demand manufacturing services and digital design tools. Our precision healthcare capabilities include simulation, Virtual Surgical Planning (“VSP™”), and printing of medical and dental devices and surgical guides and instruments. Our solutions support advanced applications in a wide range of industries including healthcare, aerospace, automotive and durable goods. 3D Systems has a 30 year history of experience and expertise which have proven vital to our development of an ecosystem that enables customers to optimize product designs, transform workflows, bring innovative products to market and drive new business models.

Customers can use our 3D printing solutions to design and manufacture complex and unique parts, eliminate expensive tooling, produce parts locally or in small batches and reduce lead times and time to market. A growing number of customers are shifting from prototyping applications to also using 3D printing for production. We believe this shift will be further driven by our continued advancement and innovation of 3D printing solutions that improve durability, repeatability, productivity and total cost of operations.

Products

We offer a comprehensive range of 3D printers, print materials, software, haptic devices, scanners and virtual surgical simulators.

3D Printers and Materials

Our 3D printers transform digital data input generated by 3D design software, CAD software or other 3D design tools, into printed parts using several unique print engines that employ proprietary, additive layer by layer building processes with a variety of print materials. We offer a broad range of 3D printing technologies including Stereolithography (“SLA”), Selective Laser Sintering (“SLS”), Direct Metal Printing (“DMP”), MultiJet Printing (“MJP”) and ColorJet Printing (“CJP”), which are discussed in more detail below.

Our printers utilize a wide range of print materials, the majority of which are proprietary materials that we develop, blend and market. Our comprehensive range of print materials includes plastic, nylon, metal, composite, elastomeric, wax, polymeric dental materials and Class IV bio-compatible materials. We augment and complement our portfolio of engineered print materials with materials that we develop with or purchase from third parties under private label and distribution arrangements.

We work closely with our customers to optimize the performance of our print materials in their applications. Our expertise in materials science and formulation, combined with our process, software and equipment, enables us to help our customers select the material that best meets their needs with optimal cost and performance results.

As part of our solutions approach, our currently offered printers, with the exception of direct metal printers, have built-in intelligence to make them integrated, closed systems. For these printers, we furnish print materials specifically designed for use in those printers and that are packaged in smart cartridges and delivery systems. These integrated materials are designed to enhance system functionality, productivity, materials shelf life and overall printer reliability, in addition to providing our customers with a built-in quality management system and a fully integrated workflow solution.

SLA Printers

Our SLA 3D printers cure liquid resin materials with a laser beam to produce durable plastic parts with surface smoothness, high resolution, edge definition and tolerances that rival the accuracy of machined or molded plastic parts. We offer SLA printers with a wide range of materials, sizes and price points that are well-suited for prototypes, end-use parts, casting patterns and molds, tooling, fixtures and medical models.

For SLA printers, we offer a variety of liquid resin materials under the Accura® brand name. The resins are designed to mimic specific, engineered thermoplastics and provide a wide range of characteristics, including tough, durable, clear, castable, polypropylene-like, ABS-like, high-temperature resistant and Class IV bio-compatible materials.

We are also developing a 3D printing technology that utilizes a light-curing process we refer to as our Figure 4 platform. Figure 4 is an ultra-fast additive manufacturing technology in discrete modules, allowing it to be placed into automated assembly lines and integrated with secondary processes, including material recovery, washing, curing and finishing steps. Unlike other photopolymer 3D printing, Figure 4 is capable of manufacturing parts in hybrid materials (multi-mode polymerization) that offer toughness, durability, biocompatibility, high temperature deflection and even elastomeric properties. This opens the door to new end-use applications in the fields of healthcare, durable goods, automotive, aerospace and beyond.

SLS Printers

Our SLS 3D printers use a laser beam to melt and fuse powder-based nylon and engineered plastic and composite print materials to produce very strong and durable parts. Customer uses of our SLS printers include functional test models and end-use parts, such as housings, machinery components, ducting, tooling, jigs and fixtures and medical devices and personalized surgery kits and guides.

Our proprietary SLS materials include a range of soft and rigid plastics, nylon and composite materials marketed under the DuraForm®, LaserForm® and CastForm™ brand names. These materials are available in a variety of lightweight, tough, versatile, high temperature, flexible and durable formulations.

DMP Printers

Our DMP solutions use a laser beam to sinter powders in a variety of metals to produce fully dense parts with outstanding surface finish and resolution. We offer DMP printers that can process a wide range of materials and powders, including materials with very fine granularity and proven manufacturing applications. We sell DMP systems in various sizes and certain models are optimized for specific metals, including titanium, stainless steel and nickel super alloys. Our DMP printers are well-suited for medical and dental implants, aerospace, automotive, and hi-tech and industrial applications, such as conformal cooling, simplifying assemblies, light weight parts, enhanced fluid flow, topology optimization and other complex parts.

We offer metal powder materials for our direct metal printers, including titanium, stainless steels, tool steels, super alloys, non-ferrous alloys, precious metals and aluminum.

MJP Printers

Our MJP 3D printers utilize jetting head technology to deliver precise, tough parts with exceptional resolution in tough plastic, wax, elastomer and engineered materials that we sell under the VisiJet® brand name. MJP printers offer the capability to print in rigid or flexible materials and multiple materials in one build, making them ideal for mechanical functional testing, rapid tooling, jigs and fixtures, casting patterns, over-molding and medical models.

CJP Printers

Our CJP 3D printers produce parts from our VisiJet branded, powder-based ceramic-like materials. CJP printers build high-definition, full-color parts that can be sanded, drilled, tapped, painted and electroplated, which further expands the options available for finished part characteristics. CJP printers are ideal for producing models used in mechanical design, healthcare, architecture, education, entertainment and packaging applications.

Software and Related Products

We also provide digital design tools, including software, scanners and haptic devices. We offer solutions for product design, mold and die design, 3D scan-to-print, reverse engineering, production machining and inspection. These products are designed to enable a more seamless workflow for customers. We also offer proprietary software and drivers embedded within our printers that provide part preparation, part placement, support placement, build platform management and print queue management.

Other Products

As part of our solutions for precision healthcare, we also offer 3D virtual reality simulators and simulator modules for medical applications. These 3D simulators offer clinicians a realistic hands-on experience to master critical skills, prepare for upcoming procedures and create patient specific simulations. We also provide digitizing scanners for medical and mechanical applications.

Services

Warranty, Maintenance and Training Services

We provide a variety of customer services, local application support and field support on a worldwide basis for our products, including installation of new printers at customers' sites, printer warranties, maintenance agreements, periodic hardware upgrades and software updates. We also provide services to assist our customers and partners in developing new applications for our technologies, to facilitate the use of our technology for specific applications, to train customers on the use of our printers and to maintain our printers at customers' sites.

We provide these services and field support either directly or through a network of reseller partners. We employ customer-support sales engineers to support our worldwide customer base, and we are continuing to strengthen and enhance our partner network. We distribute spare parts on a worldwide basis to our customers.

All of our 3D printers are sold with maintenance support that generally covers a warranty period ranging from 90 days to one year. We generally offer service contracts that enable our customers to continue maintenance coverage beyond the initial warranty period. These service contracts are offered with various levels of support and options and are priced accordingly. Our service engineers provide regularly scheduled preventive maintenance visits to customer sites, and we also provide training to our partners to enable them to perform these services.

We also offer upgrade kits for certain of our printers that enable our existing customers to take advantage of new or enhanced printer capabilities. In some cases, we have discontinued upgrade support and maintenance agreements for certain of our older legacy printers.

On-Demand Solutions

We provide on-demand manufacturing through facilities worldwide in the Americas, EMEA and APAC. We provide a broad range of prototyping, production and finishing capabilities for precision plastic and metal parts and tooling with a wide range of additive and traditional manufacturing processes.

In addition to the sales of parts, we, and our sales partners, utilize our on-demand parts operation as a sales and lead generation tool. Third party preferred service providers can also use our on-demand parts service as their comprehensive order-fulfillment center. We also provide on-demand professional 3D scanning, printing and parts production related to the entertainment industry through our Gentle Giant brand™.

Software Services

In addition to our software license products, we offer software maintenance, which includes updates and software support for our software products. Our software is sold with maintenance service that generally covers a period of one year. We offer multi-year maintenance contracts that enable our customers to continue maintenance coverage beyond the initial one year period. These software service contracts typically include free software updates and various levels of technical support.

Healthcare Services

Through our precision healthcare services, we provide surgical planning, modeling, prototyping and manufacturing services, including printing and finishing of medical and dental devices, models and tools, as well as modeling and design services, including VSP™. We also provide service on our surgical simulators that are sold under our Symbionix™ brand.

Global Operations

We operate in the Americas, EMEA and APAC regions, and market our products and services in those areas as well as to other parts of the world.

In maintaining operations outside the U.S., we expose our business to risks inherent in such operations, including currency fluctuations. Information on foreign exchange risk appears in Part I, Item 1A, “Risk Factors”, Part II, Item 7A, “Quantitative and Qualitative Disclosures about Market Risk” and Item 8, “Financial Statements and Supplementary Data,” of this Form 10-K.

Financial information about geographic areas, including revenue, long-lived assets and cash balances, appears in Note 21 to the Consolidated Financial Statements and in Part I, Item 1A, “Risk Factors”, Part II, Item 7A, “Quantitative and Qualitative Disclosures about Market Risk” and Part II, Item 8, “Financial Statements and Supplementary Data,” of this Form 10-K (“Consolidated Financial Statements”).

Marketing and Customers

Our sales and marketing strategy focuses on an integrated approach that is directed at providing comprehensive solutions designed to meet customer needs. We use a full range of marketing and lead generation tools to promote our products and services on a worldwide basis. Our marketing department supports our global sales organization and distribution channels by providing marketing materials, potential sales leads and co-marketing funds.

We sell our solutions globally through a direct sales force, partner channel and in certain geographies, appointed distributors. Our sales organization includes channel managers, direct sales people and application engineers throughout the Americas, EMEA and APAC, who are responsible for the sale of products and services and for the management of our network of channel partners.

Additionally, our application engineers provide pre-sales and post-sales support, assist customers with leveraging our latest solutions and production techniques and help identify new applications and sales opportunities. Our on-demand manufacturing service also expands our customer relationships and generates leads for future sales.

Our customers include major companies and small and midsize businesses in a broad range of industries, including healthcare, automotive, aerospace, government, defense, technology, electronics, education, consumer goods and energy. No single customer accounted for more than 10 percent of our consolidated revenue for the years ended December 31, 2016, 2015 or 2014.

Production and Supplies

At our Rock Hill, South Carolina location, we assemble MJP, CJP and certain models of our SLA 3D printers, as well as other equipment related to these printers. We assemble certain models of our DMP printers in our Riom, France facility. We produce our Symbionix branded 3D simulators in Airport City, Israel.

We outsource certain SLA, SLS and DMP printer assembly and refurbishment activities to selected design, engineering and manufacturing companies in the United States and Belgium. These suppliers also carry out quality control procedures on our printers prior to their shipment to customers. As part of these activities, these suppliers have responsibility for procuring the components and sub-assemblies either from us or third party suppliers. We purchase finished printers from these suppliers pursuant to forecasts and customer orders that we supply to them. While the outsourced suppliers of our printers have responsibility for the supply chain and inventory of components for the printers they assemble, the components, parts and sub-assemblies that are used in our printers are generally available from several potential suppliers.

We produce print materials at our facilities in Rock Hill, South Carolina; Barberton, Ohio; Marly and Grüningen, Switzerland. We also have arrangements with third parties who blend certain print materials according to our specifications that we sell under our own brand names, and we purchase certain print materials from third parties for resale to our customers.

Our equipment assembly and print materials blending activities, on-demand parts services and certain research and development activities are subject to compliance with applicable federal, state and local provisions regulating the storage, use and discharge of materials into the environment. We believe that we are in compliance, in all material respects, with such regulations as currently in effect and that continued compliance with them will not have a material adverse effect on our capital expenditures, results of operations or consolidated financial position.

Research and Development

The 3D printing industry continues to experience rapid technological change and developments in hardware, software and materials. Consequently, we have ongoing research and development programs to develop new products and to enhance our portfolio of products and services, as well as to improve and expand the capabilities of our solutions. Our efforts are often augmented by development arrangements with research institutions, customers, suppliers, assembly and design firms, engineering companies and specialty print materials companies.

Research and development expenses were \$88.4 million, \$92.8 million and \$75.4 million in 2016, 2015 and 2014, respectively.

In addition to our internally developed technology platforms, we have acquired products and technologies developed by others by acquiring business entities that held ownership rights to such products and technologies. In other instances, we have licensed or purchased the intellectual property rights of technologies developed by third parties through agreements that may obligate us to pay a license fee or royalty, typically based upon a dollar amount per unit or a percentage of the revenue generated by such products.

Intellectual Property

We regard our technology platforms and materials as proprietary and seek to protect them through copyrights, patents, trademarks and trade secrets. At December 31, 2016 and 2015, we held 1,171 and 1,114 patents worldwide, respectively. At December 31, 2016 and 2015, we had 249 and 264 pending patent applications worldwide, respectively. The principal issued patents covering aspects of our various technologies will expire at varying times through the year 2027.

In addition, we are a party to various licenses that have had the effect of broadening the range of the patents, patent applications and other intellectual property available to us.

We have also entered into licensing or cross-licensing arrangements with various companies in the United States and other countries that enable those companies to utilize our technologies in their products or that enable us to use their technologies in our products. Under certain of these licenses, we are entitled to receive, or we are obligated to pay, royalties for the sale of licensed products in the U.S. or in other countries. The amount of such royalties was not material to our results of operations or consolidated financial position for the three-year period ended December 31, 2016.

We believe that, while our patents and licenses provide us with a competitive advantage, our success also depends on our marketing, business development, applications know-how and ongoing research and development efforts. Accordingly, we believe the expiration of any of the patents, patent applications or licenses discussed above would not be material to our business or financial position.

Competition

We face competition from the development of new technologies or techniques not encompassed by the patents that we own or license and from conventional technologies.

Our competitors also include other suppliers of 3D printers and materials, design and production software, tools and scanners, as well as suppliers of forming manufacturing solutions such as vacuum casting equipment, and suppliers of healthcare simulators. Numerous suppliers of these products operate both internationally and regionally, and many of them have well-recognized product lines that compete with us in a wide range of our product applications. Our competitors are also companies that manufacture or utilize machines that are used to make models, prototypes, molds and parts. These competitors include suppliers of CNC machines, plastics molding equipment, including injection-molding equipment, traditional machining, milling and grinding equipment, and businesses and service bureaus that use such equipment to produce models, prototypes, and molds and to manufacture parts on demand. Conventional machining, plastic molding and metal casting techniques continue to be the most common methods by which plastic and metal parts and tool inserts are manufactured today.

Competition for most of our 3D printers is based primarily on technology capabilities, process know-how, product application know-how and the ability to provide a full range of products and services to meet customer needs. Accordingly, our ongoing research and development programs are intended to enable us to maintain technological leadership. Certain of the companies providing competing products or services, and those currently developing 3D printing products and services, are well established and may have greater financial resources than we have.

We believe that our future success depends on our ability to provide high quality solutions, enhance our existing portfolio, introduce new products and services on a timely and cost-effective basis, meet changing customer needs, extend our core technologies to new applications and anticipate and respond to emerging standards, business models, service delivery methods and other technological changes.

Employees

At December 31, 2016 and 2015, we had 2,445 and 2,492 full-time employees, respectively. Although some of our employees outside the U.S. are subject to local statutory employment and labor arrangements, none of our U.S. employees are covered by collective bargaining agreements. We have not experienced any material work stoppages and believe that our relations with our employees are satisfactory.

Available Information

Our website address is www.3DSystems.com. The information contained on our website is neither a part of, nor incorporated by reference into, this Form 10-K. We make available free of charge through our website our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, amendments to those reports and other documents that we file with the Securities and Exchange Commission ("SEC"), as soon as reasonably practicable after we electronically file them with, or furnish them to, the SEC. The public may read and copy materials we file with the SEC at the SEC's public reference room located at 100 F Street, N.E., Washington, D.C. 20549. Information on the operation of the public reference room can be obtained by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains a website at www.sec.gov that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC, from which investors can electronically access our SEC filings.

Many of our corporate governance materials, including our Code of Conduct, Code of Ethics for Senior Financial Executives and Directors, Corporate Governance Guidelines, current charters of each of the standing committees of the Board of Directors and our corporate charter documents and by-laws are available on our website.

Executive Officers

The information appearing in the table below sets forth the position or positions held by each of our executive officers and his age as of February 28, 2017. All of our executive officers serve at the pleasure of the Board of Directors. There are no family relationships among any of our executive officers or directors.

Name and Current Position	Age as of February 28, 2017
Vyomesh I. Joshi President and Chief Executive Officer	62
Charles W. Hull Executive Vice President and Chief Technology Officer	77
Andrew M. Johnson Executive Vice President, Chief Legal Officer and Secretary	42
Kevin P. McAlea Executive Vice President and Chief Operating Officer, Healthcare	58
John N. McMullen Executive Vice President, Chief Financial Officer	58

Mr. Joshi was appointed the Company's President and Chief Executive Officer, effective April 1, 2016. Prior to joining the Company, Mr. Joshi worked at Hewlett-Packard Company ("HP") from 1980 until his retirement on March 21, 2012. From 2001 to 2012, he was Executive Vice President of HP's Imaging and Printing Group, following two decades of research, engineering and management in HP's imaging and printing systems. In addition to his service on our Board of Directors, Mr. Joshi currently serves on the Board of Directors of Harris Corporation and formerly served on the Board of Directors at Yahoo! Inc. and Wipro Ltd.

Mr. Hull is a founder of the Company and has served on our Board of Directors since 1993. He has served as Chief Technology Officer since 1997 and as Executive Vice President since 2000. He has also previously served in various other executive capacities at the Company since 1986, including Chief Executive Officer, Vice Chairman of the Board of Directors and President and Chief Operating Officer.

Mr. Johnson has served as Executive Vice President and Chief Legal Officer since November 2014. He served as Interim President and Chief Executive Officer, Chief Legal Officer and Secretary from October 2015 to April 2016 and as Vice President, General Counsel and Secretary from April 2012 to November 2014. Previously, he served as Assistant General Counsel and Assistant Secretary.

Dr. McAlea currently serves as Executive Vice President, General Manager, Metals & Healthcare. Dr. McAlea joined the Company in May 2003 and has served in various executive positions since that time.

Mr. McMullen joined 3D Systems as Executive Vice President, Chief Financial Officer in July 2016. From 2014 to 2016, he was Chief Financial Officer of Eastman Kodak Company, a technology company focused on imaging. Before that, Mr. McMullen had a 32 year career at HP and its acquired companies, including positions as Senior Vice President of Finance and Corporate Treasurer of HP, Chief Financial Officer of HP's Imaging and Printing Group and Vice President of Finance and Strategy for Compaq's Worldwide Sales and Services Group.

Item 1A. Risk Factors

The risks and uncertainties described below are not the only risks that we face. Additional risks not currently known to us or that we currently deem not to be material also may impair our business operations, results of operations and financial condition. If any of the risks described below or if any other risks not currently known to us or that we currently deem not to be material actually occurs, our business, results of operations and financial condition could be materially adversely affected. In that event, the trading price of our common stock could decline, and you could lose all or part of your investment in our common stock.

We face significant competition in many aspects of our business, which could cause our revenue and gross profit margins to decline. Competition could also cause us to reduce sales prices or to incur additional marketing or production costs, which could result in decreased revenue, increased costs and reduced margins.

We compete for customers with a wide variety of producers of equipment and software for models, prototypes, other three-dimensional objects and end-use parts as well as producers of print materials and services for this equipment. Some of our existing and potential competitors are researching, designing, developing and marketing other types of competitive equipment and software, print materials and services. Certain of these competitors may have financial, marketing, manufacturing, distribution and other resources substantially greater than ours.

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

Some of our patents have recently expired and others will expire in coming years. Upon expiration of those patents, our competitors may introduce products using the technology previously protected by the expired patents and those products may have lower prices than those of our products. To compete, we may need to reduce our prices for those products, which could adversely affect our revenues, margins and profitability. Additionally, the expiration of our patents could reduce barriers to entry into additive manufacturing, which could result in the reduction of our sales and earnings potential. If competitors using technology previously protected by our expired patents were to introduce products of inferior quality, our potential customers may view the technology negatively, which would have an adverse effect on our image and reputation and on our ability to compete with systems using other additive fabrication technologies.

We intend to follow a strategy of continuing product development to enhance our position to the extent practicable. We cannot assure you that we will be able to maintain our current position in the field or continue to compete successfully against current and future sources of competition. If we do not keep pace with technological change and introduce new products, we may lose revenue and demand for our products. We also incur significant costs associated with the investment in our product development in furtherance of our strategy that may not result in increased revenue or demand for our products and which could negatively affect our operating results.

We believe that our future success depends on our ability to deliver products that meet changing technology and customer needs.

Our business may be affected by rapid technological change, changes in user and customer requirements and preferences, frequent new product and service introductions embodying new technologies and the emergence of new standards and practices, any of which could render our existing products and proprietary technology obsolete. Accordingly, our ongoing research and development programs are intended to enable us to maintain technological leadership. We believe that to remain competitive we must continually enhance and improve the functionality and features of our products, services and technologies. However, there is a risk that we may not be able to:

- Develop or obtain leading technologies useful in our business;
- Enhance our existing products;
- Develop new products, services and technologies that address the increasingly sophisticated and varied needs of prospective customers, particularly in the area of printer speeds and print materials functionality;
- Respond to technological advances and emerging industry standards and practices on a cost-effective and timely basis; or
- Recruit or retain key technology employees.

If we are unable to meet changing technology and customer needs, our competitive position, revenue, results of operations and financial condition could be adversely affected.

We have made, and may make in the future, strategic acquisitions that may involve significant risks and uncertainties. We may not realize the anticipated benefits of past or future acquisitions and integration of these acquisitions may disrupt our business and divert management.

From time to time, we evaluate acquisition candidates that fit our business objectives. For example, in January 2017, we acquired Vertex-Global Holding B.V., a provider of dental materials. Acquisitions involve certain risks and uncertainties, including, among others, the following:

- Difficulty in integrating newly acquired businesses and operations in an efficient and cost-effective manner, which may also impact our ability to realize the potential benefits associated with the acquisition;
- The risk that significant unanticipated costs or other problems associated with integration may be encountered;
- The challenges in achieving strategic objectives, cost savings and other anticipated benefits;

- The risk that our marketplaces do not evolve as anticipated and that the technologies acquired do not prove to be those needed to be successful in the marketplaces that we serve;
- The risk that we assume significant liabilities that exceed the limitations of any applicable indemnification provisions or the financial resources of any indemnifying party;
- The inability to maintain a relationship with key customers, vendors and other business partners of the acquired businesses;
- The difficulty in maintaining controls, procedures and policies during the transition and integration;
- The potential loss of key employees of the acquired businesses;
- The risk of diverting management attention from our existing operations;
- Difficulties in coordinating geographically disparate organizations and corporate cultures and integrating management personnel with different business backgrounds;
- The potential failure of the due diligence process to identify significant problems, liabilities or other challenges of an acquired company or technology;
- The risk that we incur significant costs associated with such acquisition activity that may negatively impact our operating results before the benefits of such acquisitions are realized, if at all;
- The risk of incurring significant goodwill and other intangible asset impairment charges;
- The risk of incurring significant exit costs if products or services are unsuccessful;
- The entry into marketplaces where we have no or limited direct prior experience and where competitors have stronger marketplace positions;
- The exposure to litigation or other claims in connection with our assuming claims or litigation risks from terminated employees, customers, former shareholders or other third parties; and
- The risk that historical financial information may not be representative or indicative of our results as a combined company.

Historically, we have grown organically and from acquisitions, and we intend to continue to grow. Our infrastructure will require, among other things, continued development of our financial and management controls and management information systems, management of our sales channel, continued capital expenditures, the ability to attract and retain qualified management personnel and the training of new personnel. We cannot be sure that our infrastructure, systems, procedures, business processes and managerial controls will be adequate to support the growth in our operations. Any delays in, or problems associated with, implementing, or transitioning to, new or enhanced systems, procedures, or controls to accommodate and support the requirements of our business and operations and to effectively and efficiently integrate acquired operations may adversely affect our ability to meet customer requirements, manage our product inventory, and record and report financial and management information on a timely and accurate basis. These potential negative effects could prevent us from realizing the benefits of an acquisition transaction or other growth opportunity. In that event, our competitive position, revenues, results of operations and financial condition could be adversely affected.

Our balance sheet contains several categories of intangible assets that we could be required to write off or write down in the future in the event of the impairment of certain of those assets arising from any deterioration in our future performance or other circumstances. Such write-offs or write-downs could adversely impact our earnings and our ability to obtain financing in the future.

At December 31, 2016, we had \$181.2 million in goodwill capitalized on our balance sheet and \$121.5 million of other intangible assets, net capitalized on our balance sheet, which represented 35.7% of our total assets.

A majority of our acquisitions have resulted in our recording additional goodwill on our consolidated balance sheet. This goodwill typically arose because the purchase price for these businesses reflected a number of factors including the future earnings and cash flow potential of these businesses, the multiples to earnings, cash flow and other factors, such as prices at which similar businesses have been purchased by other acquirers, the competitive nature of the process by which we acquired the business, and the complementary strategic fit and resulting synergies these businesses bring to existing operations.

As a result of our annual impairment testing in 2015, we recorded goodwill impairment charges of \$443.7 million and other intangible assets impairment charges of \$93.5 million in the fourth quarter of 2015. The impairment charges were non-cash in nature and did not impact our cash position or cash flows, but such charges, and possible additional charges in the future could adversely affect our results of operations and stockholders' equity and could adversely affect the trading price of our common stock. We will monitor our reporting units in an effort to determine whether events and circumstances warrant further interim impairment testing. We could be required to write off or write down additional amounts in the future in the event of deterioration in our future performance, sustained slower growth or other circumstances.

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.

In connection with the enforcement of our own intellectual property rights, the acquisition of third-party intellectual property rights or disputes related to the validity or alleged infringement of third party intellectual property rights, including patent rights, we have been, and may in the future be, subject to claims, negotiations or complex, protracted litigation. Intellectual property disputes and litigation 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. Although we have successfully defended or resolved past litigation and disputes, we may not prevail in any ongoing or future litigation and disputes, which could adversely affect our results of operations and financial condition.

Third-party intellectual property claims asserted against us could subject us to significant liabilities, require us to enter into royalty and licensing arrangements on unfavorable terms, prevent us from assembling or licensing certain of our products, subject us to injunctions restricting our sale of products, cause severe disruptions to our operations or the marketplaces in which we compete or require us to satisfy indemnification commitments with our customers including contractual provisions under various license arrangements. In addition, we may incur significant costs in acquiring the necessary third-party intellectual property rights for use in our products. Any of these could seriously harm our business.

We may not be able to protect our intellectual property rights and confidential information, including our digital content, from third-party infringers or unauthorized copying, use or disclosure.

Although we defend our intellectual property rights and endeavor to combat unlicensed copying and use of our digital content and intellectual property rights through a variety of techniques, preventing unauthorized use or infringement of our rights ("piracy attacks") is inherently difficult. If our intellectual property becomes subject to piracy attacks, they may harm our business.

Additionally, we endeavor to protect the secrecy of our digital content, confidential information and trade secrets. If unauthorized disclosure of our trade secrets occurs, we could potentially lose trade secret protection. The loss of trade secret protection could make it easier for third parties to compete with our products by copying previously confidential features, which could adversely affect our business, results of operations, revenue and operating margins. We also seek to protect our confidential information and trade secrets through the use of non-disclosure agreements. However, there is a risk that our confidential information and trade secrets may be disclosed or published without our authorization, and in these situations it may be difficult and/or costly for us to enforce our rights.

Our business could be adversely impacted in the event of a failure of our information technology infrastructure or adversely impacted by a successful cyber-attack.

We have experienced cyber security threats, threats to our information technology infrastructure and unauthorized attempts to gain access to our sensitive information. Prior cyber-attacks directed at us have not had a material impact on our business or financial results; however, this may not continue to be the case in the future. Cyber security assessment analyses undertaken by us have identified and prioritized steps to enhance our cyber security safeguards. We are in the process of implementing these recommendations to enhance our threat detection and mitigation processes and procedures. Despite the implementation of these new safeguards, there can be no assurance that we will adequately protect our information or that we will not experience any future successful attacks. The threats we face vary from attacks common to most industries to more advanced and persistent, highly organized adversaries who target us because of the products and services we provide. If we are unable to protect sensitive information, our customers or governmental authorities could question the adequacy of our threat mitigation and detection processes and procedures. Due to the evolving nature of these security threats, however, the impact of any future incident cannot be predicted.

We may be required to expend significant additional resources to modify our cyber security protective measures, to investigate and remediate vulnerabilities or other exposures or to make required notifications, and we may be subject to litigation and financial losses. These costs related to cyber or other security threats or disruptions may not be fully insured or indemnified by other means. Occurrence of any of these events could adversely affect our internal operations, the services we provide to our customers, our financial results or our reputation; or such events could result in the loss of competitive advantages derived from our research and development efforts or other intellectual property or early obsolescence of our products and services.

If we cease to generate net cash flow from operations and if we are unable to raise additional capital, our financial condition could be adversely affected and we may not be able to execute our growth strategy.

We cannot assure you that we will generate cash from operations or other potential sources to fund future working capital needs and meet capital expenditure requirements.

If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as selling assets, restructuring or incurring additional debt or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to obtain additional capital or refinance any indebtedness will depend on, among other things, the capital markets, our financial condition at such time and the terms and conditions of any such financing or indebtedness. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations.

The lack of additional capital resulting from any inability to generate cash flow from operations or to raise equity or debt financing could force us to substantially curtail or cease operations and would, therefore, have an adverse effect on our business and financial condition. Furthermore, we cannot assure you that any necessary funds, if available, would be available on attractive terms or that they would not have a significantly dilutive effect on our existing stockholders. If our financial condition worsens and we become unable to attract additional equity or debt financing or enter into other strategic transactions, we could become insolvent or be forced to declare bankruptcy, and we would not be able to execute our growth strategy.

Global economic, political and social conditions and financial markets may harm our ability to do business, adversely affect our sales, costs, results of operations and cash flow.

We are subject to global economic, political and social conditions that may cause customers to delay or reduce technology purchases due to economic downturns, volatility in fuel and other energy costs, difficulties in the financial services sector and credit markets, geopolitical uncertainties and other macroeconomic factors affecting spending behavior. We face risks that may arise from financial difficulties experienced by our suppliers, resellers or customers, including, among others, the following:

- Customers or partners to whom we sell our products and services may face financial difficulties or may become insolvent, which could lead to our inability to obtain payment of accounts receivable that those customers may owe;
- Customers and potential customers may experience deterioration of their businesses, which may result in the delay or cancellation of plans to purchase our products;

- Key suppliers of raw materials, finished products or components used in the products that we sell may face financial difficulties or may become insolvent, which could lead to disruption in the supply of printers, print materials or spare parts to our customers; and
- The inability of customers, including resellers, suppliers and contract manufacturers, to obtain credit financing to finance purchases of our products and raw materials used to build those products.

Our uneven sales cycle makes planning and inventory management difficult and future financial results less predictable.

Our quarterly sales often have reflected a pattern in which a disproportionate percentage of each quarter's total sales occurs towards the end of the quarter. This uneven sales pattern makes predicting net revenue, earnings, cash flow from operations and working capital for each financial period difficult, increases the risk of unanticipated variations in our quarterly results and financial condition and places pressure on our inventory management and logistics systems. If predicted demand is substantially greater than orders, there may be excess inventory. Alternatively, if orders substantially exceed predicted demand, we may not be able to fulfill all of the orders received in each quarter and such orders may be cancelled. Depending on when they occur in a quarter, developments such as a systems failure, component pricing movements, component shortages or global logistics disruptions could adversely impact our inventory levels and results of operations in a manner that is disproportionate to the number of days in the quarter affected.

The variety of products that we sell could cause significant quarterly fluctuations in our gross profit margins, and those fluctuations in margins could cause fluctuations in operating income or loss and net income or loss.

We continuously work to expand and improve our products, materials and services offerings, the number of geographic areas in which we operate and the distribution channels we use to reach various target product applications and customers. This variety of products, applications and channels involves a range of gross profit margins that can cause substantial quarterly fluctuations in gross profit and gross profit margins depending upon the mix of product shipments from quarter to quarter. Additionally, the introduction of new products or services may further heighten quarterly fluctuations in gross profit and gross profit margins due to manufacturing ramp-up and start-up costs. We may experience significant quarterly fluctuations in gross profit margins or operating income or loss due to the impact of the mix of products, channels or geographic areas in which we sell our products from period to period.

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

We face many risks inherent in conducting business activities outside the U.S. that, unless managed properly, may adversely affect our profitability, including our ability to collect amounts due from customers. While most of our operations outside the U.S. are conducted in highly developed countries, our operations could be adversely affected by, among others, the following:

- Unexpected changes in laws, regulations and policies of non-U.S. governments relating to investments and operations, as well as U.S. laws affecting the activities of U.S. companies abroad;
- Changes in regulatory requirements, including export controls, tariffs and embargoes, other trade restrictions, competition, corporate practices and data privacy concerns;
- Political policies, political or civil unrest, terrorism or epidemics and other similar outbreaks;
- Fluctuations in currency exchange rates;
- Limited protection for the enforcement of contract and intellectual property rights in some countries;
- Difficulties in staffing and managing foreign operations;
- Operating in countries with a higher incidence of corruption and fraudulent business practices;
- Potentially adverse changes in taxation; and
- Other factors, depending upon the specific country in which we conduct business.

These uncertainties may make it difficult for us and our customers to accurately plan future business activities and may lead our customers in certain countries to delay purchases of our products and services. More generally, these geopolitical, social and economic conditions could result in increased volatility in global financial markets and economies.

The consequences of terrorism or armed conflicts are unpredictable, and we may not be able to foresee events that could have an adverse effect on our market opportunities or our business. We are uninsured for losses and interruptions caused by terrorism, acts of war and similar events.

While the geographic areas outside the U.S. in which we operate are generally not considered to be highly inflationary, our foreign operations are sensitive to fluctuations in currency exchange rates arising from, among other things, certain intercompany transactions that are generally denominated, for example, in U.S. dollars rather than their respective functional currencies.

Moreover, our operations are exposed to market risk from changes in interest rates and foreign currency exchange rates and commodity prices, which may adversely affect our results of operations and financial condition. We seek to minimize these risks through regular operating and financing activities and, when we consider it to be appropriate, through the use of derivative financial instruments. However, our efforts to minimize our exposure to market risks from changes in interest rates, foreign currency exchange rates and commodity prices may prove to be insufficient or unsuccessful.

We depend on our supply chain for components and sub-assemblies used in our 3D printers and other products and for raw materials used in our print materials. If these relationships were to terminate or be disrupted, our business could be disrupted while we locate alternative suppliers and our expenses may increase.

We have outsourced the assembly of certain of our printers to third party suppliers, we purchase components and sub-assemblies for our printers from third-party suppliers, and we purchase raw materials that are used in our print materials, as well as certain of those print materials, from third-party suppliers.

While there are several potential suppliers of the components, parts and sub-assemblies for our products, we currently choose to use only one or a limited number of suppliers for several of these components, including our lasers, print materials and certain jetting components. Our reliance on a single or limited number of suppliers involves many risks, including, among others, the following:

- Potential shortages of some key components;
- Disruptions in the operations of these suppliers;
- Product performance shortfalls; and
- Reduced control over delivery schedules, assembly capabilities, quality and costs.

While we believe that we can obtain all the components necessary for our products from other manufacturers, we require any new supplier to become “qualified” pursuant to our internal procedures, which could involve evaluation processes of varying durations. We generally have our printers and other products assembled based on our internal forecasts and the supply of raw materials, assemblies, components and finished goods from third parties, which are subject to various lead times. In addition, at any time, certain suppliers may decide to discontinue production of an assembly, component or raw material that we use. Any unanticipated change in the sources of our supplies, or unanticipated supply limitations, could increase production or related costs and consequently reduce margins.

If our forecasts exceed actual orders, we may hold large inventories of slow-moving or unusable parts, which could have an adverse effect on our cash flow, profitability and results of operations. Inversely, we may lose orders if our forecast is low and we are unable to meet demand.

We have engaged selected design and manufacturing companies to assemble certain of our production printers. In carrying out these outsourcing activities, we face a number of risks, including, among others, the following:

- The risk that the parties that we retain to perform assembly activities may not perform in a satisfactory manner;

- The risk of disruption in the supply of printers or other products to our customers if such third parties either fail to perform in a satisfactory manner or are unable to supply us with the quantity of printers or other products that are needed to meet then current customer demand; and
- The risk of insolvency of these suppliers, as well as the risks that we face, as discussed above, in dealing with a limited number of suppliers.

The costs and effects of litigation, investigations or similar matters involving us or our subsidiaries, or adverse facts and developments related thereto, could materially affect our business, operating results and financial condition.

We may be involved from time to time in a variety of litigation, investigations, inquiries or similar matters arising out of our business, including those described in Note 22 to the Consolidated Financial Statements. The Company cannot predict the outcome of these or any other legal matters. In the future, we may need to record litigation reserves with respect to these matters because our insurance may not cover all claims that may be asserted against us. Should the ultimate judgments or settlements in any litigation or investigation significantly exceed our insurance coverage, they could have a material adverse effect on our business, financial condition and results of operations.

Our products and services may experience quality problems from time to time that can result in decreased sales and operating margin, product returns, product liability, warranty or other claims that could result in significant expenses and harm to our reputation.

We sell complex hardware and software products, materials and services that can contain undetected design and manufacturing defects or errors when first introduced or as enhancements are released that, despite testing, are not discovered until after the product has been installed and used by customers. Sophisticated software and applications, such as those sold by us, may contain “bugs” that can unexpectedly interfere with the software’s intended operation. Defects may also occur in components and products we purchase from third parties. There can be no assurance we will be able to detect and fix all defects in the hardware, software, materials and services we sell. Failure to do so could result in lost revenue, product returns, product liability, delayed market acceptance of those products and services, claims from distributors, end-users or others, increased end-user service and support costs, and significant warranty claims and other expenses to correct the defects, diversion of management time and attention and harm to our reputation.

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

Our success depends upon the continued service and performance of our senior management and other key personnel. Our senior executive team is critical to the management of our business and operations, as well as to the development and execution of our strategy. The loss of the services of one or more members of our senior executive team could delay or prevent the successful implementation of our growth strategy, or our commercialization of new applications for our systems or other products, or could otherwise adversely affect our ability to manage our company effectively and carry out our business plan. Members of our senior management team may resign at any time. High demand exists for senior management and other key personnel (including scientific, technical and sales personnel) in the 3D printing industry, and there can be no assurance that we will be able to retain such personnel. We experience intense competition for qualified personnel.

While we intend to continue to provide competitive compensation packages to attract and retain key personnel, some of our competitors for these employees have greater resources and more experience, making it difficult for us to compete successfully for key personnel. If we cannot attract and retain sufficiently qualified technical employees for our research and development and manufacturing operations, we may be unable to achieve the synergies expected from mergers and acquisitions that we may effect from time to time, or to develop and commercialize new products or new applications for existing products. Furthermore, possible shortages of key personnel, including engineers, in the regions surrounding our facilities could require us to pay more to hire and retain key personnel, thereby increasing our costs.

We may be subject to product liability claims, which could result in material expense, diversion of management time and attention and damage to our business reputation.

The sale and support of our products entails the risk of product liability claims. From time to time, we may become subject to product liability claims that could lead to significant expenses. The risk may be heightened when we provide products into certain markets, such as healthcare, aerospace and automotive industries.

This risk of product liability claims may also be greater due to the use of certain hazardous chemicals used in the production of certain of our products, including irritants, harmful chemicals and chemicals dangerous to the environment. We may also be subject to claims that our printers have been, or may be used to, create parts that are not in compliance with legal requirements or that infringe on the intellectual property rights of others.

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

Any claim brought against us, regardless of its merit, could result in significant expense, diversion of management time and attention, damage to our business reputation and failure to retain existing customers or to attract new customers. Although we maintain product liability insurance, such insurance is subject to deductibles and there is no guarantee that such insurance will be available or adequate to protect against all such claims. Costs or payments made in connection with product liability claims could adversely affect our financial condition and results of operations.

We rely on our management information systems for inventory management, distribution and other key functions. If our information systems fail to adequately perform these functions, or if we experience an interruption in their operation, our business and operating results could be adversely affected.

The efficient operation of our business is dependent on our management information systems. We rely on our management information systems to, among other things, effectively manage our accounting and financial functions, including maintaining our internal controls; to manage our manufacturing and supply chain processes; and to maintain our research and development data. The failure of our management information systems to perform properly could disrupt our business and product development, which may result in decreased sales, increased overhead costs, excess or obsolete inventory, and product shortages, causing our business and operating results to suffer. Although we take steps to secure our management information systems, including our computer systems, intranet and Internet sites, email and other telecommunications and data networks, the security measures we have implemented may not be effective and our systems may be vulnerable to theft, loss, damage and interruption from a number of potential sources and events, including unauthorized access or security breaches, natural or man-made disasters, cyber-attacks, computer viruses, power loss or other disruptive events. Our reputation and financial condition could be adversely affected if, as a result of a significant cyber event or otherwise, our operations are disrupted or shut down; our confidential, proprietary information is stolen or disclosed; we incur costs or are required to pay fines in connection with stolen customer, employee, or other confidential information; we must dedicate significant resources to system repairs or increase cyber security protection; or we otherwise incur significant litigation or other costs.

We are subject to U.S. and other 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.

Doing business on a worldwide basis requires us to comply with the laws and regulations of the U.S. government and various foreign jurisdictions. These laws and regulations place restrictions on our operations, trade practices, partners and investments.

In particular, our operations are subject to U.S. and foreign anti-corruption and trade control laws and regulations, such as the Foreign Corrupt Practices Act (“FCPA”) and United Kingdom Bribery Act (the “Bribery Act”), export controls and economic sanctions programs, including those administered by the U.S. Treasury Department’s Office of Foreign Assets Control (“OFAC”), the State Department’s Directorate of Defense Trade Controls (“DDTC”) and the Bureau of Industry and Security (“BIS”). As a result of doing business in foreign countries and with foreign customers, we are exposed to a heightened risk of violating anti-corruption and trade control laws and sanctions regulations.

As part of our business, we may deal with state-owned business enterprises, the employees of which are considered foreign officials for purposes of the FCPA’s prohibition on providing anything of value to foreign officials for the purposes of obtaining or retaining business or securing any improper business advantage. In addition, the provisions of the Bribery Act extend beyond bribery of foreign public officials and also apply to transactions with individuals that a government does not employ. Some of the international locations in which we operate lack a developed legal system and have higher than normal levels of corruption. Our continued expansion outside the U.S., including in Brazil, China, India and developing countries, and our development of new partnerships and joint venture relationships worldwide, could increase the risk of FCPA, OFAC or Bribery Act violations in the future.

As an exporter, we must comply with various laws and regulations relating to the export of products and technology from the U.S. and other countries having jurisdiction over our operations. In the U.S., these laws include the International Traffic in Arms Regulations (“ITAR”) administered by the DDTC, the Export Administration Regulations (“EAR”) administered by the BIS and trade sanctions against embargoed countries and destinations administered by OFAC. The EAR governs products, parts, technology and software which present military or weapons proliferation concerns, so-called “dual use” items, and ITAR governs military items listed on the United States Munitions List. Prior to shipping certain items, we must obtain an export license or verify that license exemptions are available. Any failures to comply with these laws and regulations could result in fines, adverse publicity and restrictions on our ability to export our products, and repeat failures could carry more significant penalties.

Violations of anti-corruption and trade control laws and sanctions regulations are punishable by civil penalties, including fines, denial of export privileges, injunctions, asset seizures, debarment from government contracts and revocations or restrictions of licenses, as well as criminal fines and imprisonment. We have established policies and procedures designed to assist our compliance with applicable U.S. and international anti-corruption and trade control laws and regulations, including the FCPA, the Bribery Act and trade controls and sanctions programs administered by OFAC, the DDTC and BIS, and have trained our employees to comply with these laws and regulations. However, there can be no assurance that all of our employees, consultants, agents or other associated persons will not take actions in violation of our policies and these laws and regulations. Additionally, there can be no assurance that our policies and procedures will effectively prevent us from violating these regulations in every transaction in which we may engage or provide a defense to any alleged violation. In particular, we may be held liable for the actions that our joint venture partners take inside or outside of the United States, even though our partners may not be subject to these laws. Such a violation, even if our policies prohibit it, could have an adverse effect on our reputation, business, financial condition and results of operations. In addition, various state and municipal governments, universities and other investors maintain prohibitions or restrictions on investments in companies that do business with sanctioned countries, persons and entities, which could adversely affect our reputation, business, financial condition and results of operations.

Changes in, or interpretation of, tax rules and regulations may impact our effective tax rate and future profitability.

We are a U.S. based, multinational company subject to taxation in multiple U.S. and foreign tax jurisdictions. Our future effective tax rates could be adversely affected by changes in statutory tax rates or interpretation of tax rules and regulations in jurisdictions in which we do business, changes in the amount of revenue or earnings in the countries with varying statutory tax rates, or by changes in the valuation of deferred tax assets and liabilities.

In addition, we are subject to audits and examinations of previously filed income tax returns by the Internal Revenue Service and other domestic and foreign tax authorities. We regularly assess the potential impact of such examinations to determine the adequacy of our provision for income taxes and have reserved for potential adjustments that we expect may result from the current examinations. We believe such estimates to be reasonable; however, there is no assurance that the final determination of any examination will not have an adverse effect on our operating results and financial position.

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 blending, 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 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, local, state, federal or foreign authorities may curtail the use of these materials and interrupt our business operations. 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 may be harmed.

Our common stock price has been and may continue to be volatile.

The market price of our common stock has experienced, and may continue to experience, considerable volatility. Between January 1, 2015 and December 31, 2016, the trading price of our common stock has ranged from a low of \$6.00 per share to a high of \$33.97 per share. Numerous factors could have a significant effect on the price of our common stock, including those described or referred to in this “Risk Factors” section of this Form 10-K, as well as, among other things:

- Our perceived value in the securities markets;

- Overall trends in the stock market;
- Announcements of fluctuations in our operating results or the operating results of one or more of our competitors;
- The impact of changes in our results of operations, our financial condition or our prospects;
- Future sales of our common stock or other securities (including any shares issued in connection with earn-out obligations for any past or future acquisition);
- Market conditions for providers of products and services such as ours;
- Executive level management uncertainty or change;
- Changes in recommendations or earnings estimates by securities analysts; and
- Announcements of acquisitions by us or one of our competitors.

Some anti-takeover provisions contained in our certificate of incorporation and bylaws, as well as provisions of Delaware law, could impair a takeover attempt.

We have provisions in our certificate of incorporation and by-laws each of which could have the effect of rendering more difficult or discouraging an acquisition of the Company deemed undesirable by our Board of Directors. These include provisions:

- Authorizing blank check preferred stock, which we could issue with voting, liquidation, dividend and other rights superior to our common stock;
- Limiting the liability of, and providing indemnification to, our directors and officers;
- Specifying that our stockholders may take action only at a duly called annual or special meeting of stockholders and otherwise in accordance with our bylaws and limiting the ability of our stockholders to call special meetings;
- Requiring advance notice of proposals by our stockholders for business to be conducted at stockholder meetings and for nominations of candidates for election to our Board of Directors; and
- Controlling the procedures for conduct of our Board of Directors and stockholder meetings and election, appointment and removal of our directors.

These provisions, alone or together, could deter or delay hostile takeovers, proxy contests and changes in control or our management. As a Delaware corporation, we are also subject to provisions of Delaware law, including Section 203 of the Delaware General Corporation Law, which prevents some stockholders from engaging in certain business combinations without approval of the holders of substantially all of our outstanding common stock.

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

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our headquarters is located in Rock Hill, South Carolina. As of December 31, 2016, we leased 1.1 million square feet and owned 0.1 million square feet, primarily located in the U.S., as summarized below.

	Square Feet (in thousands)							
	Americas		EMEA		APAC		TOTAL	
	Leased	Owned	Leased	Owned	Leased	Owned	Leased	Owned
Primary Function Category:								
Corporate headquarters	80	—	—	—	—	—	80	—
Manufacturing and warehouse	232	—	76	—	—	—	308	—
Research and development	241	—	36	—	24	—	301	—
Services	199	74	80	—	38	—	317	74
Sales, general and other administrative	15	—	46	—	18	—	79	—
Total square feet	767	74	238	—	80	—	1,085	74

Our corporate headquarters in Rock Hill, South Carolina also serves as a research and development site. Other major research and development locations include Cary, North Carolina; San Diego, California; Seoul, Korea; Tel Aviv, Israel; Valencia, California and Wilsonville, Oregon, among others. We believe our existing facilities and equipment are in good operating condition and are suitable for the conduct of our business. We will continue to make investments in capital equipment as needed to meet anticipated demand for our products. See “Item 1. Business – Production and Supplies” and Notes 12 and 21 to the Consolidated Financial Statements for further discussion of our facilities.

Item 3. Legal Proceedings

Securities and Derivative Litigation

The Company and certain of its former executive officers have been named as defendants in a consolidated putative stockholder class action lawsuit pending in the United States District Court for the District of South Carolina. The consolidated action is styled *KBC Asset Management NV v. 3D Systems Corporation, et al.*, Case No. 0:15-cv-02393-MGL. The Amended Consolidated Complaint (the “Complaint”), which was filed on December 9, 2015, alleges that defendants violated the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and Rule 10b-5 promulgated thereunder by making false and misleading statements and omissions and that the former officers are control persons under Section 20(a) of the Exchange Act. The Complaint was filed on behalf of stockholders who purchased shares of the Company’s common stock between October 29, 2013, and May 5, 2015 and seeks monetary damages on behalf of the purported class. Defendants filed a motion to dismiss the Complaint in its entirety on January 14, 2016, which was denied by Memorandum Opinion and Order dated July 25, 2016 (the “Order”). Defendants filed a motion for reconsideration of the Order on August 4, 2016, which was denied by Order dated February 24, 2017.

Nine related derivative complaints have been filed by purported Company stockholders against certain of the Company’s former executive officers and members of its Board of Directors. The Company is named as a nominal defendant in all nine actions. The derivatives complaints are styled as follows: (1) *Steyn v. Reichental, et al.*, Case No. 2015-CP-46-2225, filed on July 27, 2015 in the Court of Common Pleas for the 16th Judicial Circuit, County of York, South Carolina (“Steyn”); (2) *Piguing v. Reichental, et al.*, Case No. 2015-CP-46-2396, filed on August 7, 2015 in the Court of Common Pleas for the 16th Judicial Circuit, County of York, South Carolina (“Piguing”); (3) *Booth v. Reichental, et al.*, Case No. 15-692-RGA, filed on August 6, 2015 in the United States District Court for the District of Delaware; (4) *Nally v. Reichental, et al.*, Case No. 15-cv-03756-MGL, filed on September 18, 2015 in the United States District Court for the District of South Carolina; (5) *Gee v. Hull, et al.*, Case No. BC-610319, filed on February 17, 2016 in the Superior Court for the State of California, County of Los Angeles (“Gee”); (6) *Foster v. Reichental, et al.*, Case No. 0:16-cv-01016-MGL, filed on April 1, 2016 in the United States District Court for the District of South Carolina; (7) *Lu v. Hull, et al.*, Case No. BC629730, filed on August 5, 2016 in the Superior Court for the State of California, County of Los Angeles (“Lu”); (8) *Howes v. Reichental, et al.*, Case No. 0:16-cv-2810-MGL, filed on August 11, 2016 in the United States District Court for the District of South Carolina; and (9) *Ameduri v. Reichental, et al.*, Case No. 0:16-cv-02995-MGL, filed on September 1, 2016 in the United States District Court for the District of South Carolina. Steyn and Piguing were consolidated into one action styled as *In re 3D Systems Corp. Shareholder Derivative Litig.*, Lead Case No. 2015-CP-46-2225 in the Court of Common Pleas for the 16th Judicial Circuit, County of York, South Carolina. Gee and Lu were consolidated into one action styled as *Gee v. Hull, et al.*, Case No. BC610319 in the Superior Court for the State of California, County of Los Angeles.

The derivative complaints allege claims for breach of fiduciary duty, abuse of control, gross mismanagement, waste of corporate assets and unjust enrichment and seek, among other things, monetary damages and certain corporate governance actions.

All of the derivative complaints listed above have been stayed until the earlier of the close of discovery or the deadline for appealing a dismissal in the KBC Asset Management NV securities class action.

The Company believes the claims alleged in the putative securities class action and the derivative lawsuits are without merit and intends to defend the Company and its officers and directors vigorously.

Ronald Barranco and Print3D Corporation v. 3D Systems Corporation, et. al.

On August 23, 2013, Ronald Barranco, a former Company employee, filed two lawsuits against the Company and certain officers in the United States District Court for the District of Hawaii. The first lawsuit ("Barranco I") is captioned *Ronald Barranco and Print3D Corporation v. 3D Systems Corporation, 3D Systems, Inc., and Damon Gregoire*, Case No. CV 13-411 LEK RLP, and alleges seven causes of action relating to the Company's acquisition of Print3D Corporation (of which Mr. Barranco was a 50% shareholder) and the subsequent employment of Mr. Barranco by the Company. The second lawsuit ("Barranco II") is captioned *Ronald Barranco v. 3D Systems Corporation, 3D Systems, Inc., Abraham Reichental, and Damon Gregoire*, Case No. CV 13-412 LEK RLP, and alleges the same seven causes of action relating to the Company's acquisition of certain website domains from Mr. Barranco and the subsequent employment of Mr. Barranco by the Company. Both Barranco I and Barranco II allege the Company breached certain purchase agreements in order to avoid paying Mr. Barranco additional monies pursuant to royalty and earn out provisions in the agreements. The Company and its officers timely filed responsive pleadings on October 22, 2013 seeking, *inter alia*, to dismiss Barranco I due to a mandatory arbitration agreement and for lack of personal jurisdiction and to dismiss Barranco II for lack of personal jurisdiction.

With regard to Barranco I, the Hawaii district court, on February 28, 2014, denied the Company's motion to dismiss and its motion to transfer venue to South Carolina for the convenience of the parties. However, the Hawaii court recognized that the plaintiff's claims are all subject to mandatory and binding arbitration in Charlotte, North Carolina. Because the Hawaii court was without authority to compel arbitration outside of Hawaii, the court ordered that the case be transferred to the district court encompassing Charlotte (the United States District Court for the Western District of North Carolina) so that court could compel arbitration in Charlotte. On April 17, 2014, Barranco I was transferred in to the Western District of North Carolina. Plaintiff filed a demand for arbitration on October 29, 2014. On December 9, 2014, the Company filed its answer to plaintiff's demand for arbitration. On February 2, 2015, plaintiff filed an amended demand that removed Mr. Gregoire as a defendant from the matter, and on February 4, 2015 the Company filed its amended answer. The parties selected an arbitrator and arbitration took place in June 2015 in Charlotte, North Carolina.

On September 28, 2015, the arbitrator issued a final award in favor of Mr. Barranco with respect to two alleged breaches of contract and implied covenants arising out of the contract. The arbitrator found that the Company did not commit fraud or make any negligent misrepresentations to Mr. Barranco. Pursuant to the award, the Company is to pay approximately \$11.3 million, which includes alleged actual damages of approximately \$7.3 million, fees and expenses of approximately \$2.3 million and prejudgment interest of approximately \$1.7 million. The Company disagrees with the single arbitrator's findings and conclusions and believes the arbitrator's decision exceeds his authority and disregards the applicable law. As an initial response, the Company filed a motion for modification on September 30, 2015, based on mathematical errors in the computation of damages and fees. On October 16, 2015, the arbitrator issued an order denying the Company's motion and sua sponte issuing a modified final award in favor of Mr. Barranco in the same above-referenced amounts, but making certain substantive changes to the award, which changes the Company believes were improper and outside the scope of his authority and the American Arbitration Association rules. On November 20, 2015, the Company filed a motion to vacate the arbitration award in the federal court in the Western District of North Carolina. Claimants also filed a motion to confirm the arbitration award. A hearing was held on the motions on June 29, 2016 in federal court in the Western District of North Carolina. The court requested supplemental briefing by the parties, which briefs were filed on July 11, 2016.

On August 31, 2016, the court issued an Order granting in part and denying in part Plaintiff's motion to confirm the arbitration award and for judgment, entering judgment in the principal amount of the arbitration award and denying Plaintiff's motion for fees and costs. The court denied the Company's motion to vacate. On September 7, 2016, Plaintiff filed a motion to amend the judgment to include prejudgment interest. The Company opposed that motion and the parties submitted briefing, which is currently pending before the court. On September 28, 2016 the Company filed a motion to alter or amend the judgment. Plaintiff opposed the motion and the parties submitted briefing, which is currently pending before the court.

Notwithstanding the Company’s right to appeal, given the arbitrator’s decision, the Company recorded an \$11.3 million expense provision for this matter in the quarter ended September 30, 2015. The provision is subject to adjustment based on the ultimate outcome of the Company’s appeal. If it is ultimately determined that money is owed following the full appellate process in federal court, the Company intends to fund any amounts to be paid from cash on hand. This amount has been classified as a long-term liability given the customary timeline of an appeals process. The Company will review this classification periodically.

With regard to Barranco II, the Hawaii district court, on March 17, 2014, denied the Company’s motion to dismiss and its motion to transfer venue to South Carolina. However, the Hawaii court dismissed Count II in plaintiff’s complaint alleging breach of the employment agreement. The Company filed an answer to the complaint in the Hawaii district court on March 31, 2014. On November 19, 2014, the Company filed a motion for summary judgment on all claims which was heard on January 20, 2015. On January 30, 2015, the court entered an order granting in part and denying in Part the Company’s motion for summary judgment. The Order narrowed the plaintiff’s claim for breach of contract and dismissed the plaintiff’s claims for fraud and negligent misrepresentation. As a result, Messrs. Reichental and Gregoire were dismissed from the lawsuit. The case was tried to a jury in May 2016, and on May 27, 2016 the jury found that the Company was not liable for either breach of contract or breach of the implied covenant of good faith and fair dealing. Additionally, the jury found in favor of the Company on its counterclaim against Mr. Barranco and determined that Mr. Barranco violated his non-competition covenant with the Company. The Court is expected to order an accounting with respect to the counterclaim.

The Company is involved in various other legal matters incidental to its business. Although the Company cannot predict the results of litigation with certainty, the Company believes that the disposition of these legal matters will not have a material adverse effect on its consolidated results of operations or consolidated financial position.

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

Our common stock is listed on the New York Stock Exchange (“NYSE”) under the trading symbol “DDD.” The following table sets forth, for the periods indicated, the range of high and low prices of our common stock, \$0.001 par value, as quoted on the NYSE.

Year	Period	High	Low
2015	Q1	\$ 33.97	\$ 26.29
	Q2	32.88	19.43
	Q3	19.68	10.85
	Q4	13.93	8.44
2016	Q1	\$ 15.90	\$ 6.00
	Q2	19.76	11.59
	Q3	18.23	11.98
	Q4	18.51	12.34

As of February 22, 2017, our outstanding common stock was held by approximately 955 stockholders of record. This figure does not reflect the beneficial ownership of shares held in the nominee name.

Dividends

We do not currently pay, and have not paid, any dividends on our common stock, and we currently intend to retain any future earnings for use in our business. Any future determination as to the declaration of dividends on our common stock will be made at the discretion of the Board of Directors and will depend on our earnings, operating and financial condition, capital requirements and other factors deemed relevant by the Board of Directors, including the applicable requirements of the Delaware General Corporation Law, which provides that dividends are payable only out of surplus or current net profits.

The payment of dividends on our common stock may be restricted by the provisions of credit agreements or other financing documents that we may enter into or the terms of securities that we may issue from time to time. Currently, no such agreements or documents limit our declaration of dividends or payments of dividends, other than our \$150 million five-year revolving, unsecured credit facility with PNC Bank, National Association, which limits the amount of cash dividends that we may pay in any one fiscal year to \$30.0 million.

Issuance of Unregistered Securities and Issuer Purchases of Equity Securities

We did not repurchase any of our equity securities during the year ended 2016, except for unvested restricted stock awards repurchased or forfeited pursuant to our 2004 and 2015 Incentive Stock Plans. For information regarding the securities authorized for issuance under our equity compensation plans, see “Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters – Equity Compensation Plans” under Part III, Item 12 of this Form 10-K. Also see Note 14 to the Consolidated Financial Statements.

Issuer purchases of equity securities

	Total number of shares (or units) purchased	Average price paid per share (or unit)	Total number of shares (or units) purchased as part of publicly announced plans or programs	Maximum number (or approximate dollar value) of shares (or units) that may yet be purchased under the plans or programs
January 1, 2016 - January 31, 2016	—	\$ —	—	\$ —
February 1, 2016 - February 29, 2016	36,787	9.13	—	—
March 1, 2016 - March 31, 2016	17,623	15.12	—	—
April 1, 2016 - April 30, 2016	—	—	—	—
May 1, 2016 - May 31, 2016	8,139	12.31	—	—
June 1, 2016 - June 30, 2016	25,056	12.92	—	—
July 1, 2016 - July 31, 2016	6,777	13.30	—	—
August 1, 2016 - August 31, 2016	2,016	16.06	—	—
September 1, 2016 - September 30, 2016	4,114	15.75	—	—
October 1, 2016 - October 31, 2016	—	—	—	—
November 1, 2016 - November 30, 2016	93,306	14.28	—	—
December 1, 2016 - December 31, 2016	—	—	—	—
Total	193,818 ^(a)	\$ 13.61 ^(b)	—	\$ —

^(a) Reflects shares of common stock surrendered to the Company for payment of tax withholding obligations in connection with the vesting of restricted stock.

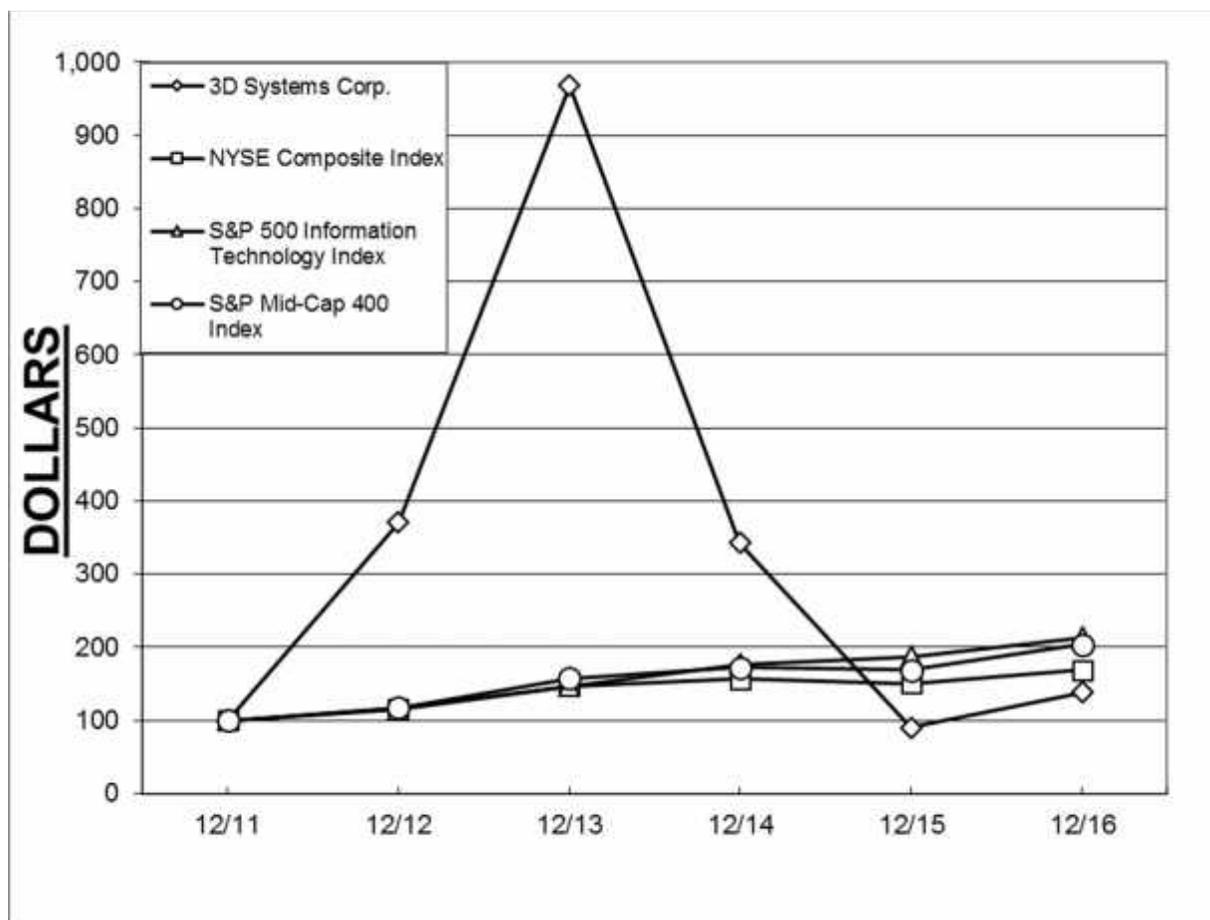
^(b) The average price paid reflects the average market value of shares withheld for tax purposes.

Stock Performance Graph

The graph below shows, for the five years ended December 31, 2016, the cumulative total return on an investment of \$100 assumed to have been made on December 31, 2011 in our common stock. For purposes of the graph, cumulative total return assumes the reinvestment of all dividends. The graph compares such return with those of comparable investments assumed to have been made on the same date in (a) the NYSE Composite Index, (b) the S&P 500 Information Technology Index and (c) the S&P Mid-Cap 400 Index, which are published market indices with which we are sometimes compared.

Although total return for the assumed investment assumes the reinvestment of all dividends on December 31 of the year in which such dividends were paid, we paid no cash dividends on our common stock during the periods presented.

COMPARISON OF 5-YEAR CUMULATIVE TOTAL RETURN*



* Fiscal years ending December 31.

	12/11	12/12	12/13	12/14	12/15	12/16
3D Systems Corporation	\$ 100	\$ 371	\$ 968	\$ 342	\$ 91	\$ 138
NYSE Composite Index	100	116	147	157	151	169
S&P 500 Information Technology Index	100	115	147	177	188	214
S&P 500 Mid-Cap 400 Index	100	118	157	173	169	204

Item 6. Selected Financial Data

The selected consolidated financial data set forth below for the five years ended December 31, 2016 have been derived from our historical Consolidated Financial Statements. You should read this information together with Management's Discussion and Analysis of Financial Condition and Results of Operations, the Consolidated Financial Statements and the notes thereto included in this Form 10-K.

<i>(in thousands, except per share amounts)</i>	Year ended December 31,				
	2016	2015	2014	2013	2012
Consolidated Statement of Income (Loss) and Other Comprehensive Income (Loss) Data:					
Consolidated Revenue:					
Products	\$ 223,544	\$ 257,379	\$ 283,339	\$ 227,627	\$ 126,798
Materials	156,839	150,740	158,859	128,405	103,182
Services	252,582	258,044	211,454	157,368	123,653
Total	632,965	666,163	653,652	513,400	353,633
Gross profit	309,751	291,809	317,434	267,594	181,196
Impairment of goodwill and other intangible assets ^(a)	—	537,179	—	—	—
Income (loss) from operations	(38,420)	(641,924)	26,315	80,861	60,571
Net income (loss)	(39,265)	(663,925)	11,946	44,119	38,941
Net income (loss) available to common stockholders	(38,419)	(655,492)	11,637	44,107	38,941
Net income (loss) available to common stockholders per share:					
Basic and diluted	\$ (0.35)	\$ (5.85)	\$ 0.11	\$ 0.45	\$ 0.48
Consolidated Balance Sheet Data:					
Working capital	\$ 302,545	\$ 286,996	\$ 432,864	\$ 416,399	\$ 212,285
Total assets	849,153	891,959	1,530,310	1,097,856	677,442
Current portion of debt and capitalized lease obligations	572	529	684	187	174
Long term debt and capitalized lease obligations, less current portion	7,587	8,187	8,905	18,693	87,974
Total stockholders' equity	626,700	654,646	1,294,125	933,792	480,333
Other Data:					
Depreciation and amortization	\$ 60,535	\$ 83,069	\$ 55,188	\$ 30,444	\$ 21,229
Interest expense	1,282	2,011	1,227	3,425	12,468
Capital expenditures	16,567	22,399	22,727	6,972	3,224

^(a) For further discussion of goodwill and other intangible assets impairment charges recorded in 2015, see Notes 2, 6 and 7 to the Consolidated Financial Statements.

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

The following discussion and analysis should be read together with the selected consolidated financial data and our Consolidated Financial Statements and notes thereto set forth in this Form 10-K. Certain statements contained in this discussion may constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These statements involve a number of risks, uncertainties and other factors that could cause actual results to differ materially from those reflected in any forward-looking statements, as discussed more fully in this Form 10-K. See “Forward-Looking Statements” and “Risk Factors” in Part I, Item 1A.

Overview and Strategy

We provide comprehensive 3D solutions, including 3D printers, materials, on-demand manufacturing services, software and digital design and manufacturing tools. Our precision healthcare capabilities include simulation, VSP™, and printing of medical and dental devices, implants and surgical guides and instruments. Our ecosystem supports advanced applications from product design to 3D production in a wide range of industries. We enable customers to optimize product designs, transform workflows, bring innovative products to market and drive new business models.

We are pursuing a strategy that focuses on offering a comprehensive ecosystem that provides solutions aimed at healthcare, aerospace, automotive and durable goods verticals to address professional and industrial applications. We believe we are at an inflection point for 3D printing and a shift from prototyping to production is underway. We are focused on innovation to drive expansion into 3D production through improving durability, reliability, repeatability and total cost of operation of 3D printing solutions.

We have launched new 3D printers with increased speeds and capabilities as well as introduced print materials with improved strength, temperature, durability and elasticity, developments that we believe are well suited for advanced and demanding applications. We have also expanded and strengthened our software portfolio to help enhance our customers’ workflows from digitize to design to simulate to manufacture, inspect and manage. We plan to continue to invest in development of hardware, software, materials and comprehensive solutions in plastics and metals to address significant opportunities with a use case by use case approach, focusing on solving specific customer applications and needs within healthcare, aerospace, automotive and durable goods vertical markets.

To execute this strategy, we are focusing on an operating framework with a regional go-to-market model that drives growth while balancing investments to support process improvement, infrastructure enhancement and operational excellence. We expect to be able to support growth by prioritizing and focusing our resources and leveraging our technology, domain expertise and strong customer and partner relationships. As with any growth strategy, there can be no assurance that we will succeed in accomplishing our strategic initiatives.

Recent Developments

On January 31, 2017, we announced the acquisition of Vertex-Global Holding B.V., a provider of dental materials worldwide under the Vertex and NextDent brands. Vertex Dental and NextDent are manufacturers of photopolymer, thermoplastic, polymer and monomer materials for traditional and 3D printing dental applications. NextDent has developed 12 dental 3D printing materials to date and has obtained regulatory approval for use of these materials in more than 70 countries worldwide. NextDent’s portfolio of 3D printing materials allow dental professionals to produce trays, models, drilling templates, dentures, orthodontic splints, crowns and bridges with enhanced speed, precision and efficiency and lower cost compared to conventional procedures. We believe together, our Figure 4 platform and NextDent’s advanced 3D printing materials provide a strategic foothold in the multi-billion-dollar digital dentistry opportunity and will deliver materials innovation, regulatory compliance, manufacturing efficiency and vertical solutions expertise to advance our solutions across healthcare and other verticals.

2016 Summary

Total consolidated revenue for the year ended December 31, 2016 decreased by 5.0%, or \$33.2 million, to \$633.0 million, compared to \$666.2 million for the year ended December 31, 2015. These results primarily reflect an increase in materials revenue that was more than offset by a decrease in products revenue, including the exit of consumer products, and a decrease in services revenue, as further discussed below.

Healthcare revenue includes sales of products, materials and services for healthcare-related applications, including simulation, training and planning, 3D printing of surgical guides and instruments and medical and dental devices. For the year ended December 31, 2016, healthcare revenue increased 5.0%, or \$7.0 million, to \$148.1 million, and made up 23.4% of total revenue, compared to \$141.1 million, or 21.2% of total revenue, for the year ended December 31, 2015. The increase in healthcare revenue reflects customers expanding their capabilities and capacity as well as timing of orders, including large orders from certain customer, which resulted in increased sales of products and services and lower materials sales.

For the year ended December 31, 2016, total software revenue from products and services increased by 12.3%, to \$87.7 million, and made up 13.9% of total revenue, compared to \$78.1 million, or 11.7% of total revenue for the year ended December 31, 2015.

As of December 31, 2016 and 2015, our backlog was \$31.7 million and \$38.4 million, respectively. Production and delivery of our printers is generally not characterized by long lead times; backlog is more dependent on timing of customers' requested deliveries. In addition, on-demand parts services lead time and backlog depends on whether orders are for rapid prototyping or longer-range production runs. As of December 31, 2016 and 2015, backlog included \$9.2 million and \$13.0 million of on-demand manufacturing services orders, respectively.

Gross profit for the year ended December 31, 2016 increased by 6.1%, or \$17.9 million, to \$309.8 million, compared to \$291.8 million for the year ended December 31, 2015. Gross profit margin for the years ended December 31, 2016 and 2015 was 48.9%, and 43.8%, respectively. Our shift away from lower margin consumer products combined with cost reduction efforts drove higher gross profit and margin, notwithstanding lower revenue in 2016.

Operating expenses for the year ended December 31, 2016 decreased by 62.7%, or \$585.6 million, to \$348.2 million, compared to \$933.7 million for the year ended December 31, 2015. Excluding goodwill and other intangible asset impairment charges that were recorded during 2015, operating expenses for the year ended December 31, 2016 decreased 12.2% compared to the year ended December 31, 2015, due to lower selling, general and administrative expense and lower research and development expense, as further discussed below.

Our operating loss for the years ended December 31, 2016 and 2015 was \$38.4 million and \$641.9 million, respectively. Excluding goodwill and other intangible asset impairment charges that were recorded in 2015, our operating loss improved 63.3%, as further discussed below.

For the years ended December 31, 2016 and 2015, we generated \$56.9 million and used \$3.1 million, respectively, of cash in operations, as further discussed below. In total, our unrestricted cash balance at December 31, 2016 and 2015, was \$184.9 million and \$155.6 million, respectively.

Results of Operations for 2016, 2015 and 2014

Comparison of revenue by class

We earn revenues from the sale of products, materials and services. The products category includes 3D printers, healthcare simulators and digitizers, as well as software, 3D scanners and haptic devices. The materials category includes a wide range of print materials to be used with our 3D printers, the majority of which are proprietary. The services category includes warranty and maintenance on 3D printers and simulators, software maintenance, on demand solutions and healthcare services.

Due to the relatively high price of certain 3D printers and a corresponding lengthy selling cycle and relatively low unit volume of the higher priced printers in any particular period, a shift in the timing and concentration of orders and shipments from one period to another can affect reported revenue in any given period. Revenue reported in any particular period is also affected by timing of revenue recognition under rules prescribed by U.S. generally accepted accounting principles ("GAAP").

In addition to changes in sales volumes, including the impact of revenue from acquisitions, there are two other primary drivers of changes in revenue from one period to another: (1) the combined effect of changes in product mix and average selling prices, sometimes referred to as price and mix effects, and (2) the impact of fluctuations in foreign currencies. As used in this Management's Discussion and Analysis, the price and mix effects relate to changes in revenue that are not able to be specifically related to changes in unit volume.

2016 compared to 2015

Table 1 sets forth the change in revenue by class for the years ended December 31, 2016 and 2015.

Table 1

<i>(Dollars in thousands)</i>	Products		Materials		Services		Totals	
Revenue – 2015	\$257,379	38.6 %	\$150,740	22.6 %	\$258,044	38.8 %	\$666,163	100 %
Change in revenue:								
Volume	(19,336)	(7.5)	21,685	14.4	(3,622)	(1.4)	(1,273)	(0.2)
Price/Mix	(13,786)	(5.4)	(15,125)	(10.0)	—	—	(28,911)	(4.3)
Foreign currency translation	(713)	(0.3)	(461)	(0.3)	(1,840)	(0.7)	(3,014)	(0.5)
Net change	(33,835)	(13.2)	6,099	4.1	(5,462)	(2.1)	(33,198)	(5.0)
Revenue – 2016	\$223,544	35.3 %	\$156,839	24.8 %	\$252,582	39.9 %	\$632,965	100 %

Total consolidated revenue decreased by 5.0%, primarily driven by lower sales of 3D printers and on-demand parts services, partially offset by higher materials revenue and software revenue.

The discontinuation of consumer products coupled with lower sales of professional printers offset higher sales of production printers, resulting in overall lower revenue from 3D printers. For the year ended December 31, 2016, software revenue included in the products category, including scanners and haptic devices, contributed \$44.5 million, compared to \$44.3 million for the year ended December 31, 2015.

The increase in materials revenue for the year ended December 31, 2016 primarily reflects increased demand for materials driven by industrial customers with production printers. For the year ended December 31, 2016, sales of integrated materials increased by 4.1% to \$120.9 million and represented 77.1% of total materials revenue for the years ended December 31, 2016 and 2015.

The decrease in services revenue for the year ended December 31, 2016 was primarily driven by a decrease in on-demand parts manufacturing services which more than offset the growth in healthcare and software services revenue. For the year ended December 31, 2016, services revenue from on-demand parts decreased 17.8%, to \$104.8 million, compared to \$127.4 for the year ended December 31, 2015. For the years ended December 31, 2016 and 2015, software revenue included in the services category contributed \$43.2 million and \$33.8 million, respectively.

2015 compared to 2014

Table 2 sets forth the change in revenue by class for the years ended December 31, 2015 and 2014.

Table 2

<i>(Dollars in thousands)</i>	Products		Materials		Services		Totals	
Revenue – 2014	\$283,339	43.3 %	\$158,859	24.3 %	\$211,454	32.4 %	\$653,652	100 %
Change in revenue:								
Volume	(5,674)	(2.0)	(11,691)	(7.4)	63,967	30.3	46,602	7.1
Price/Mix	(1,744)	(0.6)	13,495	8.5	—	—	11,751	1.8
Foreign currency translation	(18,542)	(6.5)	(9,923)	(6.2)	(17,377)	(8.2)	(45,842)	(7.0)
Net change	(25,960)	(9.1)	(8,119)	(5.1)	46,590	22.1	12,511	1.9
Revenue – 2015	\$257,379	38.6 %	\$150,740	22.6 %	\$258,044	38.8 %	\$666,163	100 %

Total consolidated revenue increased by 1.9%, primarily due to an increase in services revenue, partially offset by a decrease in products and materials volume and an unfavorable foreign currency impact.

The decrease in products revenue was primarily driven by lower sales of 3D printers coupled with an unfavorable foreign currency impact. For the year ended December 31, 2015, software revenue included in the products category, including scanners and haptic devices, contributed \$44.3 million, compared to \$20.1 million for the year ended December 31, 2014, primarily reflecting expanded software products from our acquisition of 100% of the outstanding shares and voting rights of Cimatron Ltd. (“Cimatron”) in 2015.

The decrease in materials revenue was primarily driven by softness in demand for printers and timing of sales of materials. For the year ended December 31, 2015, sales of integrated materials decreased by 0.2% to \$116.2 million and represented 77.1% of total materials revenue, compared to 73.3% for the year ended December 31, 2014.

The increase in services revenue primarily reflects our expanded offerings of services. For the year ended December 31, 2015, services revenue from on-demand parts increased 4.1%, to \$127.4 million, compared to \$122.4 for the year ended December 31, 2014. For the years ended December 31, 2015 and 2014, software revenue included in the services category contributed \$33.8 million and \$15.2 million, respectively, primarily reflecting expanded software products, including the acquisition of Cimatron in 2015.

Comparison of revenue by geographic region

2016 compared to 2015

Table 3 sets forth the change in revenue by geographic region for the years ended December 31, 2016 and 2015:

Table 3

<i>(Dollars in thousands)</i>	Americas		EMEA		Asia Pacific		Total	
Revenue – 2015	\$357,976	53.7 %	\$200,104	30.0 %	\$108,083	16.3 %	\$ 666,163	100 %
Change in revenue:								
Volume	550	0.2	(58)	0.0	(1,765)	(1.6)	(1,273)	(0.2)
Price/Mix	(16,619)	(4.6)	(4,066)	(2.0)	(8,226)	(7.6)	(28,911)	(4.3)
Foreign currency translation	(1,022)	(0.3)	(2,839)	(1.4)	847	0.8	(3,014)	(0.5)
Net change	(17,091)	(4.7)	(6,963)	(3.4)	(9,144)	(8.4)	(33,198)	(5.0)
Revenue – 2016	\$340,885	53.9 %	\$193,141	30.5 %	\$ 98,939	15.6 %	\$ 632,965	100 %

The decrease in revenue in all geographic regions for the year ended December 31, 2016, primarily reflects lower sales of 3D printers and on-demand parts manufacturing services, partially offset by increased sales from materials, software and healthcare-related solutions.

For the years ended December 31, 2016 and 2015, revenue from operations outside the U.S., including Latin America, EMEA and APAC, was 49.3% and 49.0% of total revenue, respectively.

2015 compared to 2014

Table 4 sets forth the change in revenue by geographic region for the years ended December 31, 2015 and 2014:

Table 4

<i>(Dollars in thousands)</i>	Americas		EMEA		APAC		Total	
Revenue – 2014	\$333,925	51.1 %	\$196,087	30.0 %	\$123,640	18.9 %	\$653,652	100 %
Change in revenue:								
Volume	38,699	11.6	25,100	12.8	(17,197)	(13.9)	46,602	7.1
Price/Mix	(10,171)	(3.0)	12,529	6.4	9,393	7.6	11,751	1.8
Foreign currency translation	(4,477)	(1.3)	(33,612)	(17.1)	(7,753)	(6.3)	(45,842)	(7.0)
Net change	24,051	7.3	4,017	2.1	(15,557)	(12.6)	12,511	1.9
Revenue – 2015	\$357,976	53.7 %	\$200,104	30.0 %	\$108,083	16.3 %	\$666,163	100 %

The growth in the Americas and EMEA for the year ended December 31, 2015 was driven by an increase in services revenue, while continued macroeconomic weaknesses compressed printers and materials revenue in the APAC region.

For the years ended December 31, 2015 and 2014, revenue from operations outside the U.S., including Latin America, EMEA and APAC, was 49.0% and 49.1% of total revenue, respectively.

Gross profit and gross profit margins

2016 compared to 2015

Table 5 sets forth gross profit and gross profit margins for the years ended December 31, 2016 and 2015.

Table 5

	Year Ended December 31,				Change in Gross Profit		Change in Gross Profit Margin	
	2016		2015		Change in Gross Profit	Change in Gross Profit Margin	Percentage Points	%
	Gross Profit	Gross Profit Margin	Gross Profit	Gross Profit Margin				
<i>(Dollars in thousands)</i>					\$	%		
Products	\$ 63,925	28.6 %	\$ 50,304	19.5 %	\$ 13,621	27.1 %	9.1	46.6 %
Materials	121,030	77.2	114,176	75.7	6,854	6.0	1.5	1.9
Services	124,796	49.4	127,329	49.3	(2,533)	(2.0)	0.1	0.2
Total	<u>\$ 309,751</u>	<u>48.9 %</u>	<u>\$ 291,809</u>	<u>43.8 %</u>	<u>\$ 17,942</u>	<u>6.1 %</u>	<u>5.1</u>	<u>11.7 %</u>

The increase in total consolidated gross profit is primarily driven by higher products and materials gross profit, as further discussed below.

Gross profit margin for products increased, primarily due to cost reduction measures and favorable impact of sales mix from our shift away from lower margin consumer products. Additionally, cash and non-cash charges recorded in the fourth quarter of 2015 related to the end-of-life of the Cube 3D printer and our shift away from consumer products in 2015 were higher than charges recorded in the third quarter of 2016 which related product and project discontinuations in connection with our updated strategy.

Gross profit margin for materials increased, reflecting the favorable impact of mix.

Gross profit margin for services increased slightly, primarily driven by higher revenues from healthcare and software solutions, partially offset by lower on-demand parts margin. On-demand parts services gross profit margin decreased to 43.0% for the year ended December 31, 2016, compared to 43.9% for the year ended December 31, 2015.

2015 compared to 2014

Table 6 sets forth gross profit and gross profit margins for the years ended December 31, 2015 and 2014.

Table 6

	Year Ended December 31,				Change in Profit		Change in Gross Profit Margin	
	2015		2014		Change in Profit	Change in Gross Profit Margin	Percentage Points	%
	Gross Profit	Gross Profit Margin	Gross Profit	Gross Profit Margin				
<i>(Dollars in thousands)</i>					\$	%		
Products	\$ 50,304	19.5 %	\$ 101,681	35.9 %	\$ (51,377)	(50.5)%	(16.4)	(45.7)%
Materials	114,176	75.7	116,526	73.4	(2,350)	(2.0)	2.3	3.1
Services	127,329	49.3	99,227	46.9	28,102	28.3	2.4	5.1
Total	<u>\$ 291,809</u>	<u>43.8 %</u>	<u>\$ 317,434</u>	<u>48.6 %</u>	<u>\$ (25,625)</u>	<u>(8.1)%</u>	<u>(4.8)</u>	<u>(9.9)%</u>

Total consolidated gross profit decreased, primarily driven by cash and non-cash charges related to the end-of-life of the Cube 3D printer and our shift away from consumer products, in addition to lower products revenue, as discussed below.

Gross profit margin for products decreased primarily due to lower sales of 3D printers, coupled with cash and non-cash charges of approximately \$27.4 million related to the end-of-life of the Cube 3D printer and our shift away from lower margin consumer products, which more than offset increased contributions from higher margin software and healthcare products.

Gross profit margin for materials increased, reflecting a favorable mix of materials sold during the period and improved supply chain efficiencies in materials production.

Gross profit margin for services increased primarily due to the addition of higher margin healthcare and software services. On-demand parts services gross profit margin increased to 43.9% for the year ended December 31, 2015, compared to 43.5% for the year ended December 31, 2014.

Operating expenses

2016 compared to 2015

Table 7 sets forth the components of operating expenses for the years ended December 31, 2016 and 2015.

Table 7

	Year Ended December 31,				Change	
	2016		2015			
<i>(Dollars in thousands)</i>	Amount	% Revenue	Amount	% Revenue	\$	%
Selling, general and administrative expenses	\$ 259,776	41.0 %	\$ 303,784	45.6 %	\$ (44,008)	(14.5)%
Research and development expenses	88,395	14.0	92,770	13.9	(4,375)	(4.7)
Impairment of goodwill and other intangible assets	—	—	537,179	80.6	(537,179)	(100.0)
Total operating expenses	<u>\$ 348,171</u>	<u>55.0 %</u>	<u>\$ 933,733</u>	<u>140.1 %</u>	<u>\$ (585,562)</u>	<u>(62.7)%</u>

Total operating expenses decreased, primarily reflecting the fact that impairment charges related to goodwill and other intangible assets were recorded in the fourth quarter of 2015, in addition to lower selling, general and administrative expenses and lower research and development expenses, as discussed below.

For the year ended December 31, 2016, selling, general and administrative expenses decreased, primarily due to a \$25.9 million decrease in amortization expense, an \$11.5 million decrease in litigation costs primarily related to a provision for arbitration award recorded in the third quarter of 2015 and a \$5.8 million decrease in compensation costs, driven by lower stock-based compensation expense.

For the year ended December 31, 2016, research and development expenses decreased, primarily due to a \$4.1 million decrease in outside services associated with product development, a \$3.1 million decrease in compensation costs and a \$2.2 million decrease in purchased materials, partially offset by \$4.6 million of expenses related to our updated strategy and re-prioritization of certain R&D projects and a \$1.1 million increase in depreciation expense.

2015 compared to 2014

Table 8 sets forth the components of operating expenses for the years ended December 31, 2015 and 2014.

Table 8

	Year Ended December 31				Change	
	2015		2014			
<i>(Dollars in thousands)</i>	Amount	% Revenue	Amount	% Revenue	\$	%
Selling, general and administrative expenses	\$ 303,784	45.6 %	\$ 215,724	33.0 %	\$ 88,060	40.8 %
Research and development expenses	92,770	13.9	75,395	11.5	17,375	23.0
Impairment of goodwill and other intangible assets	537,179	80.6	—	—	537,179	NA
Total operating expenses	\$ 933,733	140.1 %	\$ 291,119	44.5 %	\$ 642,614	220.7 %

Total operating expenses increased, reflecting impairment charges related to goodwill and other intangible assets that were recorded in the fourth quarter of 2015, in addition to higher selling, general and administrative expenses and higher research and development expenses, as discussed below.

Selling, general and administrative expenses increased due primarily to a \$37.9 million increase in compensation costs due to acquisitions and increased staffing, a \$21.6 million increase in amortization, an \$11.3 million arbitration award expense recorded in the third quarter of 2015 related to an earnout in connection with an acquisition completed in 2011, a \$4.6 million increase in marketing expenses, a \$2.5 million increase in travel expenses and a \$1.4 million increase in outside consulting services.

Research and development expenses increased primarily due to an \$11.0 million increase in compensation costs related to acquisitions and increased staffing and a \$5.7 million increase in outside services associated with product development.

In connection with our annual goodwill and other intangible assets testing, we recorded goodwill and other intangible asset impairment charges of \$537.2 million related to our geographic reporting units. See Notes 2, 6 and 7 to the Consolidated Financial Statements.

Income (loss) from operations

Table 9 sets forth income (loss) from operations by geographic region for the years ended December 31, 2016, 2015 and 2014.

Table 9

<i>(Dollars in thousands)</i>	Year Ended December 31,		
	2016	2015	2014
Income (loss) from operations			
Americas	\$ (53,725)	\$ (596,283)	\$ (24,663)
Germany	8,032	5,271	2,749
Other EMEA	(9,645)	(76,472)	9,181
Asia Pacific	19,591	27,432	40,131
Subtotal	(35,747)	(640,052)	27,398
Inter-segment elimination	(2,673)	(1,872)	(1,083)
Total	\$ (38,420)	\$ (641,924)	\$ 26,315

The improvement in operating loss for the year ended December 31, 2016 was primarily driven by lower operating expenses. See “*Gross profit and gross profit margins*” and “*Operating expenses*” above.

With respect to the Americas, for the years ended December 31, 2016 and 2015, the changes in operating income (loss) reflected the same factors relating to our consolidated operating income (loss) that are discussed above. The changes in operating income (loss) in our operations outside the Americas for the years ended December 31, 2016 and 2015 resulted primarily from transfer pricing, changes in sales volume and foreign currency translation.

Interest and other expenses, net

Table 10 sets forth the components of interest and other expenses, net, for the years ended December 31, 2016, 2015 and 2014.

Table 10

<i>(Dollars in thousands)</i>	Year Ended December 31,		
	2016	2015	2014
Interest and other expense, net:			
Interest income	\$ (807)	\$ (521)	\$ (482)
Foreign exchange (gain) loss	(94)	3,263	5,727
Interest expense	1,282	2,011	1,227
Other (income) expense, net	1,011	8,276	2,456
Total interest and other expense, net	<u>\$ 1,392</u>	<u>\$ 13,029</u>	<u>\$ 8,928</u>

For the years ended December 31, 2016 and 2015, other expense, net, includes impairment charges of \$1.2 million and \$7.4 million, related to certain minority investments of less than 20% ownership, for which we do not exercise significant influence. See Note 2 to the Consolidated Financial Statements.

Benefit and provision for income taxes

We recorded a \$0.5 million benefit for income taxes for the year ended December 31, 2016 and a \$9.0 and \$5.4 million provision for income taxes for the years ended December 31, 2015 and 2014, respectively.

In 2016, this benefit primarily reflected a \$3.3 million U.S. tax benefit and \$2.8 million of tax expense in foreign jurisdictions. In 2015, this expense primarily reflected a \$5.5 million U.S. tax expense and \$3.5 million of tax expense in foreign jurisdictions. In 2014, this expense primarily reflected a \$1.7 million U.S. tax expense and \$3.7 million of tax expense in foreign jurisdictions.

During 2016 and 2015, we concluded that it is more likely than not that our deferred tax assets will not be realized in certain jurisdictions, including the U.S. and certain foreign jurisdictions; therefore, we have a valuation allowance recorded against our deferred tax assets on our consolidated balance sheets totaling \$109.9 million and \$107.3 million as of December 31, 2016 and 2015, respectively. During 2014, based upon our results of operations and expected profitability in the future, we concluded that it was more likely than not that all our deferred tax assets will be realized, and as a result, no valuation allowances were recorded for 2014.

For further discussion, see Notes 2 and 20 to the Consolidated Financial Statements.

Net income (loss) attributable to 3D Systems

2016 compared to 2015

Table 11 sets forth the primary components of net loss attributable to 3D Systems for the years ended December 31, 2016 and 2015.

Table 11

<i>(Dollars in thousands)</i>	Year Ended December 31,		Change
	2016	2015	
Operating loss	\$ (38,420)	\$ (641,924)	\$ 603,504
Less:			
Interest and other expense, net	1,392	13,029	(11,637)
Provision (benefit) for income taxes	(547)	8,972	(9,519)
Net loss attributable to noncontrolling interests	(846)	(8,433)	7,587
Net loss attributable to 3D Systems	\$ (38,419)	\$ (655,492)	\$ 617,073
Weighted average shares, basic and diluted	111,189	111,969	
Loss per share, basic and diluted	\$ (0.35)	\$ (5.85)	

See “Gross profit and gross profit margins” and “Operating expenses” above.

2015 compared to 2014

Table 12 sets forth the primary components of net income attributable to 3D Systems for the years ended December 31, 2015 and 2014.

Table 12

<i>(Dollars in thousands)</i>	Year Ended December 31,		Change
	2015	2014	
Operating income (loss)	\$ (641,924)	\$ 26,315	\$ (668,239)
Less:			
Interest and other expense, net	13,029	8,928	4,101
Provision for income taxes	8,972	5,441	3,531
Net income (loss) attributable to noncontrolling interests	(8,433)	309	(8,742)
Net income (loss) attributable to 3D Systems	\$ (655,492)	\$ 11,637	\$ (667,129)
Weighted average shares, basic and diluted	111,969	108,023	
Earnings (loss) per share, basic and diluted	\$ (5.85)	\$ 0.11	

The principal reasons for our lower net income for the year ended December 31, 2015 were a decrease in gross profit and increased operating expenses as a result of \$537.2 million of impairment charges related to goodwill and other intangible assets, costs related to acquisitions, including higher amortization, compensation and travel expenses, in addition to higher research and development expenses related to our portfolio expansion and development of new products. See “Gross profit and gross profit margins” and “Operating expenses” above.

Other Financial Information

In addition to our results determined under GAAP discussed above, management believes non-GAAP financial measures are useful to investors in evaluating our operating performance and facilitate a better understanding of the impact that strategic acquisitions, non-recurring charges and certain non-cash expenses had on our financial results. These non-GAAP financial measures have not been prepared in accordance with GAAP, may be different from non-GAAP financial measures used by other companies and are subject to inherent limitations as they reflect the exercise of judgments by our management about which costs, expenses and other items are excluded from our GAAP financial statements in determining our non-GAAP financial measures. We have sought to compensate for these limitations by analyzing current and expected future results on a GAAP basis as well as a non-GAAP basis and also by providing GAAP financial statements as required in our public disclosures as well as reconciliations of our non-GAAP financial measures to our GAAP financial measures. Our non-GAAP financial measures are not meant to be considered in isolation or as a substitute for the directly comparable financial measures prepared in accordance with GAAP. These non-GAAP financial measures are meant to supplement, and be viewed in conjunction with, GAAP financial measures. We urge investors to review the reconciliation of our non-GAAP financial measures to the comparable GAAP financial measures included below, and not to rely on any single financial measure to evaluate our business.

Our non-GAAP financial measures are adjusted to exclude the following items:

- *Amortization, stock-based compensation and other non-cash items.* We exclude intangible asset amortization expense and non-cash stock based compensation expense, as well as any loss in connection with the conversion of convertible notes.
- *Legal and acquisition related expenses.* We exclude charges associated with arbitration awards, litigation settlements and certain severance costs, in addition to charges in connection with business acquisitions, which generally include earnout amortization and other acquisition-related fees, as well as goodwill and other intangible asset impairment charges.
- *Portfolio re-alignment.* We exclude charges associated with discontinued product lines, strategic decisions and re-prioritization of projects.

Reconciliation of Non-GAAP Financial Measures to GAAP Financial Measures

Table 13

<i>(in thousands, except per share amounts)</i>	Year Ended December 31, 2016				
	GAAP	Adjustments			Non-GAAP
		Amortization, Stock-Based Compensation and Other Non- Cash Items ^(b)	Legal and Acquisition- Related	Portfolio Re-alignment	
Revenue	\$ 632,965	\$ —	\$ —	\$ —	\$ 632,965
Cost of sales	323,214	(332)	—	(10,723)	312,159
Gross profit	309,751	332	—	10,723	320,806
Gross profit margin	48.9%				50.7%
Operating expenses:					
Selling, general and administrative	259,776	(66,087)	(5,741)	(34)	187,914
Research and development	88,395	—	—	(6,072)	82,323
Total operating expenses	348,171	(66,087)	(5,741)	(6,106)	270,237
Income (loss) from operations	(38,420)	66,419	5,741	16,829	50,569
Interest and other expense, net	1,392	—	—	—	1,392
Income (loss) before income taxes	(39,812)	66,419	5,741	16,829	49,177
Benefit for income taxes ^(a)	(547)	(207)	(67)	—	(821)
Net income (loss)	(39,265)	66,626	5,808	16,829	49,998
Less: net loss attributable to noncontrolling interests	(846)	—	—	—	(846)
Net income (loss) attributable to 3D Systems	\$ (38,419)	\$ 66,626	\$ 5,808	\$ 16,829	\$ 50,844
Net income (loss) per share available to 3D Systems Corporation common stockholders — basic and diluted	\$ (0.35)				\$ 0.46

(a) Tax effect for the quarter ended March 31, 2016 and earlier periods was calculated quarterly, based on the Company's overall tax rate for each quarter. Tax effect for subsequent quarters was calculated based on the Company's quarterly U.S. tax rate, which was 0% as a result of the valuation allowance that was recorded in the fourth quarter of 2015, in connection with GAAP net losses. The amount in the fourth quarter of 2016 also includes a \$1.2 million adjustment related to a prior period.

(b) The following table details the 'Amortization, Stock-Based Compensation and Other Non-Cash Items' column from above:

	Adjustments			
	Amortization	Stock-Based Compensation	Other Non-Cash Items	Totals
Revenue	\$ —	\$ —	\$ —	\$ —
Cost of sales	(332)	—	—	(332)
Operating expenses	(34,792)	(31,295)	—	(66,087)
Interest and other expense, net	—	—	—	—
Tax effect	(625)	(827)	1,245	(207)
Total non-GAAP adjustment	\$ (35,749)	\$ (32,122)	\$ 1,245	\$ (66,626)

Table 13 continued

	Year Ended December 31, 2015				
	GAAP	Adjustments			Non-GAAP
		Amortization, Stock-Based Compensation and Other Non- Cash Items ^(b)	Legal and Acquisition- Related	Portfolio Re-alignment	
<i>(in thousands, except per share amounts)</i>					
Revenue	\$ 666,163	\$ —	\$ —	\$ —	\$ 666,163
Cost of sales	374,354	(303)	—	(27,390)	346,661
Gross profit	291,809	303	—	27,390	319,502
Gross profit margin	43.8%				48.0%
Operating expenses:					
Selling, general and administrative	303,784	(95,496)	(20,556)	—	187,732
Research and development	92,770	—	—	—	92,770
Impairment of goodwill and other intangible assets	537,179	—	(537,179)	—	—
Total operating expenses	933,733	(95,496)	(557,735)	—	280,502
Income (loss) from operations	(641,924)	95,799	557,735	27,390	39,000
Interest and other expense, net	13,029	—	—	—	13,029
Income (loss) before income taxes	(654,953)	95,799	557,735	27,390	25,971
Provision (benefit) for income taxes ^(a)	8,972	21,493	(24,663)	(1,408)	4,394
Net income (loss)	(663,925)	74,306	582,398	28,798	21,577
Less: net loss attributable to noncontrolling interests	(8,433)	—	—	—	(8,433)
Net income (loss) attributable to 3D Systems	\$ (655,492)	\$ 74,306	\$ 582,398	\$ 28,798	\$ 30,010
Net income (loss) per share available to 3D Systems Corporation common stockholders — basic and diluted	\$ (5.85)				\$ 0.27

(c) Tax effect was calculated quarterly, based on the Company's overall tax rate for each quarter.

(d) The following table details the 'Amortization, Stock-Based Compensation and Other Non-Cash Items' column from above:

	Adjustments			
	Amortization	Stock-Based Compensation	Other Non-Cash Items	Totals
Revenue	\$ —	\$ —	\$ —	\$ —
Cost of sales	(303)	—	—	(303)
Operating expenses	(60,763)	(34,733)	—	(95,496)
Interest and other expense, net	—	—	—	—
Tax effect	13,262	8,231	—	21,493
Total non-GAAP adjustment	\$ (47,804)	\$ (26,502)	\$ —	\$ (74,306)

Table 13 continued

(in thousands, except per share amounts)	Year Ended December 31, 2014				
	GAAP	Adjustments			Non-GAAP
		Amortization, Stock-Based Compensation and Other Non- Cash Items ^(b)	Legal and Acquisition- Related	Portfolio Re-alignment	
Revenue	\$ 653,652	\$ —	\$ —	\$ —	\$ 653,652
Cost of sales	336,218	(280)	—	—	335,938
Gross profit	317,434	280	—	—	317,714
Gross profit margin	48.6%				48.6%
Operating expenses:					
Selling, general and administrative	215,724	(71,988)	(7,994)	—	135,742
Research and development	75,395	—	—	—	75,395
Total operating expenses	291,119	(71,988)	(7,994)	—	211,137
Income from operations	26,315	72,268	7,994	—	106,577
Interest and other expense, net	8,928	(2,031)	—	—	6,897
Income before income taxes	17,387	74,299	7,994	—	99,680
Provision for income taxes ^(a)	5,441	17,307	1,504	—	24,252
Net income	11,946	56,992	6,490	—	75,428
Less: net loss attributable to noncontrolling interests	309	—	—	—	309
Net income attributable to 3D Systems Corporation	\$ 11,637	\$ 56,992	\$ 6,490	\$ —	\$ 75,119
Net income per share available to 3D Systems Corporation common stockholders — basic and diluted	\$ 0.11				\$ 0.70

(a) Tax effect was calculated quarterly, based on the Company's overall tax rate for each quarter.

(b) The following table details the 'Amortization, Stock-Based Compensation and Other Non-Cash Items' column from above:

	Adjustments			
	Amortization	Stock-Based Compensation	Other Non-Cash Items	Totals
Revenue	\$ —	\$ —	\$ —	\$ —
Cost of sales	(280)	—	—	(280)
Operating expenses	(39,195)	(32,793)	—	(71,988)
Interest and other expense, net	—	—	(2,031)	(2,031)
Tax effect	9,198	7,565	544	17,307
Total non-GAAP adjustment	\$ (30,277)	\$ (25,228)	\$ (1,487)	\$ (56,992)

Other non-cash items consist of noncash interest expense and a loss recognized in connection with the conversion of convertible notes.

Liquidity and Capital Resources

Table 14 sets forth the components of working capital and liquidity.

Table 14

<i>(Dollars in thousands)</i>	At December 31,		Change	
	2016	2015	\$	%
Cash and cash equivalents	\$ 184,947	\$ 155,643	\$ 29,304	18.8 %
Accounts receivable:				
Gross accounts receivable	140,034	171,545	(31,511)	(18.4)
Allowance for doubtful accounts	(12,920)	(14,139)	1,219	(8.6)
Accounts receivable, net	127,114	157,406	(30,292)	(19.2)
Inventories:				
Raw materials	45,122	59,444	(14,322)	(24.1)
Work in process	3,109	4,067	(958)	(23.6)
Finished goods	69,870	70,591	(721)	(1.0)
Inventories, gross	118,101	134,102	(16,001)	(11.9)
Inventory reserves	(14,770)	(28,225)	13,455	(47.7)
Inventories, net	103,331	105,877	(2,546)	(2.4)
Prepaid expenses and other current assets	17,558	13,541	4,017	29.7
Total current assets	\$ 432,950	\$ 432,467	\$ 483	0.1 %
Current portion of debt and capitalized lease obligations	572	529	43	8.1
Accounts payable	40,514	46,869	(6,355)	(13.6)
Accrued and other liabilities	49,968	54,699	(4,731)	(8.6)
Customer deposits	5,857	8,229	(2,372)	(28.8)
Deferred revenue	33,494	35,145	(1,651)	(4.7)
Total current liabilities	\$ 130,405	\$ 145,471	\$ (15,066)	(10.4)%
Working capital	\$ 302,545	\$ 286,996	\$ 15,549	5.4 %
Stockholders' equity attributable to 3D Systems Corporation	\$ 629,873	\$ 655,909	\$ (26,036)	(4.0)%

We believe our existing cash and cash equivalents will be sufficient to satisfy our working capital needs, capital expenditures, outstanding commitments and other liquidity requirements associated with our existing operations in the foreseeable future, or to consummate significant acquisitions of other businesses, assets, products or technologies. However, it is possible that, in the future, we may need to raise additional funds to finance our activities. If needed, we may be able to raise such funds by issuing equity or debt securities to the public or selected investors, by borrowing from financial institutions, drawing down on our credit facility, selling assets or restructuring debt. There is no assurance, however, that funds will be available from these sources in the amounts or on terms acceptable to us.

If we need to raise additional funds in the future to fund our activities, or for other reasons, and raise additional funds by issuing equity or convertible debt securities, the ownership percentages of existing shareholders would be diluted. In addition, the equity or debt securities that we may issue may have rights, preferences or privileges senior to those of our common stock.

Cash held outside the U.S. at December 31, 2016 was \$83.5 million, or 45.2% of total cash and equivalents, compared to \$59.0, or 37.6% of total cash and equivalents at December 31, 2015. Cash held outside the U.S. is used in our foreign operations for working capital purposes and is considered to be permanently invested; consequently, we have not provided for any taxes on repatriation.

Cash equivalents comprise funds held in money market instruments and are reported at their current carrying value, which approximates fair value due to the short term nature of these instruments. We strive to minimize our credit risk by investing primarily in investment grade, liquid instruments and limit exposure to any one issuer depending upon credit quality. See *Cash flow, Credit facilities and Capitalized lease obligations* below.

Days' sales outstanding was 70 days at December 31, 2016 compared to 79 days at December 31, 2015 and accounts receivable more than 90 days past due decreased to 12.5% of gross receivables, from 17.6% at December 31, 2015. We review specific receivables periodically to determine the appropriate reserve for accounts receivable, as further discussed below in *Critical Accounting Policies and Significant Estimates*.

The majority of our inventory consists of finished goods, including products, materials and service parts. Inventory also consists of raw materials and spare parts for the in-house assembly and support service products. We outsource the assembly of certain 3D printers; therefore, we generally do not hold most parts for the assembly of these printers in inventory. See Note 4 to the Consolidated Financial Statements.

The changes that make up the other components of working capital not discussed above arose in the ordinary course of business. Differences between the amounts of working capital item changes in the cash flow statement and the balance sheet changes for the corresponding items are primarily the result of foreign currency translation adjustments.

Cash flow

Table 15 below sets forth components of cash flow for the years ended December 31, 2016, 2015 and 2014, respectively.

Table 15

	Year Ended December 31,		
	2016	2015	2014
<i>(Dollars in thousands)</i>			
Cash provided by (used in) operating activities	\$ 56,902	\$ (3,128)	\$ 51,111
Cash used in investing activities	(21,882)	(120,855)	(375,441)
Cash provided by (used in) financing activities	(3,926)	(2,157)	308,582
Effect of exchange rate changes on cash	(1,790)	(3,079)	(5,706)
Net increase (decrease) in cash and cash equivalents	<u>\$ 29,304</u>	<u>\$ (129,219)</u>	<u>\$ (21,454)</u>

Cash flow from operations

Table 16

	Year Ended December 31,		
	2016	2015	2014
<i>(Dollars in thousands)</i>			
Net income (loss)	\$ (39,265)	(663,925)	\$ 11,946
Non-cash charges	109,016	696,093	76,262
Changes in working capital and all other operating assets	(12,849)	(35,296)	(37,097)
Net cash provided by (used in) operating activities	<u>\$ 56,902</u>	<u>(3,128)</u>	<u>\$ 51,111</u>

For further discussion of net income (loss), see "*Net income (loss); net income (loss) attributable to 3D Systems*" above.

Non-cash charges primarily consist of depreciation, amortization, stock-based compensation and asset impairment, partially offset by the benefit of deferred income taxes.

For further discussion of changes in working capital, see “*Liquidity and Capital Resources*” above.

Cash flow from investing activities

Table 17

	Year Ended December 31,		
	2016	2015	2014
<i>(Dollars in thousands)</i>			
Cash paid for acquisitions, net of cash assumed	\$ —	\$ (91,799)	\$ (345,361)
Purchases of property and equipment	(16,567)	(22,399)	(22,727)
Purchase of noncontrolling interest	(3,533)		
Proceeds from disposition of property and equipment	350	—	—
Other investing activities	(1,000)	(5,750)	(6,600)
Additions to license and patent costs	(1,132)	(907)	(753)
Net cash used in investing activities	<u>\$ (21,882)</u>	<u>\$ (120,855)</u>	<u>\$ (375,441)</u>

Purchases of property and equipment primarily consisted of expenditures for leasehold improvements, including expanding facilities and investing in infrastructure, equipment to support our on-demand parts manufacturing service and printers associated with new product development efforts. Other investing activities consist of minority investments of less than 20% made through 3D Ventures, our venture investment initiative, in promising enterprises that we believe will benefit from or be powered by our technologies. We made no acquisitions during the year ended December 31, 2016.

As discussed below, we completed 14 acquisitions during 2015 and 2014. The majority of the acquisitions have resulted in the recording of goodwill. This goodwill typically arises because the purchase price for these businesses reflects a number of factors including the future earnings and cash flow potential of these businesses; the multiples to earnings, cash flow and other factors at which similar businesses have been purchased by other acquirers; the competitive nature of the process by which we acquired the business; and the complementary strategic fit and resulting synergies these businesses bring to existing operations. See Notes 2, 3 and 7 to the Consolidated Financial Statements.

2016 acquisitions

We made no acquisitions during the year ended December 31, 2016.

2015 acquisitions

We acquired 4 businesses in 2015 for cash consideration of \$91.8 million, net of cash acquired, with an additional \$0.7 million of consideration paid in the form of forgiveness of a note. Two of the acquisitions were related to expanding our software solutions, one acquisition was related to expanding our global on-demand parts services and printer sales footprint, and one acquisition was related to expanding our offering related to the education marketplace opportunity. See Note 3 to the Consolidated Financial Statements.

2014 acquisitions

We acquired 10 businesses in 2014 for cash consideration of \$345.4 million, net of cash acquired, with an additional \$24.6 million of consideration paid in the form of common stock. Five of the acquisitions were related to expanding our global on-demand parts services, two of the acquisitions were related to enhancing our healthcare offerings, two of the acquisitions were related to consumer and retail products and services, and one acquisition was related to our materials business. See Note 3 to the Consolidated Financial Statements.

Cash flow from financing activities

Table 18

	Year Ended December 31,		
	2016	2015	2014
<i>(Dollars in thousands)</i>			
Tax benefits (provision) from share-based payment arrangements	\$ —	\$ (1,243)	\$ 7,653
Proceeds, repurchase and retirement of stock, net	(2,871)	135	1,896
Proceeds from issuance of common stock	—	—	299,729
Repayment of capital lease obligations	(1,055)	(1,049)	(696)
Net cash provided (used) by financing activities	<u>\$ (3,926)</u>	<u>\$ (2,157)</u>	<u>\$ 308,582</u>

We may issue additional securities in the form of equity offerings from time to time as necessary to provide flexibility to execute our growth strategy. No shares were issued for the years ended December 31, 2016 and 2015. We issued approximately 6.0 million shares of common stock, resulting in net proceeds of approximately \$299.7 million for the year ended December 31, 2014.

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.

Contractual Commitments

Our principal commitments at December 31, 2016 consisted of the capital lease on our Rock Hill, South Carolina facility, operating leases, earnouts on acquisitions and purchase obligations, which are discussed in greater detail below. Tables 19 below summarizes our contractual obligations as of December 31, 2016.

Table 19

	Years Ending December 31,				
	2017	2018-2019	2020-2021	Later Years	Total
<i>(Dollars in thousands)</i>					
Capitalized lease obligations	\$ 1,074	\$ 2,139	\$ 1,723	\$ 7,491	\$ 12,427
Non-cancelable operating leases	12,686	21,337	11,279	14,749	60,051
Purchase obligations	54,937	—	—	—	54,937
Earnouts related to acquisitions	3,238	7,568	—	—	10,806
Total	<u>\$ 71,935</u>	<u>\$ 31,044</u>	<u>\$ 13,002</u>	<u>\$ 22,240</u>	<u>\$ 138,221</u>

Capitalized lease obligations

Our capitalized lease obligations include a lease agreement that we entered into during 2006 with respect to our Rock Hill, SC facility, in addition to other lease agreements assumed through acquisitions. In accordance with ASC 840, “Leases,” we are considered an owner of the properties, therefore, we have recorded these amounts as “building” in our consolidated balance sheet with a corresponding capitalized lease obligation in the liabilities section of the consolidated balance sheet.

Non-cancelable operating leases

We lease certain other facilities under non-cancelable operating leases expiring through 2024. The leases are generally on a net-rent basis, under which we pay taxes, maintenance and insurance. Rental expense for the years ended December 31, 2016, 2015 and 2014 was \$13.2 million, \$14.0 million and \$10.4 million, respectively.

Purchase obligations

As of December 31, 2016, we have supply commitments related to printer assemblies that total \$54.9 million compared to \$50.7 million at December 31, 2015.

Earnouts related to acquisitions

Certain of our acquisitions contain earnout provisions under which the sellers of the acquired businesses can earn additional amounts. The total liability recorded for these earnouts at December 31, 2016 was \$10.8 million. At December 31, 2015, in addition to earnout provisions, certain of our acquisitions also contained deferred purchase payment arrangements. The total liability recorded for these earnouts and deferred purchase payment arrangements totaled \$9.8 million at December 31, 2015.

Other Contractual Commitments

Credit facilities

In October 2014, we entered into a \$150.0 million five-year revolving, unsecured credit facility. The agreement provides for advances in the initial aggregate principal amount of up to \$150.0 million. Subject to certain terms and conditions contained in the agreement, we may, at our option, request an increase in the aggregate principal amount available under the credit facility by an additional \$75.0 million. As of December 31, 2016 and December 31, 2015, there was no outstanding balance on the credit facility. As of December 31, 2016, we met all financial covenant requirements and had full availability on the credit facility. Future results may impact availability. See Note 11 to the Consolidated Financial Statements.

Redeemable noncontrolling interests

The minority interest shareholders of a certain subsidiary have the right to require us to acquire either a portion of or all ownership interest under certain circumstances pursuant to a contractual arrangement, and we have a similar call option under the same contractual terms. The amount of consideration under the put and call rights is not a fixed amount, but rather is dependent upon various valuation formulas and on future events, such as revenue and gross margin performance of the subsidiary through the date of exercise, as described in Note 22 to the Consolidated Financial Statements. Management estimates, assuming that the subsidiary owned by us at December 31, 2016 performs over the relevant future periods at its forecasted earnings levels, that these rights, if exercised, could require us in a future period to pay a maximum of approximately \$8.9 million to the owners of such put rights. This amount has been recorded as redeemable noncontrolling interests on the balance sheet at December 31, 2016 and 2015.

Convertible notes

In November 2011, we issued \$152.0 million of 5.50% senior convertible notes due December 2016. The notes were issued with an effective yield of 5.96% based upon an original issue discount at 98.0%. The net proceeds from the issuance of these notes, after deducting original issue discount and capitalized issuance costs of \$6.6 million, amounted to \$145.4 million. The net proceeds of the notes were used to fund the acquisition of Z Corp and Vidar and for general corporate purposes. As of December 31, 2016 and 2015, there was no outstanding balance for the notes. During the third quarter of 2014, the remaining \$12.5 million of outstanding notes were converted, reflecting a loss of \$1.8 million for the year ended December 31, 2014.

Indemnification

In the normal course of business we periodically enter into agreements to indemnify customers or suppliers against claims of intellectual property infringement made by third parties arising from the use of our products. Historically, costs related to these indemnification provisions have not been significant. We are unable to estimate the maximum potential impact of these indemnification provisions on our future results of operations.

To the extent permitted under Delaware law, we indemnify our directors and officers for certain events or occurrences while the director or officer is, or was, serving at our request in such capacity, subject to limited exceptions. The maximum potential amount of future payments we could be required to make under these indemnification obligations is unlimited; however, we have directors' and officers' insurance coverage that may enable us to recover future amounts paid, subject to a deductible and to the policy limits.

Financial instruments

We conduct business in various countries using both the functional currencies of those countries and other currencies to effect cross border transactions. As a result, we are subject to the risk that fluctuations in foreign exchange rates between the dates that those transactions are entered into and their respective settlement dates will result in a foreign exchange gain or loss. When practicable, we endeavor to match assets and liabilities in the same currency on our balance sheet and those of our subsidiaries in order to reduce these risks. We also, when we consider it to be appropriate, enter into foreign currency contracts to hedge exposures arising from those transactions. There were no foreign exchange contracts at December 31, 2016 or 2015.

We do not hedge for trading or speculative purposes, and our foreign currency contracts are generally short-term in nature, typically maturing in 90 days or less. We have elected not to prepare and maintain the documentation to qualify for hedge accounting treatment under Financial Accounting Standards Board (“FASB”) Accounting Standard Codification (“ASC”) 815, “*Derivatives and Hedging*,” and therefore, we recognize all gains and losses (realized or unrealized) in interest and other expense, net in our Consolidated Statements of Operations and Other Comprehensive Loss.

Changes in the fair value of derivatives are recorded in interest and other expense, net, in our Consolidated Statements of Operations and Other Comprehensive Loss. Depending on their fair value at the end of the reporting period, derivatives are recorded either in prepaid and other current assets or in accrued liabilities in our Consolidated Balance Sheets.

See Note 10 to the Consolidated Financial Statements.

Critical Accounting Policies and Significant Estimates

The discussion and analysis of our results of operations and financial condition set forth in this Form 10-K is based on our Consolidated Financial Statements, which have been prepared in accordance with GAAP. The preparation of these financial statements requires us to make critical accounting estimates that directly impact our Consolidated Financial Statements and related disclosures.

Critical accounting estimates are estimates that meet two criteria:

- The estimates require that we make assumptions about matters that are highly uncertain at the time the estimates are made; and
- There exist different estimates that could reasonably be used in the current period, or changes in the estimates used are reasonably likely to occur from period to period, both of which would have a material impact on our results of operations or financial condition.

On an ongoing basis, we evaluate our estimates, including those related to stock-based compensation, revenue recognition, the allowance for doubtful accounts, income taxes, inventories, pensions, goodwill and other intangible and long-lived assets and contingencies. We base our estimates and assumptions on historical experience and on various other assumptions that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

The following paragraphs discuss the items that we believe are the critical accounting policies most affected by significant management estimates and judgments. Management has discussed and periodically reviews these critical accounting policies, the basis for their underlying assumptions and estimates and the nature of our related disclosures herein with the Audit Committee of the Board of Directors.

Revenue recognition

Net revenue is derived primarily from the sale of products and services. The following revenue recognition policies define the manner in which we account for sales transactions.

We recognize revenue when persuasive evidence of a sale arrangement exists, delivery has occurred or services are rendered, the sales price or fee is fixed or determinable and collectability is reasonably assured. Revenue generally is recognized net of allowances for returns and any taxes collected from customers and subsequently remitted to governmental authorities. We sell our products through our direct sales force and through authorized resellers. We recognize revenue on sales to reseller partners at the time of sale when the partner has economic substance apart from us, and we have completed our obligations related to the sale.

We enter into sales arrangements that may provide for multiple deliverables to a customer. Sales of printers may include ancillary equipment, print materials, warranties on the equipment, training and installation. We identify all goods and/or services that are to be delivered separately under a sales arrangement and allocate revenue to each deliverable based on either vendor-specific objective evidence (“VSOE”) or if VSOE is not determinable then we use best estimated selling price (“BESP”) of each deliverable. We establish VSOE of selling price using the price charged for a deliverable when sold separately. The objective of BESP is to determine the price at which we would transact a sale if the deliverable was sold regularly on a stand-alone basis. We consider multiple factors including, but not limited to, market conditions, geographies, competitive landscape and entity-specific factors such as internal costs, gross margin objectives and pricing practices when estimating BESP. Consideration in a multiple element arrangement is then allocated to the elements on a relative sales value basis using either VSOE or BESP for all the elements. We also evaluate the impact of undelivered items on the functionality of delivered items for each sales transaction and, where appropriate, defer revenue on delivered items when that functionality has been affected. Functionality is determined to be met if the delivered products or services represent a separate earnings process.

Hardware

Under our standard terms and conditions of sale, title and risk of loss transfers to the customer at the time product is shipped to the customer and revenue is recognized accordingly, unless customer acceptance is uncertain or significant obligations remain. We defer the estimated revenue associated with post-sale obligations that are not essential to the functionality of the delivered items, and recognize revenue in the future as the conditions for revenue recognition are met.

Software

We also market and sell software tools that enable our customers to capture and customize content using our printers, as well as reverse engineering and inspection software. The software does not require significant modification or customization. We apply the guidance in ASC 985-605, Software-Revenue Recognition (“ASC 985”) in recognizing revenue when software is more than incidental to the product or service as a whole based on fair value using vendor-specific objective evidence. Revenue from perpetual software licenses is recognized either upon delivery of the product or delivery of a key code which allows the customer to access the software. In instances where software access is provided for a trial period, revenue is not recognized until the customer has purchased the software at the expiration of the trial period. We use the residual method to allocate revenue to software licenses at the inception of the license term when VSOE of fair value for all undelivered elements, such as maintenance, exists and all other revenue recognition criteria have been satisfied. In instances in which customers purchase post sale support, it is considered a separate element from the software and is deferred at the time of sale and subsequently amortized in future periods.

We also sell equipment with embedded software to our customers. The embedded software is not sold separately, it is not a significant focus of the marketing effort and we do not provide post-contract customer support specific to the software or incur significant costs that are within the scope of ASC 985. Additionally, the functionality that the software provides is marketed as part of the overall product. The software embedded in the equipment is incidental to the equipment as a whole such that ASC 985 is not applicable. Sales of these products are recognized in accordance with ASC 605-25, “Multiple-Element Arrangements.”

Services

Printers and certain other products include a warranty under which we provide maintenance for periods up to one year, as well as training, installation and non-contract maintenance services. We defer this portion of the revenue at the time of sale based on the relative fair value of these services. Deferred revenue is recognized ratably according to the term of the warranty. Costs associated with our obligations during the warranty period are expensed as incurred. After the initial warranty period, we offer these customers optional maintenance contracts. Deferred maintenance revenue is recognized ratably, on a straight-line basis, over the period of the contract, and costs associated with these contracts are recognized as incurred. Revenue from training, installation and non-contract maintenance services is recognized at the time of performance.

On-demand parts service sales and healthcare services are included within services revenue and revenue is recognized upon shipment or delivery of the parts, based on the terms of the sales arrangement.

Terms of sale

Shipping and handling costs billed to customers for equipment sales and sales of print materials are included in product revenue in the consolidated statements of operations and other comprehensive loss. Costs we incur associated with shipping and handling are included in product cost of sales in the consolidated statements of operations and other comprehensive loss.

Credit is extended, and creditworthiness is determined, based on an evaluation of each customer's financial condition. New customers are generally required to complete a credit application and provide references and bank information to facilitate an analysis of creditworthiness. Customers with a favorable profile may receive credit terms that differ from our general credit terms. Creditworthiness is considered, among other things, in evaluating our relationship with customers with past due balances.

Our terms of sale generally require payment within 30 to 60 days after shipment of a product, although we also recognize that longer payment periods are customary in some countries where we transact business. To reduce credit risk in connection with printer sales, we may, depending upon the circumstances, require significant deposits prior to shipment and may retain a security interest in a system sold until fully paid. In some circumstances, we may require payment in full for our products prior to shipment and may require international customers to furnish letters of credit. For maintenance services, we either bill customers on a time-and-materials basis or sell customers service agreements that are recorded as deferred revenue and provide for payment in advance on either an annual or other periodic basis.

Allowance for doubtful accounts

In evaluating the collectability of our accounts receivable, we assess a number of factors, including specific customers' abilities to meet their financial obligations to us, the length of time receivables are past due and historical collection experience. Based on these assessments, we may record a reserve for specific customers, as well as a general reserve and allowance for returns and discounts. If circumstances related to specific customers change, or economic conditions deteriorate such that our past collection experience is no longer relevant, our estimate of the recoverability of our accounts receivable could be further reduced from the levels provided for in the Consolidated Financial Statements.

We evaluate specific accounts for which we believe a customer may have an inability to meet their financial obligations (for example, aging over 90 days past due or bankruptcy). In these cases, we use our judgment, based on available facts and circumstances, and record a specific reserve for that customer to reduce the receivable to an amount we expect to collect. These specific reserves are re-evaluated and adjusted as additional information is received that impacts the amount reserved.

Our bad debt expense was \$1.6 million, \$3.8 million and \$8.7 million for the years ended December 31, 2016, 2015 and 2014.

We believe that our allowance for doubtful accounts is a critical accounting estimate because it is susceptible to change and dependent upon events that may or may not occur and because the impact of recognizing additional allowances for doubtful accounts may be material to the assets reported on our balance sheet and in our results of operations. See "Liquidity and Capital Resources" above.

Income taxes

We and the majority of our domestic subsidiaries file a consolidated U.S. federal income tax return, while we have two entities that file separate U.S. federal tax returns. Our non-U.S. subsidiaries file income tax returns in their respective local jurisdictions. We provide for income taxes on those portions of our foreign subsidiaries' accumulated earnings (deficit) that we believe are not reinvested indefinitely in their businesses.

We account for income taxes under the asset and liability method. Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and tax benefit carryforwards. Deferred income tax liabilities and assets at the end of each period are determined using enacted tax rates.

Under the provisions of ASC 740, “*Income Taxes*,” we establish a valuation allowance for those jurisdictions in which the expiration date of tax benefit carryforwards or projected taxable earnings leads us to conclude that it is “more likely than not” that a deferred tax asset will not be realized. The evaluation process includes the consideration of all available evidence regarding historical results and future projections including the estimated timing of reversals of existing taxable temporary differences and potential tax planning strategies. Once a valuation allowance is established, it is maintained until a change in factual circumstances gives rise to sufficient income of the appropriate character and timing that will allow a partial or full utilization of the deferred tax asset.

We believe that our estimate of deferred income tax assets and our maintenance of a valuation allowance against such assets are critical accounting estimates because they are subject to, among other things, an estimate of future taxable income in the U.S. and in other non-U.S. tax jurisdictions, which are susceptible to change and dependent upon events that may or may not occur, and because the impact of our valuation allowance may be material to the assets reported on our balance sheet and in our results of operations.

The determination of our income tax provision is complex because we have operations in numerous tax jurisdictions outside the U.S. that are subject to certain risks that ordinarily would not be expected in the U.S. Tax regimes in certain jurisdictions are subject to significant changes, which may be applied on a retroactive basis. If this were to occur, our tax expense could be materially different than the amounts reported.

We periodically estimate the probable tax obligations using historical experience in tax jurisdictions and our informed judgment. There are inherent uncertainties related to the interpretation of tax regulations in the jurisdictions in which we transact business. The judgments and estimates made at a point in time may change based on the outcome of tax audits, as well as changes to, or further interpretations of, regulations. Income tax expense is adjusted in the period in which these events occur, and these adjustments are included in our Consolidated Statements of Operations and Other Comprehensive Loss. If such changes take place, there is a risk that our effective tax rate may increase or decrease in any period.

Inventories

Inventories are stated at the lower of cost or net realizable value, cost being determined predominantly on the first-in, first-out method. Reserves for inventories are provided based on historical experience and current product demand. We evaluate the adequacy of these reserves quarterly. Our determination of the allowance for inventory reserves is subject to change because it is based on management’s current estimates of required reserves and potential adjustments.

We believe that the allowance for inventory obsolescence is a critical accounting estimate because it is susceptible to change and dependent upon events that may or may not occur and because the impact of recognizing additional obsolescence reserves may be material to the assets reported on our balance sheet and in our results of operations.

See Note 4 to the Consolidated Financial Statements.

Goodwill

Goodwill reflects the excess of the consideration transferred plus the fair value of any non-controlling interest in the acquiree at the acquisition date over the fair values of the identifiable net assets acquired. Goodwill is not amortized but rather is tested for impairment annually, or whenever events or circumstances present an indication of impairment. Goodwill is an asset representing the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognized. The primary items that generate goodwill include the value of the synergies between the acquired companies and us and the acquired assembled workforce, neither of which qualifies for recognition as an identifiable intangible asset.

The annual impairment testing required by ASC 350, “*Intangibles – Goodwill and Other*” requires us to use judgment and could require us to write down the carrying value of our goodwill in future periods. We allocate goodwill to our identifiable geographic reporting units, the Americas, EMEA and APAC regions, which are tested for impairment using a two-step process. The first step requires comparing the fair value of each reporting unit with the carrying amount, including goodwill. If that fair value exceeds the carrying amount, the second step of the process is not required to be performed, and no impairment charge is required to be recorded. If that fair value does not exceed that carrying amount, we must perform the second step, which requires an allocation of the fair value of the reporting unit to all assets and liabilities of that unit as if the reporting unit had been acquired in a purchase business combination and the fair value of the reporting unit was the purchase price. The goodwill resulting from that purchase price allocation is then compared to the carrying amount with any excess recorded as an impairment charge.

The evaluation of goodwill impairment requires us to make assumptions about future cash flows of the reporting unit being evaluated that include, among others, growth in revenues, margins realized, level of operating expenses and cost of capital. These assumptions require significant judgment and actual results may differ from assumed and estimated amounts.

Goodwill set forth on the Consolidated Balance Sheet as of December 31, 2016 arose from acquisitions carried out from 2009 to 2015 and in years prior to December 31, 2007. Goodwill arising from acquisitions prior to 2007 was allocated to geographic reporting units based on the percentage of SLS printers then installed by geographic area. Goodwill arising from acquisitions in 2009 to 2015 was allocated to geographic reporting units based on geographic dispersion of the acquired companies' sales or capitalization at the time of their acquisition.

We conducted our annual impairment testing for the year ended December 31, 2016 in the fourth quarter of 2016. There was no goodwill impairment for the year ended December 31, 2016.

We conducted our annual impairment testing for the year ended December 31, 2015 in the fourth quarter of 2015. The results of the first step of our annual impairment testing indicated the carrying amount of goodwill assigned to the Americas and EMEA reporting units exceeded fair value and that the carrying amount of goodwill assigned to APAC did not exceed fair value. Based on these results, management completed the second step of annual impairment testing for the Americas and EMEA reporting units. Management determined that the fair value associated with goodwill assigned to the Americas was zero, resulting in a non-cash, non-tax deductible impairment charge of \$382.3 million for the year ended December 31, 2015. Management determined that the carrying amount of the goodwill assigned to the EMEA reporting unit exceeded fair value by approximately 29%, resulting in a non-cash, non-tax deductible impairment charge of \$61.4 million for the year ended December 31, 2015. See Notes 2 and 7 to our Consolidated Financial Statements.

There was no goodwill impairment for the year ended December 31, 2014.

We will monitor our reporting units in an effort to determine whether events and circumstances warrant further interim impairment testing. We could be required to write off or write down additional amounts in the future in the event of deterioration in our future performance, sustained slower growth or other circumstances.

Other Intangible Assets

Intangible assets other than goodwill primarily represent acquired intangible assets including licenses, patent costs, acquired technology, internally developed technology, customer relationships, non-compete agreements, trade names and trademarks. Intangible assets with finite lives are amortized using the straight-line method over their estimated useful life, which is determined by identifying the period over which most of the cash flows are expected to be generated.

For intangibles with finite lives, we review the carrying amounts for potential impairment when events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Examples of such a change in circumstances include a significant decrease in selling price, a significant adverse change in the extent or manner in which an asset is being used, or a significant adverse change in the legal or business climate. In evaluating recoverability, we group assets and liabilities at the lowest level such that the identifiable cash flows relating to the group are largely independent of the cash flows of other assets and liabilities. We then compare the carrying amounts of the assets or asset groups with the related estimated undiscounted future cash flows. In the event impairment exists, an impairment charge is recorded as the amount by which the carrying amount of the asset or asset group exceeds the fair value. Fair value is determined by reference to estimated selling values of assets in similar condition or by using a discounted cash flow model. In addition, the remaining amortization period for the impaired asset would be reassessed and, if necessary, revised.

No impairment charges for intangible assets with finite lives were recorded for the year ended December 31, 2016. We recorded non-cash impairment charges of \$93.5 million as a result of our other intangible assets impairment testing for the year ended December 31, 2015. No impairment charges for intangible assets with finite lives were recorded for the year ended December 31, 2014.

See Notes 2 and 6 to the Consolidated Financial Statements.

Stock-based compensation

We maintain stock-based compensation plans that are described more fully in Note 14 to the Consolidated Financial Statements. For service-based awards, stock-based compensation is estimated at the grant date based on the fair value of the awards expected to vest and recognized as expense ratably over the requisite service period of the award. For stock options and awards with market conditions, compensation cost is determined at the individual tranche level. We estimate the forfeiture rate based on historical experience.

Contingencies

We account for contingencies in accordance with ASC 450, "Contingencies" ("ASC 450"). ASC 450 requires that we record an estimated loss from a loss contingency when information available prior to issuance of our financial statements indicates that it is probable that an asset has been impaired or a liability has been incurred at the date of the financial statements and the amount of the loss can be reasonably estimated. Accounting for contingencies such as legal matters requires us to use our judgment. See Note 22 to the Consolidated Financial Statements.

Recent Accounting Pronouncements

See Note 2 to the Consolidated Financial Statements included in this report for recently issued accounting standards, including the expected dates of adoption and expected impact to the Consolidated Financial Statements upon adoption.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

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

Interest rates

Our exposure to market risk for changes in interest rates relates primarily to our cash and cash equivalents and revolving credit facility. We seek to minimize the risk to our cash and cash equivalents by investing cash in excess of our operating needs in short-term, high-quality instruments issued by highly creditworthy financial institutions, corporations or governments. With the amount of cash and cash equivalents and revolving credit facility that we maintained at December 31, 2016, a hypothetical interest rate change of 1 percentage point, or 100 basis points, would have a \$0.3 million effect on our financial position and results of operations.

From time to time, we may use derivative financial instruments, including interest rate swaps, collars or options, to manage our exposure to fluctuations in interest rates. At December 31, 2016 and 2015, we had no such financial instruments outstanding.

Foreign exchange rates

We transact business globally and are subject to risks associated with fluctuating foreign exchange rates. Our revenue is generated primarily from the operations of our foreign sales subsidiaries in their respective countries and surrounding geographic areas and the operations of our research and production subsidiary in Switzerland, and is denominated in each subsidiary's local functional currency although certain sales are denominated in other currencies, rather than the local functional currency. These subsidiaries incur most of their expenses (other than intercompany expenses) in their local functional currencies. These currencies include Australian Dollars, Brazilian Real, British Pounds, Chinese Yuan, Euros, Indian Rupee, Israeli Shekel, Japanese Yen, Mexican Peso, South Korean Won, Swiss Francs and Uruguayan Peso.

The geographic areas outside the U.S. in which we operate are generally not considered to be highly inflationary. Nonetheless, these foreign operations are sensitive to fluctuations in currency exchange rates arising from, among other things, certain intercompany transactions that are generally denominated in U.S. dollars rather than in their respective functional currencies. Our operating results, as well as our assets and liabilities, are also subject to the effects of foreign currency translation when the operating results, assets and liabilities of our foreign subsidiaries are translated into U.S. dollars in our Consolidated Financial Statements.

We and our subsidiaries conduct business in various countries using both the functional currencies of those countries and other currencies to effect cross border transactions. As a result, we and our subsidiaries are subject to the risk that fluctuations in foreign exchange rates between the dates that those transactions are entered into and their respective settlement dates will result in a foreign exchange gain or loss. When practicable, we endeavor to match assets and liabilities in the same currency on our U.S. balance sheet and those of our subsidiaries in order to reduce these risks. We also, when we consider it appropriate, enter into foreign currency contracts to hedge exposures arising from those transactions.

We do not hedge for trading or speculative purposes, and our foreign currency contracts are generally short-term in nature, typically maturing in 90 days or less. We have elected not to prepare and maintain the documentation to qualify for hedge accounting treatment under ASC 815, "Derivatives and Hedging," and therefore, we recognize all gains and losses (realized or unrealized) in interest and other expense, net in our Consolidated Statements of Operations and Comprehensive Loss.

As noted above, we may use derivative financial instruments, including foreign exchange forward contracts and foreign currency options, to fix or limit our exposure to currency fluctuations. We do not hedge our foreign currency exposures in a manner that would entirely eliminate the effects of changes in foreign exchange rates on our consolidated net income or loss.

At December 31, 2016, a hypothetical change of 10% in foreign currency exchange rates would cause approximately a \$31.2 million change in revenue in our Consolidated Statements of Operations and Comprehensive Loss assuming all other variables were held constant.

Commodity prices

We use various raw materials and energy products in conjunction with our printer assembly and print materials blending processes. Generally, we acquire such components at market prices and do not use financial instruments to hedge commodity prices. As a result, we are exposed to market risks related to changes in commodity prices of these components. At December 31, 2016, a hypothetical 10% change in commodity prices for raw materials would cause an approximate \$1.4 million change to cost of sales in our Consolidated Statements of Operations and Comprehensive Loss.

Item 8. Financial Statements and Supplementary Data

Our Consolidated Financial Statements and the related notes, together with the Report of Independent Registered Public Accounting Firm thereon, are set forth below beginning on page F-1 and are incorporated herein by reference.

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

Not applicable.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended ("the Exchange Act")), are controls and procedures that are designed to provide reasonable assurance that information required to be disclosed in the reports that we file or submit under the Exchange Act 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, in a manner to allow timely decisions regarding required disclosures.

As of December 31, 2016, 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 the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act pursuant to Rules 13a-15(e) and 15d-15(e) under the Exchange Act. These controls and procedures were designed to provide reasonable assurance that information required to be disclosed in the reports that we file or submit under the Exchange Act 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 management, including our Chief Executive Officer and Chief Financial Officer, in a manner to allow timely decisions regarding required disclosures.

Based on this evaluation, including an evaluation of the rules referred to above in this Item 9A, management has concluded that our disclosure controls and procedures were effective as of December 31, 2016 to provide reasonable assurance that information required to be disclosed in the reports that we file or submit under the Exchange Act 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 management, including our Chief Executive Officer and Chief Financial Officer, in a manner to allow timely decisions regarding required disclosures.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Internal control over financial reporting is a process designed under the supervision of our principal executive and principal financial officers to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP.

Our internal control over financial reporting is supported by written policies and procedures that pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets, provide reasonable assurance that transactions are recorded as necessary to permit the preparation of financial statements in accordance with GAAP and that our receipts and expenditures are being made and recorded only in accordance with authorizations of our management and provide reasonable assurance regarding the prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

In connection with the preparation of this Form 10-K, with the participation of our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2016 based on the criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013 ("COSO"). Our assessment included an evaluation of the design of our internal control over financial reporting and testing of the operational effectiveness of our internal control over financial reporting. Based on this evaluation, our management has concluded that our internal control over financial reporting was effective as of December 31, 2016.

Because of its inherent limitations, a system of internal control over financial reporting can provide only reasonable assurance and may not prevent or detect misstatements. In addition, projections of any evaluation of effectiveness to future periods are subject to the risks that controls may become inadequate because of changes in conditions and that the degree of compliance with the policies or procedures may deteriorate.

BDO USA, LLP, the independent registered public accounting firm that audited our Consolidated Financial Statements included in this Form 10-K, has issued a report on our internal control over financial reporting, which is included in Item 8 of this Form 10-K.

Changes in Internal Controls over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the period covered by this Form 10-K that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required in response to this Item will be set forth in our Proxy Statement for our 2017 Annual Meeting of Stockholders (“Proxy Statement”) under the captions “Election of Directors,” “Corporate Governance Matters,” “Section 16(a) Beneficial Ownership Reporting Compliance,” “Corporate Governance Matters—Code of Conduct and Code of Ethics,” “Corporate Governance Matters—Corporate Governance and Nominating Committee,” and “Corporate Governance Matters—Audit Committee.” Such information is incorporated herein by reference.

Item 11. Executive Compensation

The information in response to this Item will be set forth in our Proxy Statement under the captions “Director Compensation,” “Executive Compensation,” “Corporate Governance Matters—Compensation Committee,” and “Executive Compensation—Compensation Committee Report.” Such information is incorporated herein by reference.

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

Except as set forth below, the information required in response to this Item will be set forth in our Proxy Statement for our 2017 Annual Meeting of Stockholders under the caption “Security Ownership of Certain Beneficial Owners and Management.” Such information is incorporated herein by reference.

Equity Compensation Plans

The following table summarizes information about the equity securities authorized for issuance under our compensation plans as of December 31, 2016. For a description of these plans, please see Note 14 to the Consolidated Financial Statements.

<i>(in thousands)</i>	<u>Number of securities to be issued upon exercise of outstanding stock options, warrants and rights (a)</u>	<u>Weighted average exercise price of outstanding options, warrants and rights (b)</u>	<u>Number of securities remaining available for future issuance under equity compensation plans</u>
<u>Plan Category</u>			
Equity compensation plans approved by stockholders	2,927	\$ 13.92	1,835
Equity compensation plans not approved by stockholders	—	—	—
Total	2,927	\$ 13.92	1,835

(a) Includes 667 restricted stock units approved under plans approved by our stockholders.

(b) Does not reflect the restricted stock units included in the first column that do not have an exercise price.

Item 13. Certain Relationships and Related Transactions and Director Independence

The information required in response to this Item will be set forth in our Proxy Statement under the captions “Corporate Governance Matters—Director Independence” and “Corporate Governance Matters – Related Party Transaction Policies and Procedures.” Such information is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services

The information in response to this Item will be set forth in our Proxy Statement under the caption “Fees of Independent Registered Public Accounting Firm.” Such information is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a)(3) **Exhibits**

The following exhibits are included as part of this filing and incorporated herein by this reference:

- 3.1 Certificate of Incorporation of Registrant. (Incorporated by reference to Exhibit 3.1 to Registrant's Form 8-B filed on August 16, 1993, and the amendment thereto, filed on Form 8-B/A on February 4, 1994.)
- 3.2 Amendment to Certificate of Incorporation filed on May 23, 1995. (Incorporated by reference to Exhibit 3.2 to Registrant's Registration Statement on Form S-2/A, filed on May 25, 1995.)
- 3.3 Certificate of Designation of Rights, Preferences and Privileges of Preferred Stock. (Incorporated by reference to Exhibit 2 to Registrant's Registration Statement on Form 8-A filed on January 8, 1996.)
- 3.4 Certificate of Designation of the Series B Convertible Preferred Stock, filed with the Secretary of State of Delaware on May 2, 2003. (Incorporated by reference to Exhibit 3.1 to Registrant's Current Report on Form 8-K, filed on May 7, 2003.)
- 3.5 Certificate of Elimination of Series A Preferred Stock filed with the Secretary of State of Delaware on March 4, 2004. (Incorporated by reference to Exhibit 3.6 to Registrant's Annual Report on Form 10-K for the year ended December 31, 2003, filed on March 15, 2004.)
- 3.6 Certificate of Elimination of Series B Preferred Stock filed with the Secretary of State of Delaware on June 9, 2006. (Incorporated by reference to Exhibit 3.1 to Registrant's Current Report on Form 8-K, filed on June 9, 2006.)
- 3.7 Certificate of Amendment of Certificate of Incorporation filed with Secretary of State of Delaware on May 19, 2004. (Incorporated by reference to Exhibit 3.1 to Registrant's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2004, filed on August 5, 2004.)
- 3.8 Certificate of Amendment of Certificate of Incorporation filed with Secretary of State of Delaware on May 17, 2005. (Incorporated by reference to Exhibit 3.1 to Registrant's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2005, filed on August 1, 2005.)
- 3.9 Certificate of Amendment of Certificate of Incorporation filed with the Secretary of State of Delaware on October 7, 2011. (Incorporated by reference to Exhibit 3.1 to Registrant's Current Report on Form 8-K filed on October 7, 2011.)
- 3.10 Certificate of Designations, Preferences and Rights of Series A Preferred Stock, filed with the Secretary of State of Delaware on December 9, 2008. (Incorporated by reference to Exhibit 3.1 to Registrant's Current Report on Form 8-K, filed on December 9, 2008.)
- 3.11 Certificate of Elimination of Series A Preferred Stock filed with the Secretary of State of Delaware on November 14, 2011. (Incorporated by reference to Exhibit 3.1 to Registrant's Current Report on Form 8-K filed on November 15, 2011.)
- 3.12 Certificate of Amendment of Certificate of Incorporation filed with the Secretary of State of Delaware on May 21, 2013. (Incorporated by reference to Exhibit 3.1 to Registrant's Current Report on Form 8-K filed on May 22, 2013.)
- 3.13 Amended and Restated By-Laws. (Incorporated by reference to Exhibit 3.1 to Registrant's Current Report on Form 8-K, filed on December 28, 2016.)
- 4.1* Amended and Restated 2004 Incentive Stock Plan of 3D Systems Corporation (Incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K, filed February 5, 2015.)
- 4.2* Form of Restricted Stock Purchase Agreement for Employees under the 2004 Incentive Stock Plan. (Incorporated by reference to Exhibit 4.2 to Registrant's Registration Statement on Form S-8, filed on May 19, 2004.)

- 4.3* Form of Restricted Stock Purchase Agreement for Officers under the 2004 Incentive Stock Plan. (Incorporated by reference to Exhibit 4.3 to Registrant's Registration Statement on Form S-8 (Registration No. 333-115642), filed on May 19, 2004.)
- 4.4* Form of Restricted Stock Purchase Agreement under the Amended and Restated 2004 Incentive Stock Plan. (Incorporated by reference to Exhibit 10.3 to Registrant's Current Report on Form 8-K (Registration No. 333-115642), filed on February 5, 2015.)
- 4.5* Form of Restricted Stock Unit Purchase Agreement under the Amended and Restated 2004 Incentive Stock Plan. (Incorporated by reference to Exhibit 10.2 to Registrant's Current Report on Form 8-K, filed on February 5, 2015.)
- 4.6* Restricted Stock Plan for Non-Employee Directors of 3D Systems Corporation. (Incorporated by reference to Exhibit 4.4 to Registrant's Registration Statement on Form S-8 (Registration No. 333-115642), filed on May 19, 2004.)
- 4.7* Amendment No. 1 to Restricted Stock Plan for Non-Employee Directors. (Incorporated by reference to Exhibit 10.1 to Registrant's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2005, filed on August 1, 2005.)
- 4.8* Form of Restricted Stock Purchase Agreement for Non-Employee Directors. (Incorporated by reference to Exhibit 4.5 to Registrant's Registration Statement on Form S-8 (Registration No. 333-115642), filed on May 19, 2004.)
- 4.9 Indenture, dated as of November 22, 2011, by and between 3D Systems Corporation and Wells Fargo Bank, National Association, as Trustee (incorporated by reference to Exhibit 4.1 to Registrant's Form 8-K, filed on November 22, 2011.)
- 4.10 Specimen Common Stock Certificate. (Incorporated by reference to Exhibit 4.1 to Registrant's Registration Statement on Form S-3 (Registration No. 333-182065), filed on June 12, 2012.)
- 4.11* Appendix A to the Amended and Restated 2004 Incentive Stock Plan of 3D Systems Corporation effective March 11, 2015. (Incorporated by reference to Exhibit 10.1 to Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2015, filed on May 6, 2015.)
- 4.12* 2015 Incentive Plan of 3D Systems Corporation as Amended and Restated on February 1, 2016 (Incorporated by reference to Exhibit 4.17 to Registrant's Annual Report on Form 10-K for the year ended December 31, 2015, filed on March 14, 2016.)
- 4.13* Appendix A to the 2015 Incentive Plan of 3D Systems Corporation effective May 19, 2015. (Incorporated by reference to Exhibit 10.3 to Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2015, filed on August 6, 2015.)
- 4.14* Form of Restricted Stock Award Agreement. (Incorporated by reference to Exhibit 4.2 to Registrant's Registration Statement on Form S-8 (Registration No. 333-204305), filed on May 19, 2015.)
- 4.15* Form of Restricted Stock Unit Award Agreement. (Incorporated by reference to Exhibit 4.3 to Registrant's Registration Statement on Form S-8 (Registration No. 333-204305), filed on May 19, 2015.)
- 4.16* Form of Stock Option Award Agreement (Incorporated by reference to Exhibit 10.2 to Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2016, filed on May 5, 2016.)
- 4.17* Form of Restricted Stock Award Agreement with Share Price Vesting Conditions
- 4.18* Form of Stock Option Award Agreement with Share Price Vesting Conditions
- 10.1 Patent License Agreement dated December 16, 1998 by and between 3D Systems, Inc., NTT Data CMET, Inc. and NTT Data Corporation. (Incorporated by reference to Exhibit 10.56 to Registrant's Annual Report on Form 10-K for the year ended December 31, 1998, filed on March 31, 1999.)

- 10.2 Lease Agreement dated February 8, 2006 between the Registrant and KDC-Carolina Investments 3, LP. (Incorporated by reference to Exhibit 99.1 to Registrant's Current Report on Form 8-K, filed on February 10, 2006.)
- 10.3 First Amendment to Lease Agreement dated August 7, 2006 between the Registrant and KDC-Carolina Investments 3, LP. (Incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K, filed on August 14, 2006.)
- 10.4 Second Amendment to Lease Agreement effective as of October 6, 2006 to Lease Agreement dated February 8, 2006 between 3D Systems Corporation and KDC-Carolina Investments 3, LP. (Incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K, filed on October 10, 2006.)
- 10.5 Third Amendment to Lease Agreement effective as of December 18, 2006 to Lease Agreement dated February 8, 2006 between 3D Systems Corporation and KDC-Carolina Investments 3, LP. (Incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K, filed on December 20, 2006.)
- 10.6 Fourth Amendment to Lease Agreement effective as of February 26, 2007 to Lease Agreement dated February 8, 2006 between 3D Systems Corporation and KDC-Carolina Investments 3, LP. (Incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K, filed on March 1, 2007.)
- 10.7 Fifth Amendment to Lease Agreement effective as of March 17, 2011 to Lease Agreement dated February 8, 2006 between 3D Systems Corporation and KDC-Carolina Investments 3, LP. (Incorporated by reference to Exhibit 10.1 to Registrant's Form 8-K, filed on March 21, 2011.)
- 10.8* Charles W. Hull consulting arrangement (Incorporated by reference to Exhibit 10.1 of the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, filed on July 29, 2010.)
- 10.9* Kevin P. McAlea severance arrangement (Incorporated by reference to Exhibit 10.2 of the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, filed on July 29, 2010.)
- 10.10* Transition Agreement, dated March 28, 2014, by and between 3D Systems Corporation and Damon Gregoire. (Incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K, filed on March 31, 2014.)
- 10.11 Credit Agreement, dated as of October 10, 2014, among 3D Systems Corporation, the Guarantors party thereto, PNC Bank, National Association, as Administrative Agent, PNC Capital Markets LLC, as Sole Lead Arranger and Sole Bookrunner, HSBC Bank USA, N.A., as Syndication Agent, and the other lender's party thereto. (Incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K, filed on October 14, 2014.)
- 10.12* Severance and Release Agreement, dated May 14, 2015, between 3D Systems Corporation and Theodore A. Hull. (Incorporated by reference to Exhibit 10.1 to Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2015, filed on August 6, 2015.)
- 10.13* Executive Severance Agreement, dated May 14, 2015, between 3D Systems Corporation and David R. Styka. (Incorporated by reference to Exhibit 10.2 to Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2015, filed on August 6, 2015.)
- 10.14* Consulting Agreement, dated January 25, 2016, between the Corporation and ECG Ventures, Inc. (Incorporated by reference to Exhibit 10.17 to Registrant's Annual Report on Form 10-K for the year ended December 31, 2015, filed on March 14, 2016.)
- 10.15* Employment Agreement, dated April 1, 2016, between 3D Systems Corporation and Vyomesh I. Joshi. (Incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K, filed on April 4, 2016.)
- 10.16* Severance Agreement, dated June 15, 2016, between 3D Systems Corporation and Mark W. Wright. (Incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K/A, filed on June 16, 2016.)

- 10.17* First Amendment, dated June 15, 2016, to the Restricted Stock Purchase Agreement, dated October 27, 2014, by and between 3D Systems Corporation and Mark W. Wright. (Incorporated by reference to Exhibit 10.2 to Registrant's Current Report on Form 8-K/A, filed on June 16, 2016.)
- 10.18* First Amendment, dated June 15, 2016, to the Restricted Stock Purchase Agreement, dated November 13, 2015, by and between 3D Systems Corporation and Mark W. Wright. (Incorporated by reference to Exhibit 10.3 to Registrant's Current Report on Form 8-K/A, filed on June 16, 2016.)
- 10.19* Consulting Agreement, dated June 15, 2016, between 3D Systems Corporation and Mark W. Wright. (Incorporated by reference to Exhibit 10.4 to Registrant's Current Report on Form 8-K/A, filed on June 16, 2016.)
- 10.20* Severance Agreement, dated June 15, 2016, between 3D Systems Corporation and Cathy L. Lewis. (Incorporated by reference to Exhibit 10.5 to Registrant's Current Report on Form 8-K/A, filed on June 16, 2016.)
- 10.21* First Amendment, dated June 15, 2016, to the Restricted Stock Purchase Agreement, dated November 18, 2013, by and between 3D Systems Corporation and Cathy L. Lewis. (Incorporated by reference to Exhibit 10.6 to Registrant's Current Report on Form 8-K/A, filed on June 16, 2016.)
- 10.22* First Amendment, dated June 15, 2016, to the Restricted Stock Purchase Agreement, dated November 17, 2014, by and between 3D Systems Corporation and Cathy L. Lewis. (Incorporated by reference to Exhibit 10.7 to Registrant's Current Report on Form 8-K/A, filed on June 16, 2016.)
- 10.23* First Amendment, dated June 15, 2016, to the Restricted Stock Purchase Agreement, dated November 13, 2015, by and between 3D Systems Corporation and Cathy L. Lewis. (Incorporated by reference to Exhibit 10.8 to Registrant's Current Report on Form 8-K/A, filed on June 16, 2016.)
- 10.24* Employment Agreement, dated June 15, 2016, between 3D Systems Corporation and John N. McMullen. (Incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K, filed on June 16, 2016.)
- 10.25* Employment Agreement, dated June 15, 2016, between 3D Systems Corporation and Andy M. Johnson. (Incorporated by reference to Exhibit 10.2 to Registrant's Current Report on Form 8-K, filed on June 16, 2016.)
- 10.26* First Amendment, dated June 15, 2016, to the Restricted Stock Purchase Agreement, dated February 4, 2014, by and between 3D Systems Corporation and Andy M. Johnson. (Incorporated by reference to Exhibit 10.3 to Registrant's Current Report on Form 8-K, filed on June 16, 2016.)
- 10.27* First Amendment, dated June 15, 2016, to the Restricted Stock Purchase Agreement, dated February 3, 2015, by and between 3D Systems Corporation and Andy M. Johnson. (Incorporated by reference to Exhibit 10.4 to Registrant's Current Report on Form 8-K, filed on June 16, 2016.)
- 10.28* First Amendment, dated June 15, 2016, to the Restricted Stock Purchase Agreement, dated November 13, 2015, by and between 3D Systems Corporation and Andy M. Johnson. (Incorporated by reference to Exhibit 10.5 to Registrant's Current Report on Form 8-K, filed on June 16, 2016.)
- 10.29* Employment Agreement, dated July 1, 2016, between 3D Systems Corporation and David R. Styka. (Incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K, filed on July 5, 2016.)
- 10.30* First Amendment, dated July 1, 2016, to the Restricted Stock Purchase Agreement, dated January 14, 2015, by and between 3D Systems Corporation and David R. Styka. (Incorporated by reference to Exhibit 10.2 to Registrant's Current Report on Form 8-K, filed on July 5, 2016.)
- 10.31* First Amendment, dated July 1, 2016, to the Restricted Stock Purchase Agreement, dated May 19, 2015, by and between 3D Systems Corporation and David R. Styka. (Incorporated by reference to Exhibit 10.3 to Registrant's Current Report on Form 8-K, filed on July 5, 2016.)

- 10.32* First Amendment, dated July 1, 2016, to the Restricted Stock Purchase Agreement, dated November 13, 2015, by and between 3D Systems Corporation and David R. Styka. (Incorporated by reference to Exhibit 10.4 to Registrant's Current Report on Form 8-K, filed on July 5, 2016.)
- 10.33* Employment Agreement, dated August 4, 2016, between 3D Systems Corporation and Charles W. Hull. (Incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K, filed on August 8, 2016.)
- 10.34* First Amendment, dated August 4, 2016, to the Restricted Stock Purchase Agreement, dated November 8, 2013, by and between 3D Systems Corporation and Charles W. Hull. (Incorporated by reference to Exhibit 10.2 to Registrant's Current Report on Form 8-K, filed on August 8, 2016.)
- 10.35* First Amendment, dated August 4, 2016, to the Restricted Stock Purchase Agreement, dated November 17, 2014, by and between 3D Systems Corporation and Charles W. Hull. (Incorporated by reference to Exhibit 10.3 to Registrant's Current Report on Form 8-K, filed on August 8, 2016.)
- 10.36* First Amendment, dated August 4, 2016, to the Restricted Stock Purchase Agreement, dated November 13, 2015, by and between 3D Systems Corporation and Charles W. Hull. (Incorporated by reference to Exhibit 10.3 to Registrant's Current Report on Form 8-K, filed on August 8, 2016.)
- 21.1 Subsidiaries of Registrant.
- 23.1 Consent of Independent Registered Public Accounting Firm.
- 31.1 Certification of Principal Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002, dated February 28, 2017.
- 31.2 Certification of Principal Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002, dated February 28, 2017.
- 32.1 Certification of Principal Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, dated February 28, 2017.
- 32.2 Certification of Principal Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, dated February 28, 2017.
- 101.INS XBRL Instance Document
- 101.SCH XBRL Taxonomy Extension Scheme Document
- 101.CAL XBRL Taxonomy Extension Calculation Linkbase Document
- 101.DEF XBRL Taxonomy Extension Definition Linkbase Document
- 101.LAB XBRL Taxonomy Extension Label Linkbase Document
- 101.PRE XBRL Taxonomy Extension Presentation Linkbase Document

* Management contract or compensatory plan or arrangement

Item 16. Form 10-K Summary

None.

SIGNATURES

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

3D Systems Corporation

By: /s/ VYOMESH I. JOSHI
Vyomesh I. Joshi
Chief Executive Officer, President and
Director

Date: February 28, 2017

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ VYOMESH I. JOSHI</u> Vyomesh I. Joshi	Chief Executive Officer, President and Director (principal executive officer)	February 28, 2017
<u>/s/ JOHN N. MCMULLEN</u> John N. McMullen	Executive Vice President and Chief Financial Officer (principal financial and accounting officer)	February 28, 2017
<u>/s/ CHARLES W. HULL</u> Charles W. Hull	Executive Vice President, Chief Technology Officer and Director	February 28, 2017
<u>/s/ G. WALTER LOEWENBAUM, II</u> G. Walter Loewenbaum, II	Chairman of the Board of Directors	February 28, 2017
<u>/s/ JIM D. KEVER</u> Jim D. Kever	Director	February 28, 2017
<u>/s/ KEVIN S. MOORE</u> Kevin S. Moore	Director	February 28, 2017
<u>/s/ DANIEL S. VAN RIPER</u> Daniel S. Van Riper	Director	February 28, 2017
<u>/s/ WILLIAM E. CURRAN</u> William E. Curran	Director	February 28, 2017
<u>/s/ KAREN E. WELKE</u> Karen E. Welke	Director	February 28, 2017
<u>/s/ WILLIAM D. HUMES</u> William D. Humes	Director	February 28, 2017
<u>/s/ THOMAS ERICKSON</u> Thomas Erickson	Director	February 28, 2017

3D Systems Corporation
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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors
3D Systems Corporation
Rock Hill, South Carolina

We have audited 3D Systems Corporation and its subsidiaries' (the "Company") internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission in (the COSO criteria). 3D Systems Corporation's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying "Item 9A, Management's Report on Internal Control over Financial Reporting." Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

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

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

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

In our opinion, 3D Systems Corporation did maintain, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of 3D Systems Corporation and its subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of operations and comprehensive loss, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2016 and our report dated February 28, 2017 expressed an unqualified opinion thereon.

/s/ BDO USA, LLP
Charlotte, North Carolina
February 28, 2017

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors of
3D Systems Corporation
Rock Hill, South Carolina

We have audited the accompanying consolidated balance sheets of 3D Systems Corporation and its subsidiaries (the “Company”) as of December 31, 2016 and 2015 and the related consolidated statements of operations and comprehensive loss, stockholders’ equity and cash flows for each of the three years in the period ended December 31, 2016. These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of 3D Systems Corporation and its subsidiaries as of December 31, 2016 and 2015 and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2016 in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Company’s internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission in (COSO) and our report dated February 28, 2017 expressed an unqualified opinion thereon.

/s/ BDO USA, LLP
Charlotte, North Carolina
February 28, 2017

3D Systems Corporation
Consolidated Balance Sheets
as of December 31, 2016 and 2015

<i>(in thousands, except par value)</i>	<u>December 31,</u> <u>2016</u>	<u>December 31,</u> <u>2015</u>
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 184,947	\$ 155,643
Accounts receivable, net of reserves — \$12,920 (2016) and \$14,139 (2015)	127,114	157,406
Inventories, net of reserves — \$14,770 (2016) and \$28,225 (2015)	103,331	105,877
Prepaid expenses and other current assets	17,558	13,541
Total current assets	<u>432,950</u>	<u>432,467</u>
Property and equipment, net	79,978	85,995
Intangible assets, net	121,501	157,466
Goodwill	181,230	187,875
Long term deferred income tax asset	8,123	1,900
Other assets, net	25,371	26,256
Total assets	<u>\$ 849,153</u>	<u>\$ 891,959</u>
LIABILITIES AND EQUITY		
Current liabilities:		
Current portion of capitalized lease obligations	\$ 572	\$ 529
Accounts payable	40,514	46,869
Accrued and other liabilities	49,968	54,699
Customer deposits	5,857	8,229
Deferred revenue	33,494	35,145
Total current liabilities	<u>130,405</u>	<u>145,471</u>
Long term portion of capitalized lease obligations	7,587	8,187
Long term deferred income tax liability	17,601	17,944
Other liabilities	57,988	56,839
Total liabilities	<u>213,581</u>	<u>228,441</u>
Redeemable noncontrolling interests	8,872	8,872
Commitments and contingencies (Note 22)		
Stockholders' equity:		
Common stock, \$0.001 par value, authorized 220,000 shares; issued 115,113 (2016) and 113,115 (2015)	115	113
Additional paid-in capital	1,307,428	1,279,738
Treasury stock, at cost — 1,498 shares (2016) and 892 shares (2015)	(2,658)	(1,026)
Accumulated deficit	(621,787)	(583,368)
Accumulated other comprehensive loss	(53,225)	(39,548)
Total 3D Systems Corporation stockholders' equity	<u>629,873</u>	<u>655,909</u>
Noncontrolling interests	(3,173)	(1,263)
Total stockholders' equity	<u>626,700</u>	<u>654,646</u>
Total liabilities, redeemable noncontrolling interests and stockholders' equity	<u>\$ 849,153</u>	<u>\$ 891,959</u>

See accompanying notes to Consolidated Financial Statements.

3D Systems Corporation
Consolidated Statements of Operations and Comprehensive Loss
Years Ended December 31, 2016, 2015 and 2014

<i>(in thousands, except per share amounts)</i>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Revenue:			
Products	\$ 380,383	\$ 408,119	\$ 442,198
Services	252,582	258,044	211,454
Total revenue	<u>632,965</u>	<u>666,163</u>	<u>653,652</u>
Cost of sales:			
Products	195,428	243,639	223,991
Services	127,786	130,715	112,227
Total cost of sales	<u>323,214</u>	<u>374,354</u>	<u>336,218</u>
Gross profit	309,751	291,809	317,434
Operating expenses:			
Selling, general and administrative	259,776	303,784	215,724
Research and development	88,395	92,770	75,395
Impairment of goodwill and other intangible assets	—	537,179	—
Total operating expenses	<u>348,171</u>	<u>933,733</u>	<u>291,119</u>
Income (loss) from operations	(38,420)	(641,924)	26,315
Interest and other expense, net	1,392	13,029	8,928
Income (loss) before income taxes	(39,812)	(654,953)	17,387
Provision (benefit) for income taxes	(547)	8,972	5,441
Net income (loss)	(39,265)	(663,925)	11,946
Less: net income (loss) attributable to noncontrolling interests	(846)	(8,433)	309
Net income (loss) attributable to 3D Systems Corporation	<u>\$ (38,419)</u>	<u>\$ (655,492)</u>	<u>\$ 11,637</u>
Net income (loss) per share available to 3D Systems Corporation common stockholders — basic and diluted	<u>\$ (0.35)</u>	<u>\$ (5.85)</u>	<u>\$ 0.11</u>
Other comprehensive loss:			
Pension adjustments, net of taxes	\$ (902)	\$ 338	\$ (1,135)
Gain on liquidation of non-US entity	288	—	—
Foreign currency translation loss	(12,958)	(16,300)	(29,183)
Total other comprehensive loss	<u>(13,572)</u>	<u>(15,962)</u>	<u>(30,318)</u>
Less foreign currency translation gain (loss) attributable to noncontrolling interests	105	(820)	(123)
Other comprehensive loss attributable to 3D Systems Corporation	<u>(13,677)</u>	<u>(15,142)</u>	<u>(30,195)</u>
Comprehensive loss	(52,837)	(679,887)	(18,372)
Less: comprehensive income (loss) attributable to noncontrolling interests	(741)	(9,253)	186
Comprehensive loss attributable to 3D Systems Corporation	<u>\$ (52,096)</u>	<u>\$ (670,634)</u>	<u>\$ (18,558)</u>

See accompanying notes to Consolidated Financial Statements.

3D Systems Corporation
Consolidated Statements of Stockholders' Equity
Years Ended December 31, 2016, 2015 and 2014

	Common Stock			Treasury Stock		Accumulated Earnings (Deficit)	Accumulated Other Comprehensive Income (Loss)	Total 3D Systems Corporation Stockholders' Equity	Equity Attributable to Noncontrolling Interests	Total Stockholders' Equity
	Shares	Par Value \$0.001	Additional Paid In Capital	Shares	Amount					
<i>(In thousands, except par value)</i>										
Balance at December 31, 2013	103,818	\$ 104	\$ 866,552	600	\$ (286)	\$ 60,487	\$ 5,789	\$ 932,646	\$ 1,146	\$ 933,792
Tax benefits from share-based payment arrangements	—	—	7,653	—	—	—	—	7,653	—	7,653
Issuance and repurchase of restricted stock, net	1,152	1	1,983	109	(88)	—	—	1,896	—	1,896
Issuance of stock for convertible notes, net of taxes	877	1	12,133	—	—	—	—	12,134	—	12,134
Issuance of stock for acquisitions	436	—	24,625	—	—	—	—	24,625	—	24,625
Issuance of stock for equity raise	5,950	6	299,723	—	—	—	—	299,729	—	299,729
Stock-based compensation expense	—	—	32,793	—	—	—	—	32,793	—	32,793
Net income	—	—	—	—	—	11,637	—	11,637	309	11,946
Noncontrolling interests for business combinations	—	—	—	—	—	—	—	—	(125)	(125)
Pension adjustment	—	—	—	—	—	—	(1,135)	(1,135)	—	(1,135)
Foreign currency translation adjustment	—	—	—	—	—	—	(29,060)	(29,060)	(123)	(29,183)
Balance at December 31, 2014	112,233	\$ 112	\$1,245,462	709	\$ (374)	\$ 72,124	\$ (24,406)	\$ 1,292,918	\$ 1,207	\$ 1,294,125
Tax provision from share-based payment arrangements	—	—	(1,243)	—	—	—	—	(1,243)	—	(1,243)
Issuance and repurchase of restricted stock, net	882	1	786	183	(652)	—	—	135	—	135
Stock-based compensation expense	—	—	34,733	—	—	—	—	34,733	—	34,733
Net loss	—	—	—	—	—	(655,492)	—	(655,492)	(8,433)	(663,925)
Noncontrolling interests for business combinations	—	—	—	—	—	—	—	—	6,783	6,783
Pension adjustment	—	—	—	—	—	—	338	338	—	338
Foreign currency translation adjustment	—	—	—	—	—	—	(15,480)	(15,480)	(820)	(16,300)
Balance at December 31, 2015	113,115	\$ 113	\$1,279,738	892	\$ (1,026)	\$ (583,368)	\$ (39,548)	\$ 655,909	\$ (1,263)	\$ 654,646
Issuance and repurchase of restricted stock, net, and retirement of treasury stock	1,998	2	(1,241)	606	(1,632)	—	—	(2,871)	—	(2,871)
Acquisition of noncontrolling interest	—	—	(2,364)	—	—	—	—	(2,364)	(1,169)	(3,533)
Stock-based compensation expense	—	—	31,295	—	—	—	—	31,295	—	31,295
Net loss	—	—	—	—	—	(38,419)	—	(38,419)	(846)	(39,265)
Pension adjustment	—	—	—	—	—	—	(902)	(902)	—	(902)
Liquidation of non-US entity	—	—	—	—	—	—	288	288	—	288
Foreign currency translation adjustment	—	—	—	—	—	—	(13,063)	(13,063)	105	(12,958)
Balance at December 31, 2016	<u>115,113</u>	<u>\$ 115</u>	<u>\$1,307,428</u>	<u>1,498</u>	<u>\$(2,658)</u>	<u>\$ (621,787)</u>	<u>\$ (53,225)</u>	<u>\$ 629,873</u>	<u>\$ (3,173)</u>	<u>\$ 626,700</u>

See accompanying notes to Consolidated Financial Statements.

3D Systems Corporation
Consolidated Statements of Cash Flows
Years Ended December 31, 2016, 2015 and 2014

<i>(In thousands)</i>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Cash flows from operating activities:			
Net income (loss)	\$ (39,265)	\$ (663,925)	\$ 11,946
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Benefit of deferred income taxes	(6,566)	(2,875)	(24,555)
Depreciation and amortization	60,535	83,069	55,188
Provision for arbitration award	—	11,282	—
Impairment of assets	8,618	544,611	—
Non-cash interest on convertible notes	—	—	224
Provision for bad debts	1,552	3,766	8,699
Provision for inventory reserves and revaluation, net	11,053	21,550	2,334
Stock-based compensation	31,295	34,733	32,793
(Gain) loss on the disposition of property and equipment	2,529	(43)	(227)
Loss on conversion of convertible debt	—	—	1,806
Changes in operating accounts, net of acquisitions:			
Accounts receivable	27,130	20,890	(55,977)
Inventories	(22,178)	(31,241)	(33,088)
Prepaid expenses and other current assets	(4,369)	2,197	(9,235)
Accounts payable	(5,878)	(18,904)	23,482
Accrued and other current liabilities	(6,652)	624	15,406
All other operating activities	(902)	(8,862)	22,315
Net cash provided by (used in) operating activities	<u>56,902</u>	<u>(3,128)</u>	<u>51,111</u>
Cash flows from investing activities:			
Purchases of property and equipment	(16,567)	(22,399)	(22,727)
Additions to license and patent costs	(1,132)	(907)	(753)
Proceeds from disposition of property and equipment	350	—	—
Purchase of noncontrolling interest	(3,533)	—	—
Cash paid for acquisitions, net of cash assumed	—	(91,799)	(345,361)
Other investing activities	(1,000)	(5,750)	(6,600)
Net cash used in investing activities	<u>(21,882)</u>	<u>(120,855)</u>	<u>(375,441)</u>
Cash flows from financing activities:			
Tax benefits (provision) from share-based payment arrangements	—	(1,243)	7,653
Proceeds from issuance of common stock	—	—	299,729
Proceeds, repurchase and retirement of stock, net	(2,871)	135	1,896
Repayment of capital lease obligations	(1,055)	(1,049)	(696)
Net cash provided by (used in) financing activities	<u>(3,926)</u>	<u>(2,157)</u>	<u>308,582</u>
Effect of exchange rate changes on cash and cash equivalents	(1,790)	(3,079)	(5,706)
Net increase (decrease) in cash and cash equivalents	<u>29,304</u>	<u>(129,219)</u>	<u>(21,454)</u>
Cash and cash equivalents at the beginning of the period	<u>155,643</u>	<u>284,862</u>	<u>306,316</u>
Cash and cash equivalents at the end of the period	<u>\$ 184,947</u>	<u>\$ 155,643</u>	<u>\$ 284,862</u>
Cash interest payments			
Cash interest payments	\$ 839	\$ 707	\$ 888
Cash income tax payments	11,045	12,512	15,602
Transfer of equipment from inventory to property and equipment, net ^(a)	12,493	9,902	5,891
Transfer of equipment to inventory from property and equipment, net ^(b)	1,102	2,764	944
Stock issued for acquisitions of businesses	—	—	24,625
Notes redeemed for shares of common stock	—	—	12,134

^(a) Inventory is transferred from inventory to property and equipment at cost when the Company requires additional machines for training or demonstration or for placement into on-demand parts services locations.

^(b) In general, an asset is transferred from property and equipment, net into inventory at its net book value when the Company has identified a potential sale for a used machine.

See accompanying notes to Consolidated Financial Statements.

Note 1 Basis of Presentation

The Consolidated Financial Statements include the accounts of 3D Systems Corporation and all majority-owned subsidiaries and entities in which a controlling interest is maintained (the “Company”).

A non-controlling interest in a subsidiary is considered an ownership interest in a majority-owned subsidiary that is not attributable to the parent. The Company includes noncontrolling interests as a component of total equity in the Consolidated Balance Sheets and the net income attributable to noncontrolling interests are presented as an adjustment from net income used to arrive at net income attributable to 3D Systems Corporation in the consolidated statements of operations and comprehensive loss.

All significant intercompany accounts and transactions have been eliminated in consolidation. The Company’s annual reporting period is the calendar year.

The Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States (“GAAP”). Certain prior period amounts have been reclassified to conform to the current year presentation.

All amounts presented in the accompanying footnotes are presented in thousands, except for per share information.

Note 2 Significant Accounting Policies

Use of Estimates

The Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires the Company to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses and related disclosure of contingent assets and liabilities. On an ongoing basis, the Company evaluates its estimates, including, among others, those related to the allowance for doubtful accounts, income taxes, inventory reserves, goodwill, other intangible assets and contingencies. The Company bases its estimates on historical experience and on various other assumptions that are believed to be reasonable, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

Revenue Recognition

Net revenue is derived primarily from the sale of products and services. The following revenue recognition policies define the manner in which the Company accounts for sales transactions.

The Company recognizes revenue when persuasive evidence of a sale arrangement exists, delivery has occurred or services are rendered, the sales price or fee is fixed or determinable and collectability is reasonably assured. Revenue generally is recognized net of allowances for returns and any taxes collected from customers and subsequently remitted to governmental authorities. The Company sells its products through its direct sales force and through authorized reseller partners. The Company recognizes revenue on sales to reseller partners at the time of sale when the partner has economic substance apart from Company, and the Company has completed its obligations related to the sale.

The Company enters into sales arrangements that may provide for multiple deliverables to a customer. Sales of printers may include ancillary equipment, print materials, a warranty on the equipment, training and installation. The Company identifies all goods and/or services that are to be delivered separately under a sales arrangement and allocates revenue to each deliverable based on either vendor-specific objective evidence (“VSOE”) or if VSOE is not determinable then the Company uses best estimated selling price (“BESP”) of each deliverable. The Company established VSOE of selling price using the price charged for a deliverable when sold separately. The objective of BESP is to determine the price at which the Company would transact a sale if the deliverable was sold regularly on a stand-alone basis. The Company considers multiple factors including, but not limited to, market conditions, geographies, competitive landscapes, and entity-specific factors such as internal costs, gross margin objectives and pricing practices when estimating BESP. Consideration in a multiple element arrangement is then allocated to the elements on a relative sales value basis using either VSOE or BESP for all the elements. The Company also evaluates the impact of undelivered items on the functionality of delivered items for each sales transaction and, where appropriate, defers revenue on delivered items when that functionality has been affected. Functionality is determined to be met if the delivered products or services represent a separate earnings process.

Hardware

Under the Company's standard terms and conditions of sale, title and risk of loss transfer to the customer at the time product is shipped to the customer and revenue is recognized accordingly, unless customer acceptance is uncertain or significant obligations remain. The Company defers the estimated revenue associated with post-sale obligations that are not essential to the functionality of the delivered items, and recognizes revenue in the future as the conditions for revenue recognition are met.

Software

The Company also markets and sells software tools that enable our customers to capture and customize content using our printers, as well as reverse engineering and inspection software. The software does not require significant modification or customization. The Company applies the guidance in ASC 985-605, *Software-Revenue Recognition* in recognizing revenue when software is more than incidental to the product or service as a whole based on fair value using vendor-specific objective evidence. Revenue from perpetual software licenses is recognized either upon delivery of the product or delivery of a key code which allows the customer to access the software. In instances where software access is provided for a trial period, revenue is not recognized until the customer has purchased the software at the expiration of the trial period. The Company uses the residual method to allocate revenue to software licenses at the inception of the license term when VSOE of fair value for all undelivered elements, such as maintenance, exists and all other revenue recognition criteria have been satisfied. In instances in which customers purchase post sale support, it is considered a separate element from the software and is deferred at the time of sale and subsequently amortized in future periods.

The Company also sells equipment with embedded software to its customers. The embedded software is not sold separately, it is not a significant focus of the marketing effort and the Company does not provide post-contract customer support specific to the software or incur significant costs that are within the scope of ASC 985. Additionally, the functionality that the software provides is marketed as part of the overall product. The software embedded in the equipment is incidental to the equipment as a whole such that ASC 985 is not applicable. Sales of these products are recognized in accordance with ASC 605-25, "*Multiple-Element Arrangements.*"

Services

Printers and certain other products include a warranty under which the Company provides maintenance for periods up to one year, as well as training, installation and non-contract maintenance services. The Company defers this portion of the revenue at the time of sale based on the relative fair value of these services. Deferred revenue is recognized ratably according to the term of the warranty. Costs associated with our obligations during the warranty period are expensed as incurred. After the initial warranty period, the Company offers these customers optional maintenance contracts. Deferred maintenance revenue is recognized ratably, on a straight-line basis, over the period of the contract, and costs associated with these contracts are recognized as incurred. Revenue from training, installation and non-contract maintenance services is recognized at the time of performance.

On-demand parts and healthcare service sales are included within services revenue and revenue is recognized upon shipment or delivery of the parts, based on the terms of the sales arrangement.

Terms of sale

Shipping and handling costs billed to customers for equipment sales and sales of print materials are included in product revenue in the Consolidated Statements of Operations and Other Comprehensive Loss. Costs incurred by the Company associated with shipping and handling are included in product cost of sales in the Consolidated Statements of Operations and Other Comprehensive Loss.

Credit is extended, and creditworthiness is determined, based on an evaluation of each customer's financial condition. New customers are generally required to complete a credit application and provide references and bank information to facilitate an analysis of creditworthiness. Customers with a favorable profile may receive credit terms that differ from the Company's general credit terms. Creditworthiness is considered, among other things, in evaluating the Company's relationship with customers with past due balances.

The Company's terms of sale generally require payment within 30 to 60 days after shipment of a product, although the Company also recognizes that longer payment periods are customary in some countries where it transacts business. To reduce credit risk in connection with printer sales, the Company may, depending upon the circumstances, require significant deposits prior to shipment and may retain a security interest in a system sold until fully paid. In some circumstances, the Company may require payment in full for its products prior to shipment and may require international customers to furnish letters of credit. For maintenance services, the Company either bills customers on a time-and-materials basis or sells customers service agreements that are recorded as deferred revenue and provide for payment in advance on either an annual or other periodic basis.

Cash and Cash Equivalents

Investments with original maturities of three months or less at the date of purchase are considered to be cash equivalents. The Company's policy is to invest cash in excess of short-term operating and debt-service requirements in such cash equivalents. These instruments are stated at cost, which approximates market value because of the short maturity of the instruments. The Company places its cash with highly creditworthy financial institutions, corporations or governments, and believes its risk of loss is limited; however, at times, account balances may exceed international and U.S. federally insured limits.

Investments

Investments in non-consolidated affiliates (20-50 percent owned companies and joint ventures) are accounted for using the equity method. Investments through which we are not able to exercise significant influence over the investee and which we do not have readily determinable fair values are accounted for under the cost method.

The Company assesses declines in the fair value of investments to determine whether such declines are other-than-temporary. This assessment is made considering all available evidence, including changes in general market conditions, specific industry and individual company data, the length of time and the extent to which the fair value has been less than cost, the financial condition and the near-term prospects of the entity issuing the security, and the Company's ability and intent to hold the investment until recovery. Other-than-temporary impairments of investments are recorded to interest and other expense, net, on the Company's Consolidated Statements of Operations and Other Comprehensive Loss in the period in which they become impaired.

For the years ended December 31, 2016 and 2015, the Company recorded impairment charges of \$1,210 and \$7,432, respectively, related to certain minority investments of less than 20% ownership, for which we do not exercise significant influence. The aggregate carrying amount of all investments accounted for under the cost method totaled \$9,116 and \$10,687 at December 31, 2016 and 2015, respectively, and is included in other assets, net, on the Company's Consolidated Balance Sheets.

Allowance for Doubtful Accounts

In evaluating the collectability of accounts receivable, the Company assesses a number of factors, including specific customers' ability to meet their financial obligations to us, the length of time receivables are past due and historical collection experience. Based on these assessments, the Company may record a reserve for specific customers, as well as a general reserve and allowance for returns and discounts. If circumstances related to specific customers change, or economic conditions deteriorate such that the Company's past collection experience is no longer relevant, its estimate of the recoverability of accounts receivable could be further reduced from the levels provided for in the Consolidated Financial Statements.

The Company evaluates specific accounts for which it believes a customer may have an inability to meet their financial obligations (for example, aging over 90 days past due or bankruptcy). In these cases, the Company uses judgment, based on available facts and circumstances, and records a specific reserve for that customer to reduce the receivable to an amount the Company expects to collect. These specific reserves are re-evaluated and adjusted as additional information is received that impacts the amount reserved.

Inventories

Inventories are stated at the lower of cost or net realizable market value, cost being determined using the first-in, first-out method. Reserves for slow-moving and obsolete inventories are provided based on historical experience and current product demand. The Company evaluates the adequacy of these reserves quarterly.

Property and Equipment

Property and equipment are carried at cost and depreciated on a straight-line basis over the estimated useful lives of the related assets. Leasehold improvements are amortized on a straight-line basis over the shorter of (i) their estimated useful lives and (ii) the estimated or contractual lives of the leases. Realized gains and losses are recognized upon disposal or retirement of the related assets and are reflected in results of operations. Charges for repairs and maintenance are expensed as incurred.

In accordance with ASC 360, "*Property, Plant and Equipment*," the Company assesses potential impairments of property and equipment when events or changes in circumstances indicate that the carrying amount may not be fully recoverable. If required, an impairment loss is recognized as the difference between the carrying value and the fair value of the assets.

Goodwill

Goodwill reflects the excess of the consideration transferred plus the fair value of any non-controlling interest in the acquiree at the acquisition date over the fair values of the identifiable net assets acquired. Goodwill is not amortized but rather is tested for impairment annually, or whenever events or circumstances present an indication of impairment. Goodwill is an asset representing the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognized. The primary items that generate goodwill include the value of the synergies between the acquired companies and the Company and the acquired assembled workforce, neither of which qualifies for recognition as an identifiable intangible asset.

The annual impairment testing required by ASC 350, "*Intangibles – Goodwill and Other*" requires the Company to use judgment and could require the Company to write down the carrying value of its goodwill in future periods. The Company allocates goodwill to its identifiable geographic reporting units, the Americas, EMEA and APAC regions, which are tested for impairment using a two-step process. The first step requires comparing the fair value of each reporting unit with the carrying amount, including goodwill. If that fair value exceeds the carrying amount, the second step of the process is not required to be performed, and no impairment charge is required to be recorded. If that fair value does not exceed that carrying amount, the Company must perform the second step, which requires an allocation of the fair value of the reporting unit to all assets and liabilities of that unit as if the reporting unit had been acquired in a purchase business combination and the fair value of the reporting unit was the purchase price. The goodwill resulting from that purchase price allocation is then compared to the carrying amount with any excess recorded as an impairment charge.

The evaluation of goodwill impairment requires the Company to make assumptions about future cash flows of the reporting unit being evaluated that include, among others, growth in revenues, margins realized, level of operating expenses and cost of capital. These assumptions require significant judgement and actual results may differ from assumed and estimated amounts.

Goodwill set forth on the Consolidated Balance Sheet as of December 31, 2016 arose from acquisitions carried out from 2009 to 2015 and in years prior to December 31, 2007. Goodwill arising from acquisitions prior to 2007 was allocated to geographic reporting units based on the percentage of SLS printers then installed by geographic area. Goodwill arising from acquisitions in 2009 to 2015 was allocated to geographic reporting units based on geographic dispersion of the acquired companies' sales or capitalization at the time of their acquisition.

The Company conducted its annual impairment testing for the year ended December 31, 2016 in the fourth quarter of 2016. There was no goodwill impairment for the year ended December 31, 2016.

The Company conducted its annual impairment testing for the year ended December 31, 2015 in the fourth quarter of 2015. The results of the Company's first step of annual impairment testing indicated the carrying amount of goodwill assigned to the Americas and EMEA reporting units exceeded fair value and that the carrying amount of goodwill assigned to APAC did not exceed fair value. Based on these results, management completed the second step of annual impairment testing for the Americas and EMEA reporting units. Management determined that the fair value of goodwill assigned to the Americas was zero, resulting in a non-cash, non-tax deductible impairment charge of \$382,271. Management determined that the carrying amount of the goodwill assigned to EMEA exceeded fair value by approximately 29%, resulting in a non-cash, non-tax deductible goodwill impairment charge of \$61,388. See Note 7.

There was no goodwill impairment for the year ended December 31, 2014.

The Company will monitor its reporting units in an effort to determine whether events and circumstances warrant further interim impairment testing. The Company could be required to write off or write down additional amounts in the future in the event of deterioration in future performance, sustained slower growth or other circumstances.

Other Intangible Assets

Intangible assets other than goodwill primarily represent acquired intangible assets including licenses, patent costs, acquired technology, internally developed technology, customer relationships, non-compete agreements, trade names and trademarks. Intangible assets with finite lives are amortized using the straight-line method over their estimated useful life, which is determined by identifying the period over which most of the cash flows are expected to be generated.

Amortization of license and patent costs is included in cost of sales, research and development expenses and selling, general and administrative expenses, depending upon the nature and use of the technology. Amortization of trade names, customer relationships and non-compete agreements are recorded in selling, general and administrative expenses.

For intangibles with finite lives, the Company reviews the carrying amounts for potential impairment when events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Examples of such a change in circumstances include a significant decrease in selling price, a significant adverse change in the extent or manner in which an asset is being used, or a significant adverse change in the legal or business climate. In evaluating recoverability, the Company groups assets and liabilities at the lowest level such that the identifiable cash flows relating to the group are largely independent of the cash flows of other assets and liabilities. The Company then compares the carrying amounts of the assets or asset groups with the related estimated undiscounted future cash flows. In the event impairment exists, an impairment charge is recorded as the amount by which the carrying amount of the asset or asset group exceeds the fair value. Fair value is determined by reference to estimated selling values of assets in similar condition or by using a discounted cash flow model. In addition, the remaining amortization period for the impaired asset would be reassessed and, if necessary, revised.

No impairment charges for intangible assets with finite lives were recorded for the year ended December 31, 2016. For the year ended December 31, 2015, the Company recorded non-cash impairment charges of \$93,520 arising from the Company's other intangible assets impairment testing. No impairment charges were recorded by the Company for the year ended December 31, 2014.

Redeemable Noncontrolling Interests

The minority interest shareholders of a certain subsidiary have the right in certain circumstances to require the Company to acquire either a portion of or all of the remaining ownership interests held by them. The owners' ability to exercise any such "put option" right is subject to the satisfaction of certain conditions, including conditions requiring notice in advance of exercise. In addition, these rights cannot be exercised prior to a specified exercise date. The exercise of these rights at their earliest contractual date would result in obligations of the Company to fund the related amounts in 2019. See Note 22.

The Company has recorded the put option as mezzanine equity at their current estimated redemption amount. The Company accrues changes in the redemption amounts over the period from the date of issuance to the earliest redemption date of the put option. For the year ended December 31, 2016, there has been no change to redeemable noncontrolling interests. Changes in the estimated redemption amounts of the put options are adjusted at each reporting period with a corresponding adjustment to equity.

The following table presents changes in Redeemable Noncontrolling Interests:

<i>(in thousands)</i>	2016	2015
Beginning balance – January 1	\$ 8,872	\$ 8,872
Changes in redemption value	—	—
Ending balance – December 31	\$ 8,872	\$ 8,872

Contingencies

The Company follows the provisions of ASC 450, "Contingencies," which requires that an estimated loss from a loss contingency be accrued by a charge to income if it is both probable that an asset has been impaired or that a liability has been incurred and that the amount of the loss can be reasonably estimated.

Foreign Currency Translation

The Company transacts business globally and is subject to risks associated with fluctuating foreign exchange rates. The Company's consolidated revenue that is derived from sales outside the U.S. is generated primarily from sales of subsidiaries operating outside the U.S. in their respective countries and surrounding geographic areas. This revenue is primarily denominated in each subsidiary's local functional currency, although certain sales are denominated in other currencies. These subsidiaries incur most of their expenses (other than intercompany expenses) in their local functional currencies. These currencies include Australian Dollars, Brazilian Real, British Pounds, Chinese Yuan, Euros, Indian Rupee, Israeli Shekel, Japanese Yen, Mexican Pesos, Swiss Francs, South Korean Won and Uruguayan Pesos.

The geographic areas outside the U.S. in which the Company operates are generally not considered to be highly inflationary. Nonetheless, these foreign operations are sensitive to fluctuations in currency exchange rates arising from, among other things, certain intercompany transactions that are generally denominated in U.S. dollars rather than their respective functional currencies. The Company's operating results, assets and liabilities are subject to the effect of foreign currency translation when the operating results and the assets and liabilities of the Company's foreign subsidiaries are translated into U.S. dollars in the Company's Consolidated Financial Statements. The assets and liabilities of the Company's foreign subsidiaries are translated from their respective functional currencies into U.S. dollars based on the translation rate in effect at the end of the related reporting period.

The operating results of the Company's foreign subsidiaries are translated to U.S. dollars based on the average conversion rate for the related period. Gains and losses resulting from these conversions are recorded in accumulated other comprehensive loss in the consolidated balance sheets. Gains and losses resulting from foreign currency transactions (transactions denominated in a currency other than the functional currency of the Company or a subsidiary) are included in the consolidated statements of operations and other comprehensive loss, except for intercompany receivables and payables for which settlement is not planned or anticipated in the foreseeable future, which are included as a component of accumulated other comprehensive loss in the consolidated balance sheets.

Derivative Financial Instruments

The Company is exposed to market risk from changes in interest rates and foreign currency exchange rates and commodity prices, which may adversely affect its results of operations and financial condition. The Company seeks to minimize these risks through regular operating and financing activities and, when the Company considers it to be appropriate, through the use of derivative financial instruments.

The Company does not purchase, hold or sell derivative financial instruments for trading or speculative purposes. The Company has elected not to prepare and maintain the documentation to qualify for hedge accounting treatment under ASC 815, "*Derivatives and Hedging*," and therefore, all gains and losses (realized or unrealized) related to derivative instruments are recognized in interest and other expense, net in the consolidated statements of operations and comprehensive loss and depending on the fair value at the end of the reporting period, derivatives are recorded either in prepaid and other current assets or in accrued liabilities in the consolidated balance sheets.

The Company and its subsidiaries conduct business in various countries using both their functional currencies and other currencies to effect cross border transactions. As a result, they are subject to the risk that fluctuations in foreign exchange rates between the dates that those transactions are entered into and their respective settlement dates will result in a foreign exchange gain or loss. When practicable, the Company endeavors to match assets and liabilities in the same currency on its U.S. balance sheet and those of its subsidiaries in order to reduce these risks. The Company, when it considers it to be appropriate, enters into foreign currency contracts to hedge the exposures arising from those transactions. See Note 10.

The Company is exposed to credit risk if the counterparties to such transactions are unable to perform their obligations. However, the Company seeks to minimize such risk by entering into transactions with counterparties that are believed to be creditworthy financial institutions.

Research and Development Costs

Research and development costs are expensed as incurred.

Earnings (Loss) per Share

Basic net income (loss) per share is computed by dividing net income available to common stockholders by the weighted average number of shares of common stock outstanding during the period. Diluted net income (loss) per share is computed by dividing net income, as adjusted for the assumed issuance of all dilutive shares, by the weighted average number of shares of common stock outstanding plus the number of additional common shares that would have been outstanding if all dilutive common shares issuable upon exercise of outstanding stock options or conversion of convertible securities had been issued. See Note 17.

Advertising Costs

Advertising costs are expensed as incurred. Advertising costs, including trade shows, were \$12,469, \$15,245 and \$8,799 for the years ended December 31, 2016, 2015 and 2014, respectively.

Pension costs

The Company sponsors a retirement benefit for one of its non-U.S. subsidiaries in the form of a defined benefit pension plan. Accounting standards require the cost of providing this pension benefit be measured on an actuarial basis. Actuarial gains and losses resulting from both normal year-to-year changes in valuation assumptions and differences from actual experience are deferred and amortized. The application of these accounting standards requires management to make assumptions and judgements that can significantly affect these measurements. Critical assumptions made by management in performing these actuarial valuations include the selection of the discount rate to determine the present value of the pension obligations that affects the amount of pension expense recorded in any given period. Changes in the discount rate could have a material effect on the Company's reported pension obligations and related pension expense. See Note 15.

Equity Compensation Plans

The Company maintains stock-based compensation plans that are described more fully in Note 14. For service-based awards, stock-based compensation is estimated at the grant date based on the fair value of the awards expected to vest and recognized as expense ratably over the requisite service period of the award. For stock options and awards with market conditions, compensation cost is determined at the individual tranche level. The Company estimates the forfeiture rate based on historical experience.

Income Taxes

The Company and the majority of its domestic subsidiaries file a consolidated U.S. federal income tax return while it has two entities that file separate U.S. federal tax returns. The Company's non-U.S. subsidiaries file income tax returns in their respective jurisdictions. The Company provides for income taxes on those portions of its foreign subsidiaries' accumulated earnings (deficit) that the Company believes are not reinvested permanently in their business.

Income taxes are accounted for under the asset and liability method. Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and tax benefit carryforwards. Deferred income tax liabilities and assets at the end of each period are determined using enacted tax rates.

The Company establishes a valuation allowance for those jurisdictions in which the expiration date of tax benefit carryforwards or projected taxable earnings leads the Company to conclude that it is "more likely than not" that a deferred tax asset will not be realized. The evaluation process includes the consideration of all available evidence regarding historical results and future projections including the estimated timing of reversals of existing taxable temporary differences and potential tax planning strategies. Once a valuation allowance is established, it is maintained until a change in factual circumstances gives rise to sufficient income of the appropriate character and timing that will allow a partial or full utilization of the deferred tax asset.

In accordance with ASC 740, "*Income Taxes*," the impact of an uncertain tax position on the Company's income tax returns is recognized at the largest amount that is more likely than not to be required to be recognized upon audit by the relevant taxing authority.

The Company includes interest and penalties accrued in the Consolidated Financial Statements as a component of income tax expense.

See Note 20 to the Consolidated Financial Statements.

Recent Accounting Pronouncements

Recently Adopted Accounting Standards

In March 2016, the FASB issued Accounting Standards Update (“ASU”) No. 2016-09, “*Stock Compensation (Topic 718)*” (“ASU 2016-09”). ASU 2016-09 simplifies the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. It is effective for annual reporting periods beginning after December 15, 2016 and interim periods within those annual periods. The Company adopted ASU 2016-09 in the first quarter of 2017 and expects to recognize additional tax benefits (expenses) in net income (losses) rather than additional paid in capital and as a change in operating cash flows rather than a change in financing cash flows under this guidance.

In April 2015, the FASB issued Accounting Standards Update No. 2015-03, “*Simplifying the Presentation of Debt Issuance Costs*” (“ASU 2015-03”), which changes the presentation of debt issuance costs in financial statements. ASU 2015-03 requires an entity to present such costs in the balance sheet as a direct deduction from the related debt liability rather than as an asset. Amortization of the costs will continue to be reported as interest expense. It is effective for annual reporting periods beginning after December 15, 2016. Early adoption is permitted. The new guidance will be applied retrospectively to each prior period presented. The Company has elected to adopt this guidance in the first quarter of 2017. The Company expects that the implementation of this guidance will not have a material effect on its consolidated financial statements

Recently Issued Accounting Standards

In January 2017, the FASB issued ASU No. 2017-04, “*Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*” (“ASU 2017-04”), which eliminates the performance of Step 2 from the goodwill impairment test. In performing its annual or interim impairment testing, an entity will instead compare the fair value of the reporting unit with its carrying amount and recognize any impairment charge for the amount by which the carrying amount exceeds the reporting unit’s fair value. Additionally, an entity should consider income tax effects from any tax deductible goodwill on the carrying amount of the reporting unit when measuring the goodwill impairment loss. The standard is effective for fiscal years beginning after December 15, 2019. Early adoption is permitted for interim or annual impairment tests performed on testing dates after January 1, 2017. The Company is currently in the process of evaluating when it will adopt ASU 2017-04 and its impact on its consolidated financial statements.

In October 2016, the FASB issued ASU No. 2016-16, “*Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory*” (“ASU 2016-16”). ASU 2016-16 permits the recognition of income tax consequences related to an intra-entity transfer of an asset other than inventory when the transfer occurs. It is effective for annual reporting periods beginning after December 15, 2017 and interim periods within those annual periods. Early adoption is permitted for any interim or annual period. The Company is currently in the process of evaluating the impact of adoption of ASU 2016-16 on its consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15, “*Statement of Cash Flows (Topic 230) – Classification of Certain Cash Receipts and Cash Payments*” (“ASU 2016-15”). With the objective of reducing the existing diversity in practice, ASU 2016-15 addresses the manner in which certain cash receipts and cash payments are presented and classified in the statement of cash flows. ASU 2016-15 is effective for annual reporting periods beginning after December 15, 2017. The amendments should be applied retrospectively with earlier application permitted as of the beginning of an interim or annual reporting period. The Company expects that the implementation of this guidance will not have a material effect on its consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, “*Leases (Topic 842)*” (“ASU 2016-02”). ASU 2016-02 requires lessees to recognize assets and liabilities arising from operating leases on the balance sheet. It is effective for annual reporting periods beginning after December 15, 2018, including interim periods within those fiscal years. Though still evaluating the impact of ASU 2016-02, the Company expects changes to its balance sheet due to the recognition of right-of-use assets and lease liabilities related to its real estate leases, but it does not anticipate material impacts to its results of operations or liquidity.

In August 2015, the FASB issued ASU No. 2015-14, “*Revenue from Contracts with Customers: Deferral of the Effective Date*” (“ASU 2015-14”), a revision to Accounting Standards Update No. 2014-09, “*Revenue from Contracts with Customers*”, which was originally issued on May 28, 2014. For public business entities, certain not-for-profit entities, and certain employee benefit plans, the effective date was for annual reporting periods beginning after December 15, 2016, including interim periods within that reporting period. ASU 2015-14 will defer these effective dates for all entities by one year. During 2016, the Company continued its evaluation of ASU 2014-09, including the expected impact on its business processes, systems and controls, and potential differences in the timing and/or method of revenue recognition for its contracts. The Company expects to complete its assessment of the cumulative effect of adopting ASU 2014-09 as well as the expected impact of adoption during 2017. The Company will continue its evaluation of ASU 2014-09, including how it may impact new contracts it receives as well as new or emerging interpretations of the standard, through the date of adoption.

Note 3 Acquisitions

Subsequent Acquisition

On January 31, 2017, the Company acquired 100 percent of the shares of Vertex-Global Holding B.V., a provider of dental materials worldwide under the Vertex and NextDent brands. See Note 25.

2016 Acquisitions

No acquisitions were made by the Company for the year ended December 31, 2016.

2015 Acquisitions

On February 9, 2015, the Company acquired 100% of the outstanding shares and voting rights of Cimatron Ltd. (“Cimatron”), a provider of integrated 3D CAD/CAM software and solutions for manufacturing. The fair value of the consideration paid for this acquisition, net of cash acquired, was \$77,984, all of which was paid in cash. The operations of Cimatron have been integrated into the Company’s products and service revenues. The fair value of the consideration paid for this acquisition was allocated to the assets purchased and liabilities assumed, based on their estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2015 acquisitions.

On April 2, 2015, the Company acquired 65% of the equity interests in Wuxi Easyway Model Design and Manufacture Co. Ltd. (“Easyway”), a manufacturing service bureau and distributor of 3D printing and scanning products in China. The fair value of the consideration paid for this acquisition, net of cash acquired, was \$11,265, all of which was paid in cash. Under the terms of the agreement, the Company has an option to acquire the remainder of the equity interests in Easyway between the third and fifth anniversaries of the closing. The operations of Easyway have been integrated into the Company’s products and service revenues. The fair value of the consideration paid for this acquisition was allocated to the assets purchased and liabilities assumed, based on their estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2015 acquisitions.

On June 16, 2015, the Company acquired certain assets of STEAMtrax, LLC (“STEAMtrax”), a curricula provider. The fair value of the consideration paid for this acquisition, net of cash acquired, was \$2,550, all of which was paid in cash. The fair value of the consideration paid for this acquisition was allocated to the assets purchased and liabilities assumed, based on their estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2015 acquisitions. As of December 31, 2016, the Company has exited this investment.

On June 17, 2015, the Company acquired certain assets of NOQUO INC. (“Noquo”), a software provider. The fair value of the consideration paid for this acquisition, net of cash acquired, was \$651, which was paid with cash and the cancellation of a note. The fair value of the consideration paid for this acquisition was allocated to the assets purchased and liabilities assumed, based on their estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2015 acquisitions. As of December 31, 2016, the Company has exited this investment.

For all acquisitions made in 2015, factors considered by the Company in determination of goodwill include synergies, vertical integration and strategic fit for the Company. The acquisitions completed during the 2015 are not material relative to the Company’s assets or operating results; therefore, no proforma financial information is provided.

The amounts related to the acquisitions of these businesses were allocated to the assets acquired and the liabilities assumed and included in the Company’s consolidated balance sheet at December 31, 2015 as follows:

<i>(in thousands)</i>	2015
Fixed assets	\$ 1,505
Other intangible assets, net	57,066
Goodwill	44,772
Other assets, net of cash acquired	22,449
Liabilities	(33,342)
Net assets acquired	<u>\$ 92,450</u>

2014 Acquisitions

On February 18, 2014, the Company acquired the assets of Digital Playspace, Inc., an online platform that combines home design, gaming, and community sharing to deliver a 3D create-and-make experience for children, families and adults. The fair value of the consideration paid for this acquisition, net of cash acquired, was \$4,000, of which \$2,000 was paid in cash and \$2,000 was paid in shares of the Company's stock. These shares were issued in a private transaction exempt from registration under the Securities Act of 1933. The fair value of the consideration paid for this acquisition was allocated to the assets purchased and liabilities assumed, based on their estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2014 acquisitions.

On April 2, 2014, the Company acquired 100% of the outstanding shares and voting rights of Medical Modeling Inc. Medical Modeling Inc. is a provider of 3D printing-centric personalized surgical treatments and patient specific medical devices, including virtual surgical planning, personalized medical devices and clinical transfer tools. The fair value of the consideration paid for this acquisition, net of cash acquired, was \$69,026 of which \$51,526 was paid in cash and \$17,500 was paid in shares of the Company's stock. These shares were issued in a private transaction exempt from registration under the Securities Act of 1933. The operations of Medical Modeling Inc. have been integrated into the Company's service revenues. The fair value of the consideration paid for this acquisition was allocated to the assets purchased and liabilities assumed, based on their estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2014 acquisitions.

On August 6, 2014, the Company acquired certain assets of Bordner and Associates, Inc. d/b/a Laser Reproductions ("Laser Reproductions"). Laser Reproductions is a provider of advanced manufacturing, tooling and rapid prototyping solutions. The fair value of the consideration paid for this acquisition, net of cash acquired, was \$17,450, of which \$13,075 was paid in cash and \$4,375 was paid in shares of the Company's common stock. These shares were issued in a private transaction exempt from registration under the Securities Act of 1933. The operations of Laser Reproductions have been integrated into the Company's service revenues. The fair value of the consideration paid for this acquisition was allocated to the assets purchased and liabilities assumed, based on their estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2014 acquisitions.

On August 13, 2014, the Company acquired certain assets of sister companies American Precision Machining, L.L.C. ("APM") and American Precision Prototyping, LLC ("APP"). APM and APP are providers of precision machining and manufacturing services and 3D printing services. The fair value of the consideration paid for these acquisitions, net of cash acquired, was \$14,089, all of which was paid in cash. The operations of APM and APP have been integrated into the Company's service revenues. The fair value of the consideration paid for these acquisitions was allocated to the assets purchased and liabilities assumed, based on their estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2014 acquisitions.

On August 28, 2014, the Company acquired 100% of the outstanding shares and voting rights of Symbionix USA Corporation ("Symbionix"). Symbionix is a provider of patient-specific surgical simulation solutions. The fair value of the consideration paid for this acquisition, net of cash acquired, was \$121,562, all of which was paid in cash. The operations of Symbionix have been integrated into the Company's products and service revenues. The fair value of the consideration paid for this acquisition was allocated to the assets purchased and liabilities assumed, based on their estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2014 acquisitions.

On September 3, 2014, the Company acquired 100% of the outstanding shares and voting rights of LayerWise NV ("LayerWise"). LayerWise is a provider of advanced direct metal 3D printing and manufacturing services and delivers quick-turn, 3D-printed metal parts, manufactured on its own proprietary line of direct metal 3D printers, for aerospace, high-precision equipment, and medical and dental customers. The fair value of the consideration paid for this acquisition, net of cash acquired, was \$41,933, all of which was paid in cash. The operations of LayerWise have been integrated into the Company's product and service revenues. The fair value of the consideration paid for this acquisition was allocated to the assets purchased and liabilities assumed, based on their estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2014 acquisitions.

On November 25, 2014, the Company acquired 70% of the outstanding shares and voting rights of Robtec, an additive manufacturing service bureau and distributor of 3D printing and scanning products. Under the terms of the agreement, the Company acquired 70% of the shares of Robtec at closing and the remainder of the shares will be acquired by the Company on the fifth anniversary of the closing. The fair value of the consideration paid for this acquisition, net of cash acquired, was \$21,880, all of which was paid in cash. The operations of Robtec have been integrated into the Company's product and service revenues. The fair value of the consideration paid for this acquisition was allocated to the assets purchased and liabilities assumed, based on the estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2014 acquisitions.

On December 16, 2014, the Company acquired 100% of the outstanding shares and voting rights of botObjects Ltd. (“botObjects”), a company that develops consumer 3D printers. The fair value of the consideration paid for this acquisition, net of cash acquired, was \$24,743, all of which was paid in cash. The fair value of the consideration paid for this acquisition was allocated to the assets purchased and liabilities assumed, based on the estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2014 acquisitions.

Pursuant to the terms and conditions of the botObjects purchase agreement, the sellers had the right to earn an additional amount, of up to a maximum of approximately \$25,000, pursuant to an earnout formula over a three-year period as set forth in the acquisition agreement. Pursuant to a settlement agreement between the Company and the sellers, the parties agreed that no amounts would be paid pursuant to the terms of the earnout provision.

On December 17, 2014, the Company acquired a product line related to its materials business. The fair value of the consideration paid for this acquisition, net of cash acquired, was \$54,552, all of which was paid in cash. The company completed this acquisition as part of its improved business continuity and operational excellence initiatives. The operations have been integrated into the Company’s materials production. The fair value of the consideration paid for this acquisition was allocated to the assets purchased and liabilities assumed, based on the estimated fair values as of the acquisition date, with any excess recorded as goodwill, and is included in the table below, which summarizes 2014 acquisitions.

For all acquisitions made in 2014, factors considered by the Company in determination of goodwill include synergies, vertical integration and strategic fit for the Company. The acquisitions completed during the year are not material relative to the Company’s assets or operating results; therefore, no proforma financial information is provided.

The amounts related to the acquisitions of these businesses were allocated to the assets acquired and the liabilities assumed and included in the Company’s consolidated balance sheet at December 31, 2014 as follows:

<i>(in thousands)</i>	2014
Fixed assets	\$ 19,279
Other intangible assets, net	127,315
Goodwill	259,422
Other assets, net of cash acquired	38,583
Liabilities	(75,364)
Net assets acquired	<u>\$ 369,235</u>

Note 4 Inventories

Components of inventories, net, at December 31, 2016 and 2015 are as follows:

<i>(in thousands)</i>	2016	2015
Raw materials	\$ 38,383	\$ 43,960
Work in process	3,109	4,067
Finished goods and parts	61,839	57,850
Inventories, net	<u>\$ 103,331</u>	<u>\$ 105,877</u>

Note 5 Property and Equipment

Property and equipment at December 31, 2016 and 2015 are summarized as follows:

<i>(in thousands)</i>	2016	2015	Useful Life (in years)
Land	\$ 903	\$ 903	N/A
Building	11,122	11,007	25-30
Machinery and equipment	108,682	105,383	2-7
Capitalized software	8,651	7,391	3-5
Office furniture and equipment	3,130	4,714	1-5
Leasehold improvements	24,423	17,867	Life of lease (a)
Rental equipment	144	149	5
Construction in progress	7,760	9,578	N/A
Total property and equipment	164,815	156,992	
Less: Accumulated depreciation and amortization	(84,837)	(70,997)	
Total property and equipment, net	<u>\$ 79,978</u>	<u>\$ 85,995</u>	

- (a) Leasehold improvements are amortized on a straight-line basis over the shorter of (i) their estimated useful lives and (ii) the estimated or contractual life of the related lease.

Depreciation expense on property and equipment for the years ended 2016, 2015 and 2014 was \$24,331, \$20,979 and \$14,727, respectively.

For the years ended December 31, 2016 and 2015, the Company recognized impairment charges of \$7,408 and \$614, respectively, on property and equipment, net. No impairment charges were recognized for the year ended December 31, 2014.

Note 6 Intangible Assets

Intangible assets other than goodwill at December 31, 2016 and December 31, 2015 are summarized as follows:

<i>(in thousands)</i>	2016			2015			Useful Life (in years)	Weighted Average Useful Life Remaining (in years)
	Gross	Accumulated Amortization	Net	Gross	Accumulated Amortization	Net		
Intangible assets with finite lives:								
Patent costs	\$ 16,263	\$ (5,873)	\$ 10,390	\$ 16,251	\$ (4,895)	\$ 11,356	1-20	9
Acquired technology	52,881	(27,543)	25,338	52,809	(16,405)	36,404	1-16	4
Internally developed software	4,730	(3,522)	1,208	4,730	(2,919)	1,811	2	2
Customer relationships	99,067	(46,252)	52,815	101,933	(36,158)	65,775	1-14	6
Non-compete agreements	9,423	(7,277)	2,146	12,163	(8,558)	3,605	1-4	2
Trade names	28,110	(16,015)	12,095	28,108	(12,498)	15,610	1-8	5
Other	45,377	(27,868)	17,509	46,435	(23,530)	22,905	1-6	4
Total intangible assets	<u>\$255,851</u>	<u>\$ (134,350)</u>	<u>\$121,501</u>	<u>\$262,429</u>	<u>\$ (104,963)</u>	<u>\$157,466</u>	1-20	4

Amortization expense related to intangible assets was \$35,124, \$61,066 and \$39,484 for the years ended December 31, 2016, 2015 and 2014, respectively. Amortization of these intangible assets is calculated on a straight-line basis.

Annual amortization expense for intangible assets is expected to be \$33,286 in 2017, \$28,287 in 2018, \$19,883 in 2019, \$16,121 in 2020 and \$11,865 in 2021.

No intangible asset impairment charges were recorded by the Company for the year ended December 31, 2016.

For the year ended December 31, 2015, the Company recorded impairment charges of \$93,520, reflecting \$92,248 of impairment charges related to the Company's Americas reporting unit and \$1,272 of impairment charges related to the Company's EMEA reporting unit. Further, impairment charges reflected approximately \$63,852 of charges to customer relationships, \$19,164 of charges to acquired technology, \$5,952 of charges to trade names, \$3,416 of charges to non-compete agreements, \$791 of charges to other intangibles and \$345 of charges to internally developed software. The impairment charges were measured as the difference between the carrying amount of the assets and their fair value. The fair value of the assets was determined under the income approach based on a discounted cash flow model using updated future revenue and operating income projections. In addition to impairment charges, gross intangible assets were negatively impacted by foreign currency translation. See Note 2 to the Consolidated Financial Statements.

No intangible asset impairment charges were recorded by the Company for the year ended December 31, 2014.

Note 7 Goodwill

The following are the changes in the carrying amount of goodwill by geographic reporting unit:

<i>(in thousands)</i>	Americas	EMEA	Asia Pacific	Total
Balance at December 31, 2014	\$ 339,411	216,942	33,184	589,537
Acquisitions and adjustments	47,452	2,602	5,208	55,262
Impairment of goodwill	(382,271)	(61,388)	—	(443,659)
Effect of foreign currency exchange rates	(4,592)	(7,635)	(1,038)	(13,265)
Balance at December 31, 2015	—	\$ 150,521	\$ 37,354	\$ 187,875
Acquisitions and adjustments	—	(137)	189	52
Effect of foreign currency exchange rates	—	(5,413)	(1,284)	(6,697)
Balance at December 31, 2016	\$ —	\$ 144,971	\$ 36,259	\$ 181,230

The effect of foreign currency exchange in this table reflects the impact on goodwill of amounts recorded in currencies other than the U.S. dollar on the financial statements of subsidiaries in these geographic areas resulting from the yearly effect of foreign currency translation between the applicable functional currency and the U.S. dollar.

For discussion on goodwill impairment testing, see Note 2 to the Consolidated Financial Statements.

Note 8 Employee Benefits

The Company sponsors a Section 401(k) plan (the "Plan") covering substantially all its eligible U.S. employees. The Plan entitles eligible employees to make contributions to the Plan after meeting certain eligibility requirements. Contributions are limited to the maximum contribution allowances permitted under the Internal Revenue Code. The Company matches 50% of the employee contributions up to a maximum match of \$1.5, as set forth in the Plan. The Company may also make discretionary contributions to the Plan, which would be allocable to participants in accordance with the Plan. In addition, the Company has several other U.S. and non-U.S. defined contribution plans covering eligible U.S. and non-U.S. employees, respectively.

For the years ended December 31, 2016, 2015 and 2014, the Company expensed \$1,175, \$956 and \$721, respectively, for matching contributions to defined contribution plans.

Note 9 Accrued and Other Liabilities

Accrued liabilities at December 31, 2016 and 2015 are summarized below:

<i>(in thousands)</i>	2016	2015
Compensation and benefits	\$ 22,771	\$ 24,152
Vendor accruals	8,231	12,883
Accrued professional fees	810	491
Accrued taxes	9,831	11,317
Royalties payable	2,092	1,431
Accrued interest	39	42
Accrued earnouts related to acquisitions	3,238	159
Accrued other	2,956	4,224
Total	<u>\$ 49,968</u>	<u>\$ 54,699</u>

Other liabilities at December 31, 2016 and 2015 are summarized below:

<i>(in thousands)</i>	2016	2015
Arbitration award	\$ 11,282	\$ 11,282
Long term employee indemnity	11,152	9,794
Defined benefit pension obligation	7,613	6,211
Long term tax liability	7,183	6,996
Long term earnouts related to acquisitions	7,568	9,673
Long term deferred revenue	7,464	7,956
Other long term liabilities	5,726	4,927
Total	<u>\$ 57,988</u>	<u>\$ 56,839</u>

Note 10 Hedging Activities and Financial Instruments

The Company conducts business in various countries using both the functional currencies of those countries and other currencies to effect cross border transactions. As a result, the Company is subject to the risk that fluctuations in foreign exchange rates between the dates that those transactions are entered into and their respective settlement dates will result in a foreign exchange gain or loss. When practicable, the Company endeavors to match assets and liabilities in the same currency on its balance sheet and those of its subsidiaries in order to reduce these risks. When appropriate, the Company enters into foreign currency contracts to hedge exposures arising from those transactions. The Company has elected not to prepare and maintain the documentation to qualify for hedge accounting treatment under ASC 815, “*Derivatives and Hedging*,” and therefore, all gains and losses (realized or unrealized) are recognized in “Interest and other expense, net” in the consolidated statements of operations and comprehensive loss. Depending on their fair value at the end of the reporting period, derivatives are recorded either in prepaid expenses and other current assets or in accrued liabilities on the consolidated balance sheet.

There were no foreign currency contracts outstanding at December 31, 2016 or 2015.

Note 11 Borrowings

Credit Facility

On October 10, 2014, the Company and certain of its subsidiaries entered into a \$150,000 five-year revolving, unsecured credit facility (the “Credit Agreement”) with PNC Bank, National Association, as Administrative Agent, PNC Capital Markets LLC, as Sole Lead Arranger and Sole Bookrunner, HSBC Bank USA, N.A., as Syndication Agent, and the other lenders party thereto (collectively, the “Lenders”). The Credit Agreement comprises a revolving loan facility that provides for advances in the initial aggregate principal amount of up to \$150,000 (the “Credit Facility”). Subject to certain terms and conditions contained in the Credit Agreement, the Company may, at its option, request an increase in the aggregate principal amount available under the Credit Facility by an additional \$75,000. The Credit Agreement includes provisions for the issuance of letters of credit and swingline loans.

The Credit Agreement is guaranteed by certain of the Company’s material domestic subsidiaries (the “Guarantors”). From time to time, the Company may be required to cause additional material domestic subsidiaries to become Guarantors under the Credit Agreement.

Generally, amounts outstanding under the Credit Facility bear interest, at the Company's option, at either the Base Rate or the London interbank offered rate ("LIBOR"), in each case, plus an applicable margin. Base Rate advances bear interest at a rate per annum equal to the sum of (i) the highest of (A) the Administrative Agent's prime rate, (B) the Federal Funds Open Rate plus 0.5% or (C) the Daily LIBOR Rate for a one month interest period plus 1%, and (ii) an applicable margin that ranges from 0.25% to 0.50% based upon the Company's consolidated total leverage ratio. LIBOR Rate advances bear interest at a rate based upon the LIBOR Rate for the applicable interest period, plus an applicable margin that ranges from 1.25% to 1.50% based upon the Company's consolidated total leverage ratio. Under the terms of the Credit Agreement, (i) accrued interest on each loan bearing interest at the Base Rate is payable quarterly in arrears and (ii) accrued interest on each loan bearing interest at the LIBOR Rate is payable in arrears on the earlier of (A) quarterly and (B) the last day of each applicable interest payment date for each loan. The Credit Facility is scheduled to mature on October 10, 2019, at which time all amounts outstanding thereunder will be due and payable.

The Company is required to pay certain fees in connection with the Credit Facility, including a quarterly commitment fee equal to the product of the amount of the average daily available revolving commitments under the Credit Agreement multiplied by a percentage that ranges from 0.20% to 0.25% depending upon the Company's consolidated total leverage ratio, as well as customary administrative fees.

The Credit Agreement contains customary representations, warranties, covenants and default provisions for a Credit Facility of this type, including, but not limited to, financial covenants, limitations on liens and the incurrence of debt, covenants to preserve corporate existence and comply with laws and covenants regarding the use of proceeds of the Credit Facility. The financial covenants include a maximum consolidated total leverage ratio, which is the ratio of consolidated total funded indebtedness to consolidated EBITDA (earnings before interest, taxes, depreciation and amortization expense), as defined in the Credit Agreement, of 3.00 to 1.00, and a minimum interest coverage ratio, which is the ratio of consolidated EBITDA to cash interest expense, of 3.50 to 1.00. The Company is only required to be in compliance with the financial covenants as of the end of any fiscal quarter in which there are any loans outstanding at any time during such fiscal quarter. Based on the Company's current results of operations and financial covenants set forth in the Credit Agreement, availability at December 31, 2016 would be approximately \$150,000. Future results may impact availability.

The payment of dividends on the Company's common stock is restricted under provisions of the Credit Facility, which limits the amount of cash dividends that the Company may pay in any one fiscal year to \$30,000. The Company currently does not pay, and has not paid, any dividends on its common stock, and currently intends to retain any future earnings for use in its business.

There was no outstanding balance on the Credit Facility as of December 31, 2016 or 2015.

Interest Income and Expense

Interest income totaled \$807, \$521 and \$482 for the years ended December 31, 2016, 2015 and 2014, respectively.

Interest expense totaled \$1,282, \$2,011 and \$1,227 for the years ended December 31, 2016, 2015 and 2014, respectively.

Note 12 Lease Obligations

The Company leases certain of its facilities and equipment under capitalized leases and other facilities and equipment under non-cancelable operating leases. The leases are generally on a net-rent basis, under which the Company pays taxes, maintenance and insurance. Leases that expire at various dates through 2031 are expected to be renewed or replaced by leases on other properties.

Rent expense for the years ended December 31, 2016, 2015 and 2014 was \$13,232, \$13,960 and \$10,427, respectively.

The Company's future minimum lease payments as of December 31, 2016 under capitalized leases and non-cancelable operating leases, with initial or remaining lease terms in excess of one year, were as follows:

<i>(in thousands)</i>	<u>Capitalized Leases</u>	<u>Operating Leases</u>
Years ending December 31:		
2017	\$ 1,074	\$ 12,686
2018	1,071	11,674
2019	1,068	9,663
2020	987	5,915
2021	736	5,364
Later years	7,491	14,749
Total minimum lease payments	12,427	<u>\$ 60,051</u>
Less: amounts representing imputed interest	(4,268)	
Present value of minimum lease payments	8,159	
Less: current portion of capitalized lease obligations	(572)	
Capitalized lease obligations, excluding current portion	<u>\$ 7,587</u>	

Rock Hill Facility

The Company leases its headquarters and research and development facility pursuant to a lease agreement with Lex Rock Hill, LP. After its initial term ending August 31, 2021, the lease provides the Company with the option to renew the lease for two additional five-year terms. The lease also grants the Company the right to cause Lex Rock Hill, subject to certain terms and conditions, to expand the leased premises during the term of the lease, in which case the term of the lease would be extended. The lease is a triple net lease and provides for the payment of base rent of \$683 in 2016, \$709 in 2017 through 2020 and \$723 in 2021. Under the terms of the lease, the Company is obligated to pay all taxes, insurance, utilities and other operating costs with respect to the leased premises. This lease is recorded as a capitalized lease obligation under ASC 840, "Leases." The implicit interest rate was 6.93% as of December 31, 2016 and 2015.

Other Capital Lease Obligations

The Company leases other equipment with lease terms through August 2018. In accordance with ASC 840, the Company has recorded these leases as capitalized leases. The implicit interest rate ranged from 1.75% to 8.06% at December 31, 2016 and 2015.

Note 13 Preferred Stock

The Company had 5,000 shares of preferred stock that were authorized but unissued at December 31, 2016 and 2015.

Note 14 Stock-Based Compensation

Effective May 19, 2004, the Company adopted its 2004 Incentive Stock Plan, as further amended and restated on February 3, 2015 (the "2004 Stock Plan"), and its 2004 Restricted Stock Plan for Non-Employee Directors, as further amended and restated on April 1, 2013 (the "Director Plan"). On May 19, 2015, the Company's stockholders approved the 2015 Incentive Plan of 3D Systems Corporation (the "2015 Plan" and, together with the 2004 Stock Plan, the "Incentive Plans").

The 2004 Stock Plan authorizes shares of restricted stock, restricted stock units, stock appreciation rights and the grant of options to purchase shares of the Company's common stock. The 2004 Stock Plan also designates measures that may be used for performance awards. The Director Plan authorizes shares of restricted stock for non-employee directors of the Company. The 2015 Plan authorizes shares of restricted stock, restricted stock units, stock appreciation rights, cash incentive awards and the grant of options to purchase shares of the Company's common stock. The 2015 Plan also designates measures that may be used for performance awards.

Generally, awards granted prior to November 13, 2015 become fully-vested on the three-year anniversary of the grant date and awards granted on or after November 13, 2015 will vest one third each year over three years.

The Company records stock-based compensation expense in selling, general and administrative expenses in the condensed consolidated statements of operations and comprehensive income (loss). Stock-based compensation expense for the years ended December 31, 2016, 2015 and 2014 was as follows:

<i>(in thousands)</i>	Year Ended December 31,		
	2016	2015	2014
Stock-based compensation expense	\$ 31,295	\$ 34,733	\$ 32,793

Restricted Stock

Stock award activity for the years ended December 31, 2016, 2015 and 2014 was as follows:

	Year Ended December 31,					
	2016		2015		2014	
<i>(in thousands, except per share amounts)</i>	Number of Shares/Units	Weighted Average Grant Date Fair Value	Number of Shares/Units	Weighted Average Grant Date Fair Value	Number of Shares/Units	Weighted Average Grant Date Fair Value
Outstanding at beginning of period —	2,942	\$ 36.55	2,806	\$ 41.08	2,523	\$ 41.21
Granted	2,516	\$ 11.57	1,438	\$ 16.12	1,031	\$ 49.46
Cancelled	(526)	\$ 38.64	(672)	\$ 46.20	(85)	\$ 39.52
Vested	(1,151)	\$ 40.99	(630)	\$ 23.89	(663)	\$ 12.59
Outstanding at end of period — unvested	<u>3,781</u>	<u>\$ 36.34</u>	<u>2,942</u>	<u>\$ 36.55</u>	<u>2,806</u>	<u>\$ 41.08</u>

During the year ended December 31, 2016, the Company awarded certain employees 469 shares of restricted stock under the 2015 Plan, included in the activity above, that vests under specified market conditions. Each of these employees was generally awarded two equal tranches of market condition restricted stock that immediately vests when the Company's common stock trades at either \$30 or \$40 per share for ninety consecutive calendar days.

At December 31, 2016, there was \$5,517 of unrecognized pre-tax stock-based compensation expense related to non-vested restricted stock awards with market conditions, which the Company expects to recognize over the remaining weighted-average three year period.

At December 31, 2016, there was \$40,306 of unrecognized pre-tax stock-based compensation expense related to all other non-vested restricted stock award shares and units, which the Company expects to recognize over the remaining weighted-average vesting period of two years.

Stock Options

The Company estimates the fair value of stock options with market conditions using a binomial lattice Monte Carlo simulation model. The weighted-average fair value and the assumptions used to measure fair value were as follows:

	Year Ended December 31,		
	2016	2015	2014
Stock option assumptions:			
Weighted-average fair value	\$ 7.80	\$ —	\$ —
Expected volatility	60.0%	—	—
Risk-free interest rate	0.76%-1.46	—	—
Expected dividend yield	0 %	—	—
Derived term in years	3-4	—	—

Stock option activity for the year ended December 31, 2016 was as follows:

<i>(in thousands, except per share amounts)</i>	Year Ended December 31, 2016		
	Number of Shares	Weighted Average Exercise	Weighted Average Remaining Term (in years)
Stock option activity:			
Outstanding at beginning of period	—	\$ —	
Granted	2,260	13.92	
Exercised	—	—	
Forfeited and expired	—	—	
Outstanding at end of period	2,260	\$ 13.92	9.5
Exercisable at end of period	—	\$ —	—

During the year ended December 31, 2016, the Company awarded certain employees market condition stock options under the 2015 Plan, included in the activity above, that vest under specified market conditions. Each employee was generally awarded two equal tranches of market condition stock options that immediately vest when the Company's common stock trades at either \$30 or \$40 per share for ninety consecutive calendar days. At December 31, 2016, there was \$14,956 of unrecognized pre-tax stock-based compensation expense related to non-vested stock options with market conditions, which the Company expects to recognize over the remaining weighted-average three year period.

Note 15 International Retirement Plan

The Company sponsors a non-contributory defined benefit pension plan for certain employees of a non-U.S. subsidiary initiated by a predecessor of the subsidiary. The Company maintains insurance contracts that provide an annuity that is used to fund the current obligations under this plan. The net present value of the annuity was \$2,760 and \$2,741 as of December 31, 2016 and 2015, respectively. The net present value of that annuity is included in "Other assets, net" on the Company's consolidated balance sheets at December 31, 2016 and 2015. The following table provides a reconciliation of the changes in the projected benefit obligation for the years ended December 31, 2016 and 2015:

<i>(in thousands)</i>	2016	2015
Reconciliation of benefit obligations:		
Obligations as of January 1	\$ 6,328	\$ 7,194
Service cost	154	178
Interest cost	159	156
Actuarial (gain) loss	1,437	(338)
Benefit payments	(120)	(119)
Effect of foreign currency exchange rate changes	(231)	(743)
Obligations as of December 31	7,727	6,328
Funded status as of December 31 (net of tax benefit)	\$ (7,727)	\$ (6,328)

For the year ended December 31, 2016, the Company recorded a \$1,437 loss, net of \$128 of actuarial amortization and a \$407 tax benefit, as a \$902 adjustment to "Accumulated other comprehensive income (loss)" in accordance with ASC 715, "Compensation – Retirement Benefits." For the year ended December 31, 2015, the Company recorded a \$338 gain and \$154 of actuarial amortization, net of a \$154 tax provision, as a \$338 adjustment to "Accumulated other comprehensive income (loss)"

The Company has recognized the following amounts in the consolidated balance sheets at December 31, 2016 and 2015:

<i>(in thousands)</i>	2016	2015
Accrued liabilities	\$ 114	\$ 117
Other liabilities	7,613	6,211
Projected benefit obligation	7,727	6,328
Accumulated other comprehensive income	(2,775)	(1,873)
Total	\$ 4,952	\$ 4,455

The following projected benefit obligation and accumulated benefit obligation were estimated as of December 31, 2016 and 2015:

<i>(in thousands)</i>	2016	2015
Projected benefit obligation	\$ 7,727	\$ 6,328
Accumulated benefit obligation	\$ 6,905	\$ 5,738

The following table shows the components of net periodic benefit costs and other amounts recognized in other comprehensive income (loss):

<i>(in thousands)</i>	2016	2015
Net periodic benefit cost:		
Service cost	\$ 154	\$ 178
Interest cost	159	156
Amortization of actuarial loss	128	154
Total	\$ 441	\$ 488
Other changes in plan assets and benefit obligations recognized in other comprehensive income:		
Net (gain) loss	1,437	(338)
Total expense recognized in net periodic benefit cost and other comprehensive income	\$ 1,878	\$ 150

The following assumptions are used to determine benefit obligations as of December 31:

	2016	2015
Discount rate	1.60%	2.50%
Rate of compensation	3.00%	2.50%

The following benefit payments, including expected future service cost, are expected to be paid:

<i>(in thousands)</i>		
Estimated future benefit payments:		
2017	\$	129
2018		131
2019		145
2020		173
2021		176
2022-2026		1,077

Note 16 Warranty Contracts

The Company provides product warranties for up to one year, or longer if required by applicable laws or regulations, as part of sales transactions for certain of its printers. Warranty revenue is recognized ratably over the term of the warranties, which is the period during which the related costs are incurred. This warranty provides the customer with maintenance on the equipment during the warranty period and provides for certain repair, labor and replacement parts that may be required. In connection with this activity, the Company recognized warranty revenue and incurred warranty costs as shown in the table below.

Warranty Revenue Recognition:

<i>(in thousands)</i>	Beginning Balance Deferred Warranty	Warranty Revenue Deferred	Warranty Revenue Recognized	Ending Balance Deferred Warranty
Year Ended December 31,				
2016	\$ 10,663	\$ 12,859	\$ (14,471)	\$ 9,051
2015	11,914	15,349	(16,600)	10,663
2014	9,141	17,185	(14,412)	11,914

Warranty Costs Incurred:

<i>(in thousands)</i>	Materials	Labor and Overhead	Total
Year Ended December 31,			
2016	\$ 6,851	\$ 6,862	\$ 13,713
2015	6,202	5,559	11,761
2014	5,958	5,440	11,398

Note 17 Computation of Net Income (Loss) per Share

The Company presents basic and diluted income (loss) per share amounts. Basic income (loss) per share is calculated by dividing net loss attributable to 3D Systems Corporation by the weighted average number of common shares outstanding during the applicable period. Diluted income (loss) per share is calculated by dividing net loss by the weighted average number of common and common equivalent shares outstanding during the applicable period. The following table reconciles basic weighted average outstanding shares to diluted weighted average outstanding for the years ended December 31, 2016, 2015 and 2014:

<i>(in thousands, except per share amounts)</i>	2016	2015	2014
Numerator for basic and diluted net loss per share:			
Net income (loss) attributable to 3D Systems Corporation	\$ (38,419)	\$ (655,492)	\$ 11,637
Denominator for basic and diluted net loss per share:			
Weighted average shares	111,189	111,969	108,023
Net income (loss) per share, basic and diluted	\$ (0.35)	\$ (5.85)	\$ 0.11

For the year ended December 31, 2016, there were 2,060 potential common shares of unvested stock options excluded from diluted loss per share and 3,003 potential common shares of unvested restricted stock awards and shares issuable upon the vesting of restricted stock units excluded from diluted loss per share, as the Company had a net loss for the year.

For the year ended December 31, 2015, there were 1,117 potential common shares of unvested restricted stock awards and shares issuable upon the vesting of restricted stock units excluded from diluted loss per share, as the Company had a net loss for the year.

Note 18 Noncontrolling Interests

As of December 31, 2016, the Company owned approximately 70% of the capital and voting rights of Robtec, a service bureau and distributor of 3D printing and scanning products. Robtec was acquired on November 25, 2014.

As of December 31, 2016, the Company owned approximately 65% of the capital and voting rights of Easyway, a service bureau and distributor of 3D printing and scanning products in China. Easyway was acquired on April 2, 2015.

Note 19 Fair Value Measurements

ASC 820, “Fair Value Measurements and Disclosures,” defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. ASC 820 also establishes a fair value hierarchy that requires an entity to maximize the use of observable inputs that may be used to measure fair value:

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

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

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

For the Company, the above standard applies to cash equivalents and earnout consideration. The Company utilizes the market approach to measure fair value for its financial assets and liabilities. The market approach uses prices and other relevant information generated by market transactions involving identical or comparable assets or liabilities:

Fair Value Measurements as of December 31, 2016				
(in thousands)	Level 1	Level 2	Level 3	Total
Description				
Cash equivalents ^(a)	\$ 25,206	\$ —	\$ —	\$ 25,206
Earnout consideration ^(b)	\$ —	\$ —	\$ 10,806	\$ 10,806

Fair Value Measurements as of December 31, 2015				
(in thousands)	Level 1	Level 2	Level 3	Total
Description				
Cash equivalents ^(a)	\$ 26,648	\$ —	\$ —	\$ 26,648
Earnout consideration ^(b)	\$ —	\$ —	\$ 9,673	\$ 9,673

^(a) Cash equivalents include funds held in money market instruments and are reported at their current carrying value, which approximates fair value due to the short-term nature of these instruments and are included in cash and cash equivalents in the consolidated balance sheet.

^(b) The fair value of the earnout consideration, which is based on the present value of the expected future payments to be made to the sellers of the acquired businesses, was derived by analyzing the future performance of the acquired businesses using the earnout formula and performance targets specified in each purchase agreement and adjusting those amounts to reflect the ability of the acquired entities to achieve the stated targets. Given the significance of the unobservable inputs, the valuations are classified in Level 3 of the fair value hierarchy. The change in earnout consideration from December 31, 2015 to December 31, 2016 reflects a \$54 adjustment to the expected payment and \$1,079 of accretion.

The Company did not have any transfers of assets and liabilities between levels of the fair value measurement hierarchy during the quarter or year ended December 31, 2016.

In addition to the assets and liabilities included in the above table, certain of our assets and liabilities are to be initially measured at fair value on a non-recurring basis. This includes goodwill and other intangible assets measured at fair value for impairment assessment. For further discussion on the valuation techniques and inputs used in the fair value measurement of goodwill and other intangible assets, see Notes 2, 6 and 7.

Note 20 Income Taxes

The components of the Company's income before income taxes are as follows:

<i>(in thousands)</i>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Income before income taxes:			
Domestic	\$ (53,868)	\$ (580,720)	\$ 5,751
Foreign	14,056	(74,233)	11,636
Total	<u>\$ (39,812)</u>	<u>\$ (654,953)</u>	<u>\$ 17,387</u>

The components of income tax provision for the years ended December 31, 2016, 2015 and 2014 are as follows:

	<u>2016</u>	<u>2015</u>	<u>2014</u>
Current:			
U.S. federal	\$ (2,110)	\$ 10,753	\$ 23,336
State	30	169	72
Foreign	8,099	925	6,588
Total	<u>6,019</u>	<u>11,847</u>	<u>29,996</u>
Deferred:			
U.S. federal	(1,245)	(5,252)	(21,624)
State	—	(225)	(87)
Foreign	(5,321)	2,602	(2,844)
Total	<u>(6,566)</u>	<u>(2,875)</u>	<u>(24,555)</u>
Total income tax (benefit) provision	<u>\$ (547)</u>	<u>\$ 8,972</u>	<u>\$ 5,441</u>

The overall effective tax rate differs from the statutory federal tax rate for the years ended December 31, 2016, 2015 and 2014 as follows:

	<u>% of Pretax Income</u>		
	<u>2016</u>	<u>2015</u>	<u>2014</u>
Tax provision based on the federal statutory rate	35.0 %	35.0 %	35.0 %
Nondeductible expenses	(1.1)	(0.1)	12.5
Foreign exchange loss	9.4	—	—
Uncertain tax positions	(25.1)	(0.5)	11.2
Deemed income related to foreign operations	(8.4)	(0.6)	8.1
Return to provision adjustments — foreign tax credit	8.4	(0.7)	2.5
Return to provision adjustments — research and development credit	4.0	—	—
Return to provision adjustments — non-consolidated U.S. entities	6.4	—	—
Impairment of definite lived intangibles	3.1	—	—
Foreign income tax rate differential	3.1	(2.0)	0.5
State taxes, net of federal benefit, before valuation allowance	3.9	0.9	0.3
Increase in valuation allowances	(58.5)	(16.4)	—
Impairment of goodwill with no tax basis	—	(16.8)	—
Foreign tax credits related to above	6.5	0.2	(6.3)
Deferred tax adjustment — deferred revenue	7.6	—	—
Deferred tax adjustment — state tax credits	1.4	—	—
Deferred tax adjustments — other	4.0	—	—
Domestic production activities deduction	—	—	(12.0)
Research credits	—	—	(21.9)
Other	1.7	(0.4)	1.4
Effective tax rate	<u>1.4 %</u>	<u>(1.4)%</u>	<u>31.3 %</u>

The difference between the Company's effective tax rate for 2016 and the federal statutory rate was 33.6 percentage points. The difference in the effective rate is due primarily to the change in valuation allowance that was recorded during the year, as well as the Company's foreign income inclusions, return to provision adjustments and lower foreign statutory rates.

The difference between the Company's effective tax rate for 2015 and the federal statutory rate was 36.4 percentage points. The Company recorded nondeductible expenses, including non-deductible goodwill impairment charges and a valuation allowance in the U.S. and certain foreign jurisdictions, which contributed to a difference in the effective tax rate.

The difference between the Company's effective tax rate for 2014 and the federal statutory rate was 3.7 percentage points. The Company incurred nondeductible expenses and recognized income for tax purposes, net of tax credits, not included in financial statement income, increasing the effective tax rate. The Company is benefiting from the U.S. domestic production activities deduction and from research credits, reducing the effective tax rate.

In 2016, there were no changes to the Company's valuation allowance assertions. During the fourth quarter of 2015, based upon the Company's review of results of operations and forecast estimates in connection with the assessment of deferred tax benefits, the Company determined that it is more likely than not that the deferred tax assets in the US and certain foreign jurisdictions will not be realized. In 2014, the Company had no valuation allowance against net deferred income tax assets.

The components of the Company's net deferred income tax assets and net deferred income tax liabilities at December 31, 2016 and 2015 are as follows:

<i>(in thousands)</i>	2016	2015
Deferred income tax assets:		
Intangibles	\$ 40,014	\$ 46,293
Stock options and restricted stock awards	14,384	22,010
Reserves and allowances	20,022	18,738
Net operating loss carryforwards	29,398	16,796
Tax credit carryforwards	13,571	8,610
Accrued liabilities	5,330	4,943
Deferred revenue	3,502	405
Valuation allowance	(109,913)	(107,312)
Total deferred income tax assets	16,308	10,483
Deferred income tax liabilities:		
Intangibles	16,968	22,676
Property, plant and equipment	8,818	3,851
Total deferred income tax liabilities	25,786	26,527
Net deferred income tax liabilities	<u>\$ (9,478)</u>	<u>\$ (16,044)</u>

At December 31, 2016, \$29,398 of the Company's deferred income tax assets was attributable to \$148,199 of gross operating loss carryforwards, which consisted of \$50,587 loss carryforwards for U.S. federal income tax purposes, \$78,274 of loss carryforwards for U.S. state income tax purposes and \$19,338 of loss carryforwards for foreign income tax purposes.

At December 31, 2015, \$16,796 of the Company's deferred income tax assets was attributable to \$85,609 of gross net operating loss carryforwards, which consisted of \$33,606 loss carryforwards for U.S. federal income tax purposes, \$34,492 of loss carryforwards for U.S. state income tax purposes and \$17,511 of loss carryforwards for foreign income tax purposes.

The net operating loss carryforwards for U.S. federal income tax purposes begin to expire in 2022. The net operating loss carryforwards for U.S. state income tax purposes begin to expire in 2017. In addition, certain loss carryforwards for foreign income tax purposes begin to expire in 2018 and certain other loss carryforwards for foreign purposes do not expire.

At December 31, 2016, tax credit carryforwards included in the Company's deferred income tax assets consisted of \$2,544 of research and experimentation credit carryforwards for U.S. federal income tax purposes, \$2,649 of research and experimentation tax credit carryforwards for U.S. state income tax purposes, \$7,155 of foreign tax credits for U.S. federal income tax purposes, \$474 of other U.S. federal tax credits, \$149 of research and experimentation tax credit carryforwards for foreign income tax purposes and \$600 of other state tax credits. Certain state research and experimentation credits begin to expire in 2017; other state credits begin to expire in 2024. The Company recorded a valuation allowance related to the U.S. federal and state tax credits.

At December 31, 2015, tax credit carryforwards included in the Company's deferred income tax assets consisted of \$2,544 of research and experimentation credit carryforwards for U.S. federal income tax purposes, \$2,082 of research and experimentation tax credit carryforwards for U.S. state income tax purposes, \$2,740 of foreign tax credits for U.S. federal income tax purposes, \$474 of other U.S. federal tax credits, \$155 of research and experimentation tax credit carryforwards for foreign income tax purposes and \$615 of other state tax credits. The state research and experimentation credits do not expire; the other state credits begin to expire in 2017. The Company recorded a valuation allowance related to the U.S. federal and state tax credits.

During 2016, the Company decreased its deferred tax asset in the amount of approximately \$17,849 with the offset to other comprehensive loss. Additionally, a decrease in the Company's valuation allowance of approximately \$17,849 was allocated to accumulated other comprehensive loss in the consolidated balance sheets.

The Company has not provided for any taxes on approximately \$38,545 of unremitted earnings of its foreign subsidiaries, as the Company intends to permanently reinvest all such earnings outside the U.S. The Company believes a calculation of the deferred tax liability associated with these undistributed earnings is impracticable.

Including interest and penalties, the Company increased its unrecognized benefits by \$10,077 and \$6,451 for the years ended December 31, 2016 and 2015, respectively. The Company does not anticipate any additional unrecognized tax benefits during the next 12 months that would result in a material change to its consolidated financial position. The Company includes interest and penalties in the Consolidated Financial Statements as a component of income tax expense.

<i>(in thousands)</i>	Unrecognized Tax Benefits		
	2016	2015	2014
Balance at January 1	\$ (8,296)	\$ (1,845)	\$ (16)
Increases related to prior year tax positions	(2,658)	—	—
Decreases related to prior year tax positions	—	1,475	—
Increases related to current year tax positions	(7,297)	(7,926)	(1,829)
Decreases related to current year tax positions	—	—	—
Decreases in unrecognized liability due to settlements with foreign tax authorities	—	—	—
Balance at December 31	<u>\$ (18,251)</u>	<u>\$ (8,296)</u>	<u>\$ (1,845)</u>

Tax years 2003 through 2015 remain subject to examination by the U.S. Internal Revenue Service, with most of the years open to examination due to the generation and utilization of net operating losses. The Company files income tax returns (which are open to examination beginning in the year shown in parentheses) in Australia (2012), Belgium (2013), Brazil (2011), China (2013), France (2013), Germany (2012), India (2013), Israel (2012), Italy (2011), Japan (2011), Korea (2011), Mexico (2011), Netherlands (2011), Switzerland (2011), the United Kingdom (2015) and Uruguay (2011).

Note 21 Segment Information

The Company operates in one reportable business segment. The Company conducts its business through various offices and facilities located throughout the APAC region (Australia, China, India, Japan and Korea), Europe (Belgium, France, Germany, Italy, the Netherlands, Switzerland and the United Kingdom), Israel, Latin America (Brazil, Mexico and Uruguay), Russia and the United States. The Company has historically disclosed summarized financial information for the geographic areas of operations as if they were segments in accordance with ASC 280, "Segment Reporting." Financial information concerning the Company's geographical locations is based on the location of the selling entity. Such summarized financial information concerning the Company's geographical operations is shown in the following tables:

<i>(in thousands)</i>	2016	2015	2014
Revenue from unaffiliated customers:			
Americas	\$ 340,885	\$ 357,976	\$ 333,925
Germany	78,979	82,872	87,021
Other EMEA	114,162	117,232	109,066
Asia Pacific	98,939	108,083	123,640
Total revenue	<u>\$ 632,965</u>	<u>\$ 666,163</u>	<u>\$ 653,652</u>

<i>(in thousands)</i>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Revenue by class of product and service:			
Products	\$ 223,544	\$ 257,379	\$ 283,339
Materials	156,839	150,740	158,859
Services	252,582	258,044	211,454
Total revenue	<u>\$ 632,965</u>	<u>\$ 666,163</u>	<u>\$ 653,652</u>

<u>Year Ended December 31, 2016</u>					
<u>Intercompany Sales to</u>					
<i>(in thousands)</i>	<u>Americas</u>	<u>Germany</u>	<u>Other EMEA</u>	<u>Asia Pacific</u>	<u>Total</u>
Americas	\$ 3,013	\$ 28,881	\$ 10,958	\$ 21,639	\$ 64,491
Germany	4,123	—	3,850	166	8,139
Other EMEA	61,086	3,365	5,071	5,925	75,447
Asia Pacific	3,046	—	369	3,959	7,374
Total	<u>\$ 71,268</u>	<u>\$ 32,246</u>	<u>\$ 20,248</u>	<u>\$ 31,689</u>	<u>\$ 155,451</u>

<u>Year Ended December 31, 2015</u>					
<u>Intercompany Sales to</u>					
<i>(in thousands)</i>	<u>Americas</u>	<u>Germany</u>	<u>Other EMEA</u>	<u>Asia Pacific</u>	<u>Total</u>
Americas	\$ 3,073	\$ 36,552	\$ 17,133	\$ 17,602	\$ 74,360
Germany	70	—	6,149	125	6,344
Other EMEA	58,419	4,232	3,494	6,047	72,192
Asia Pacific	3,027	4	79	3,585	6,695
Total	<u>\$ 64,589</u>	<u>\$ 40,788</u>	<u>\$ 26,855</u>	<u>\$ 27,359</u>	<u>\$ 159,591</u>

<u>Year Ended December 31, 2014</u>					
<u>Intercompany Sales to</u>					
<i>(in thousands)</i>	<u>Americas</u>	<u>Germany</u>	<u>Other EMEA</u>	<u>Asia Pacific</u>	<u>Total</u>
Americas	\$ 201	\$ 43,841	\$ 20,581	\$ 14,433	\$ 79,056
Germany	3,217	—	6,742	8	9,967
Other EMEA	42,622	3,115	2,066	2,739	50,542
Asia Pacific	2,283	—	—	2,774	5,057
Total	<u>\$ 48,323</u>	<u>\$ 46,956</u>	<u>\$ 29,389</u>	<u>\$ 19,954</u>	<u>\$ 144,622</u>

<i>(in thousands)</i>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Income (loss) from operations:			
Americas	\$ (53,725)	\$ (596,283)	\$ (24,663)
Germany	8,032	5,271	2,749
Other EMEA	(9,645)	(76,472)	9,181
Asia Pacific	19,591	27,432	40,131
Subtotal	(35,747)	(640,052)	27,398
Inter-segment elimination	(2,673)	(1,872)	(1,083)
Total	<u>\$ (38,420)</u>	<u>\$ (641,924)</u>	<u>\$ 26,315</u>

<i>(in thousands)</i>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Depreciation and amortization:			
Americas	\$ 25,892	\$ 43,613	\$ 38,876
Germany	881	1,011	1,075
Other EMEA	29,065	33,585	11,427
Asia Pacific	4,697	4,860	3,810
Total	<u>\$ 60,535</u>	<u>\$ 83,069</u>	<u>\$ 55,188</u>

<i>(in thousands)</i>	2016	2015	2014
Capital expenditures:			
Americas	\$ 8,172	\$ 14,062	\$ 18,187
Germany	307	613	235
Other EMEA	5,640	6,856	3,680
Asia Pacific	2,448	868	625
Total	<u>\$ 16,567</u>	<u>\$ 22,399</u>	<u>\$ 22,727</u>

<i>(in thousands)</i>	At December 31,		
	2016	2015	2014
Assets:			
Americas	\$ 345,412	\$ 382,738	\$ 1,018,113
Germany	40,547	36,782	47,524
Other EMEA	341,616	369,302	384,830
Asia Pacific	121,578	103,137	79,843
Total	<u>\$ 849,153</u>	<u>\$ 891,959</u>	<u>\$ 1,530,310</u>

<i>(in thousands)</i>	At December 31,		
	2016	2015	2014
Cash and cash equivalents:			
Americas	\$ 105,750	\$ 98,913	\$ 245,219
Germany	8,885	3,901	6,640
Other EMEA	35,992	30,487	15,556
Asia Pacific	34,320	22,342	17,447
Total	<u>\$ 184,947</u>	<u>\$ 155,643</u>	<u>\$ 284,862</u>

<i>(in thousands)</i>	At December 31,		
	2016	2015	2014
Long-lived assets:			
Americas	\$ 96,016	\$ 113,364	\$ 570,049
Germany	14,757	14,088	19,994
Other EMEA	247,786	271,892	312,384
Asia Pacific	57,644	60,148	47,193
Total	<u>\$ 416,203</u>	<u>\$ 459,492</u>	<u>\$ 949,620</u>

Note 22 Commitments and Contingencies

The Company leases certain of its facilities and equipment under non-cancelable operating leases. See Note 12.

As of December 31, 2016, the Company has supply commitments for printer and other product assemblies that totaled \$54,937 compared to \$50,663 at December 31, 2015.

Certain of the Company's acquisitions contain earnout provisions under which the sellers of the acquired businesses can earn additional amounts. The total liability recorded for these earnouts at December 31, 2016 was \$10,806. At December 31, 2015, in addition to earnout provisions, certain of the Company's acquisitions also contained deferred purchase payment arrangements. The total liability recorded for these earnouts and deferred purchase payment arrangements totaled \$9,832 at December 31, 2015.

Put Options

The minority interest shareholders of a certain subsidiary have the right in certain circumstances to require the Company to acquire either a portion of or all of the remaining ownership interests held by them. The owners' ability to exercise any such "put option" right is subject to the satisfaction of certain conditions, including conditions requiring notice in advance of exercise. In addition, these rights cannot be exercised prior to a specified exercise date. The exercise of these rights at their earliest contractual date would result in obligations of the Company to fund the related amounts in 2019.

Management estimates, assuming that the subsidiary owned by the Company at December 31, 2016 performs over the relevant future periods at its forecasted earnings levels, that these rights, if exercised, could require the Company, in future periods, to pay approximately \$8,872 to the owners of such put rights that require the Company to acquire such ownership interests in the relevant subsidiary. This amount has been recorded as redeemable noncontrolling interests on the balance sheet as of December 31, 2016 and 2015. The ultimate amount payable relating to this transaction will vary because it is dependent on the future results of operations of the subject business.

Indemnification

In the normal course of business, the Company periodically enters into agreements to indemnify customers or suppliers against claims of intellectual property infringement made by third parties arising from the use of the Company's products. Historically, costs related to these indemnification provisions have not been significant, and the Company is unable to estimate the maximum potential impact of these indemnification provisions on its future results of operations.

To the extent permitted under Delaware law, the Company indemnifies its directors and officers for certain events or occurrences while the director or officer is, or was, serving at the Company's request in such capacity, subject to limited exceptions. The maximum potential amount of future payments the Company could be required to make under these indemnification obligations is unlimited; however, the Company has directors and officers insurance coverage that may enable the Company to recover future amounts paid, subject to a deductible and the policy limits. There is no assurance that the policy limits will be sufficient to cover all damages, if any.

Litigation

Securities and Derivative Litigation

The Company and certain of its former executive officers have been named as defendants in a consolidated putative stockholder class action lawsuit pending in the United States District Court for the District of South Carolina. The consolidated action is styled *KBC Asset Management NV v. 3D Systems Corporation, et al.*, Case No. 0:15-cv-02393-MGL. The Amended Consolidated Complaint (the "Complaint"), which was filed on December 9, 2015, alleges that defendants violated the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Rule 10b-5 promulgated thereunder by making false and misleading statements and omissions and that the former officers are control persons under Section 20(a) of the Exchange Act. The Complaint was filed on behalf of stockholders who purchased shares of the Company's common stock between October 29, 2013, and May 5, 2015 and seeks monetary damages on behalf of the purported class. Defendants filed a motion to dismiss the Complaint in its entirety on January 14, 2016, which was denied by Memorandum Opinion and Order dated July 25, 2016 (the "Order"). Defendants filed a motion for reconsideration of the Order on August 4, 2016, which was denied by Order dated February 24, 2017.

Nine related derivative complaints have been filed by purported Company stockholders against certain of the Company's former executive officers and members of its Board of Directors. The Company is named as a nominal defendant in all nine actions. The derivatives complaints are styled as follows: (1) *Steyn v. Reichental, et al.*, Case No. 2015-CP-46-2225, filed on July 27, 2015 in the Court of Common Pleas for the 16th Judicial Circuit, County of York, South Carolina ("Steyn"); (2) *Piguing v. Reichental, et al.*, Case No. 2015-CP-46-2396, filed on August 7, 2015 in the Court of Common Pleas for the 16th Judicial Circuit, County of York, South Carolina ("Piguing"); (3) *Booth v. Reichental, et al.*, Case No. 15-692-RGA, filed on August 6, 2015 in the United States District Court for the District of Delaware; (4) *Nally v. Reichental, et al.*, Case No. 15-cv-03756-MGL, filed on September 18, 2015 in the United States District Court for the District of South Carolina; (5) *Gee v. Hull, et al.*, Case No. BC-610319, filed on February 17, 2016 in the Superior Court for the State of California, County of Los Angeles ("Gee"); (6) *Foster v. Reichental, et al.*, Case No. 0:16-cv-01016-MGL, filed on April 1, 2016 in the United States District Court for the District of South Carolina; (7) *Lu v. Hull, et al.*, Case No. BC629730, filed on August 5, 2016 in the Superior Court for the State of California, County of Los Angeles ("Lu"); (8) *Howes v. Reichental, et al.*, Case No. 0:16-cv-2810-MGL, filed on August 11, 2016 in the United States District Court for the District of South Carolina; and (9) *Ameduri v. Reichental, et al.*, Case No. 0:16-cv-02995-MGL, filed on September 1, 2016 in the United States District Court for the District of South Carolina. Steyn and Piguing were consolidated into one action styled as *In re 3D Systems Corp. Shareholder Derivative Litig.*, Lead Case No. 2015-CP-46-2225 in the Court of Common Pleas for the 16th Judicial Circuit, County of York, South Carolina. Gee and Lu were consolidated into one action styled as *Gee v. Hull, et al.*, Case No. BC610319 in the Superior Court for the State of California, County of Los Angeles.

The derivative complaints allege claims for breach of fiduciary duty, abuse of control, gross mismanagement, waste of corporate assets and unjust enrichment and seek, among other things, monetary damages and certain corporate governance actions.

All of the derivative complaints listed above have been stayed until the earlier of the close of discovery or the deadline for appealing a dismissal in the KBC Asset Management NV securities class action.

The Company believes the claims alleged in the putative securities class action and the derivative lawsuits are without merit and intends to defend the Company and its officers and directors vigorously.

Ronald Barranco and Print3D Corporation v. 3D Systems Corporation, et. al.

On August 23, 2013, Ronald Barranco, a former Company employee, filed two lawsuits against the Company and certain officers in the United States District Court for the District of Hawaii. The first lawsuit (“Barranco I”) is captioned *Ronald Barranco and Print3D Corporation v. 3D Systems Corporation, 3D Systems, Inc., and Damon Gregoire*, Case No. CV 13-411 LEK RLP, and alleges seven causes of action relating to the Company’s acquisition of Print3D Corporation (of which Mr. Barranco was a 50% shareholder) and the subsequent employment of Mr. Barranco by the Company. The second lawsuit (“Barranco II”) is captioned *Ronald Barranco v. 3D Systems Corporation, 3D Systems, Inc., Abraham Reichental, and Damon Gregoire*, Case No. CV 13-412 LEK RLP, and alleges the same seven causes of action relating to the Company’s acquisition of certain website domains from Mr. Barranco and the subsequent employment of Mr. Barranco by the Company. Both Barranco I and Barranco II allege the Company breached certain purchase agreements in order to avoid paying Mr. Barranco additional monies pursuant to royalty and earn out provisions in the agreements. The Company and its officers timely filed responsive pleadings on October 22, 2013 seeking, *inter alia*, to dismiss Barranco I due to a mandatory arbitration agreement and for lack of personal jurisdiction and to dismiss Barranco II for lack of personal jurisdiction.

With regard to Barranco I, the Hawaii district court, on February 28, 2014, denied the Company’s motion to dismiss and its motion to transfer venue to South Carolina for the convenience of the parties. However, the Hawaii court recognized that the plaintiff’s claims are all subject to mandatory and binding arbitration in Charlotte, North Carolina. Because the Hawaii court was without authority to compel arbitration outside of Hawaii, the court ordered that the case be transferred to the district court encompassing Charlotte (the United States District Court for the Western District of North Carolina) so that court could compel arbitration in Charlotte. On April 17, 2014, Barranco I was transferred in to the Western District of North Carolina. Plaintiff filed a demand for arbitration on October 29, 2014. On December 9, 2014, the Company filed its answer to plaintiff’s demand for arbitration. On February 2, 2015, plaintiff filed an amended demand that removed Mr. Gregoire as a defendant from the matter, and on February 4, 2015 the Company filed its amended answer. The parties selected an arbitrator and arbitration took place in June 2015 in Charlotte, North Carolina.

On September 28, 2015, the arbitrator issued a final award in favor of Mr. Barranco with respect to two alleged breaches of contract and implied covenants arising out of the contract. The arbitrator found that the Company did not commit fraud or make any negligent misrepresentations to Mr. Barranco. Pursuant to the award, the Company is to pay approximately \$11,282, which includes alleged actual damages of \$7,254, fees and expenses of \$2,318 and prejudgment interest of \$1,710. The Company disagrees with the single arbitrator’s findings and conclusions and believes the arbitrator’s decision exceeds his authority and disregards the applicable law. As an initial response, the Company filed a motion for modification on September 30, 2015, based on mathematical errors in the computation of damages and fees. On October 16, 2015, the arbitrator issued an order denying the Company’s motion and sua sponte issuing a modified final award in favor of Mr. Barranco in the same above-referenced amounts, but making certain substantive changes to the award, which changes the Company believes were improper and outside the scope of his authority and the American Arbitration Association rules. On November 20, 2015, the Company filed a motion to vacate the arbitration award in the federal court in the Western District of North Carolina. Claimants also filed a motion to confirm the arbitration award. A hearing was held on the motions on June 29, 2016 in federal court in the Western District of North Carolina. The court requested supplemental briefing by the parties, which briefs were filed on July 11, 2016.

On August 31, 2016, the court issued an Order granting in part and denying in part Plaintiff’s motion to confirm the arbitration award and for judgment, entering judgment in the principal amount of the arbitration award and denying Plaintiff’s motion for fees and costs. The court denied the Company’s motion to vacate. On September 7, 2016, Plaintiff filed a motion to amend the judgment to include prejudgment interest. The Company opposed that motion and the parties submitted briefing, which is currently pending before the court. On September 28, 2016 the Company filed a motion to alter or amend the judgment. Plaintiff opposed the motion and the parties submitted briefing, which is currently pending before the court.

Notwithstanding the Company’s right to appeal, given the arbitrator’s decision, the Company recorded an \$11,282 expense provision for this matter in the quarter ended September 30, 2015. The provision is subject to adjustment based on the ultimate outcome of the Company’s appeal. If it is ultimately determined that money is owed following the full appellate process in federal court, the Company intends to fund any amounts to be paid from cash on hand. This amount has been classified as a long-term liability given the customary timeline of an appeals process. The Company will review this classification periodically.

With regard to Barranco II, the Hawaii district court, on March 17, 2014, denied the Company's motion to dismiss and its motion to transfer venue to South Carolina. However, the Hawaii court dismissed Count II in plaintiff's complaint alleging breach of the employment agreement. The Company filed an answer to the complaint in the Hawaii district court on March 31, 2014. On November 19, 2014, the Company filed a motion for summary judgment on all claims which was heard on January 20, 2015. On January 30, 2015, the court entered an order granting in part and denying in Part the Company's motion for summary judgment. The Order narrowed the plaintiff's claim for breach of contract and dismissed the plaintiff's claims for fraud and negligent misrepresentation. As a result, Messrs. Reichental and Gregoire were dismissed from the lawsuit. The case was tried to a jury in May 2016, and on May 27, 2016 the jury found that the Company was not liable for either breach of contract or breach of the implied covenant of good faith and fair dealing. Additionally, the jury found in favor of the Company on its counterclaim against Mr. Barranco and determined that Mr. Barranco violated his non-competition covenant with the Company. The Court is expected to order an accounting with respect to the counterclaim.

The Company is involved in various other legal matters incidental to its business. Although the Company cannot predict the results of litigation with certainty, the Company believes that the disposition of these legal matters will not have a material adverse effect on its consolidated results of operations or consolidated financial position.

Note 23 Accumulated Other Comprehensive Income (Loss)

The changes in the balances of accumulated other comprehensive income (loss) by component are as follows:

<i>(in thousands)</i>	<u>Foreign currency translation adjustment</u>	<u>Liquidation of non- US entity</u>	<u>Defined benefit pension plan</u>	<u>Total</u>
Balance at December 31, 2014	\$ (22,195)	\$ —	\$ (2,211)	\$ (24,406)
Other comprehensive income (loss)	(15,480)	—	338	(15,142)
Balance at December 31, 2015	(37,675)	—	(1,873)	(39,548)
Other comprehensive income (loss)	(13,063)	288	(902)	(13,677)
Balance at December 31, 2016	<u>\$ (50,738)</u>	<u>\$ 288</u>	<u>\$ (2,775)</u>	<u>\$ (53,225)</u>

The amounts presented above are in other comprehensive loss and are net of taxes. For additional information about foreign currency translation, see Note 10. For additional information about the pension plan, see Note 15.

Note 24 Selected Quarterly Financial Data (unaudited)

The following tables set forth unaudited selected quarterly financial data:

<i>(in thousands, except per share amounts)</i>	2016			
	<u>Quarter Ended</u>			
	<u>December 31</u>	<u>September 30</u>	<u>June 30</u>	<u>March 31</u>
Consolidated revenue	\$ 165,937	\$ 156,362	\$ 158,111	\$ 152,555
Gross profit	82,890	68,937	80,411	77,513
Total operating expenses	78,817	90,954	84,128	94,272
Income (loss) from operations	4,073	(22,017)	(3,717)	(16,759)
Provision (benefit) for income taxes	(1,212)	(2,214)	1,700	1,179
Net income (loss) attributable to 3D Systems	5,230	(21,213)	(4,648)	(17,788)
Basic and diluted net income (loss) per share	\$ 0.05	\$ (0.19)	\$ (0.04)	\$ (0.16)

<i>(in thousands, except per share amounts)</i>	2015			
	<u>Quarter Ended</u>			
	<u>December 31</u>	<u>September 30</u>	<u>June 30</u>	<u>March 31</u>
Consolidated revenue	\$ 183,363	\$ 151,574	\$ 170,504	\$ 160,722
Gross profit	60,160	71,038	81,627	78,984
Total operating expenses	626,081	105,675	105,469	96,508
Loss from operations ^(a)	(565,921)	(34,637)	(23,842)	(17,524)
Provision (benefit) for income taxes	29,535	(3,524)	(10,096)	(6,943)
Net loss attributable to 3D Systems	(596,366)	(32,249)	(13,696)	(13,181)
Basic and diluted net loss per share	\$ (5.32)	\$ (0.29)	\$ (0.12)	\$ (0.12)

2014

<i>(in thousands, except per share amounts)</i>	Quarter Ended			
	December 31	September 30	June 30	March 31
Consolidated revenue	\$ 187,438	\$ 166,944	\$ 151,512	\$ 147,758
Gross profit	89,766	79,798	72,398	75,472
Total operating expenses	85,538	71,590	68,036	65,955
Income from operations	4,228	8,208	4,362	9,517
Provision for income taxes	75	1,113	694	3,559
Net income attributable to 3D Systems	1,551	3,084	2,125	4,877
Basic and diluted net income per share	\$ 0.01	\$ 0.03	\$ 0.02	\$ 0.05

- (a) For the quarter ended December 31, 2015, loss from operations includes \$443,659 of impairment charges related to goodwill and \$93,520 of impairment charges related to other intangible assets. In addition, the Company recognized cash and non-cash charges related to the end of life of the Cube printer and shift from consumer products and services, which totaled \$8,771 and \$18,619, respectively. See Notes 2, 4, 6 and 7 to the Consolidated Financial Statements.

The sum of per share amounts for each of the quarterly periods presented does not necessarily equal the total presented for the year because each quarterly amount is independently calculated at the end of each period based on the net income (loss) available to common stockholders for such period and the weighted average shares of outstanding common stock for such period.

Note 25 Subsequent Events

On January 31, 2017, the Company acquired 100 percent of the shares of Vertex-Global Holding B.V., a provider of dental materials worldwide under the Vertex and NextDent brands. The fair value of the consideration paid for this acquisition, net of cash acquired, was approximately \$37,562, of which approximately \$34,342 was paid in cash and approximately \$3,220 was paid in shares of the Company's common stock. Vertex Dental and NextDent are manufacturers of photopolymer, thermoplastic, polymer and monomer materials for traditional and 3D printing dental applications. NextDent has developed 12 dental 3D printing materials to date and has obtained regulatory approval for use of these materials in more than 70 countries worldwide. NextDent's portfolio of 3D printing materials allow dental professionals to produce trays, models, drilling templates, dentures, orthodontic splints, crowns and bridges with enhanced speed, precision and efficiency and lower cost compared to conventional procedures. See Note 3 to the Consolidated Financial Statements.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors of
3D Systems Corporation
Rock Hill, South Carolina

The audits referred to in our report dated February 28, 2017, relating to the Consolidated Financial Statements of 3D Systems Corporation for the years ended December 31, 2016, 2015 and 2014, which is contained in Item 8 of the Form 10-K, also included the audit of the financial statement schedule listed in the accompanying index. This financial statement schedule is the responsibility of the Company's management. Our responsibility is to express an opinion on the financial statement schedule based upon our audits.

In our opinion, the financial statement schedule, when considered in relation to the basic Consolidated Financial Statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

/s/ BDO USA, LLP
Charlotte, North Carolina
February 28, 2017

SCHEDULE II

3D Systems Corporation
Valuation and Qualifying Accounts
Years ended December 31, 2016, 2015 and 2014

Year Ended	Item	Balance at beginning of year	Additions charged to expense	Other	Balance at end of year
2016	Allowance for doubtful accounts	\$ 14,139	\$ 1,552	\$ (2,771)	\$ 12,920
2015	Allowance for doubtful accounts	10,300	3,766	73	14,139
2014	Allowance for doubtful accounts	8,133	8,699	(6,532)	10,300
2016	Deferred income tax asset valuation allowance	\$ 107,312	\$ 20,450	\$ (17,849)	\$ 109,913
2015	Deferred income tax asset valuation allowance	—	107,312	—	107,312
2014	Deferred income tax asset valuation allowance	—	—	—	—

Exhibit 21.1

3D Systems Corporation List of Subsidiaries

The following table sets forth the name and state or other jurisdiction of incorporation of the Company's subsidiaries. Except as otherwise indicated, each subsidiary is owned, directly or indirectly, by the Company.

Name	Jurisdiction of Incorporation
3D Canada Company	Canada
3D Holdings, LLC	Delaware
3D Systems S.A.	Switzerland
3D Systems, Inc.	California
3D Capital Corporation	California
3D European Holdings Ltd.	United Kingdom
3D Latam LLC(a)	Delaware
3D Systems Asia-Pacific Pty Ltd	Australia
3D Systems Benelux B.V.	The Netherlands
3D Systems Europe Ltd.	United Kingdom
3D Systems France SARL	France
3D Systems GmbH	Germany
3D Systems Hong Kong Co., Limited	Hong Kong
3D Systems India, Inc.	Delaware
3D Systems Italia S.r.l.	Italy
3D Systems Industria E Comercio LTDA	Brazil
3D Systems Japan K.K.	Japan
3D Systems Korea, Inc.	Korea
3D Systems Software GmbH	Germany
3D Systems Software srl	Italy
AMT, Inc.	Delaware
Beijing Suntop Technology Co., Ltd.(b)	China
botObjects Ltd	United Kingdom
Cimatron Ltd.	Israel
Cimatron (Beijing) Technologies Co. Ltd.	China
Cimatron (Guangzhou) Technologies Co. Ltd.	China
Cimatron Technologies India Pvt. Ltd.	India
Cimatron Technologies, Inc. (Canada)	Canada
Cimatron Technologies, Inc. (USA)	Michigan
Cimatron Gibbs LLC	California
Cimatron SARL	France
Gentle Giant Studios, Inc.	California
Geomagic (Shanghai) Software Co., Ltd.	Shanghai, China
Geomagic GmbH	Germany
Geomagic, Inc.	Delaware
Korea Cimatron Technologies	Korea
LayerWise NV	Belgium
LayerWise, Inc.	Delaware
Medical Modeling Inc.	Colorado
NextDent B.V.	The Netherlands
OptoForm LLC(c)	Delaware
Phenix Systems	France
Product Development Group LLC(d)	Delaware
Quickparts.com, Inc.	Delaware

Rapidform, Inc.	California
Rapid Prototyping SA	Uruguay
Robtec Ltda(a)	Mexico
Shanghai Forever Technology & Development Co., Ltd.(b)	China
Simbionix Ltd.	Israel
Simbionix USA Corporation	Ohio
Sint-Tech	France
Three D Sycode India Private Limited	India
Vertex-Dental B.V.	The Netherlands
Vertex-Dental Asia PTE Ltd	The Netherlands
Vertex-Global Holding B.V.	The Netherlands
Vertex International B.V.	The Netherlands
VIDAR Systems Corporation	Virginia
Village Plastics Co.	Ohio
Wuxi Bowell Industrial Design Co., Ltd.(b)	China
Wuxi Easyway Model Design & Manufacture Co, Ltd.(e)	China
Wuxi Hengxinda Science and Technology Development Co., Ltd.(b)	China
Z Corporation	Massachusetts

- (a) This company is owned directly or indirectly by Product Development Group LLC. See Note (d) below regarding our ownership interest in Product Development Group LLC.
- (b) This company is owned directly or indirectly by Wuxi Easyway Model Design & Manufacture Co., Ltd. See Note (e) below regarding our ownership interest in Wuxi Easyway Model Design & Manufacture Co., Ltd.
- (c) We directly or indirectly own 60% of the outstanding interests.
- (d) We directly or indirectly own 70% of the outstanding interests.
- (e) We directly or indirectly own 65% of the outstanding interests.

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors of
3D Systems Corporation
Rock Hill, South Carolina

We hereby consent to the incorporation by reference in the Registration Statements on Form S- 3 (No. 333196284) and Form S-8 (No. 333-115642 and No. 333-204305) of 3D Systems Corporation of our reports dated February 28, 2017, relating to the consolidated financial statements, financial statement schedule, and the effectiveness of 3D Systems Corporation's internal control over financial reporting, which is incorporated by reference in this Annual Report on Form 10-K.

/s/ BDO USA, LLP
Charlotte, North Carolina
February 28, 2017

Exhibit 31.1

Certification of Principal Executive Officer of 3D Systems Corporation

I, Vyomesh I. Joshi, certify that:

1. I have reviewed this report on Form 10-K of 3D Systems Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2017

By: /s/ Vyomesh I. Joshi
Vyomesh I. Joshi

Title: Chief Executive Officer, President and Director
(principal executive officer)

Exhibit 31.2

Certification of Principal Financial Officer of 3D Systems Corporation

I, John N. McMullen, certify that:

1. I have reviewed this report on Form 10-K of 3D Systems Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2017

By: /s/ John N. McMullen
John N. McMullen
Executive Vice President and Chief Financial
Title: Officer
(principal financial and accounting officer)

Exhibit 32.1

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

This certification is provided pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 and accompanies the Annual Report on Form 10-K (the "Form 10-K") for the year ended December 31, 2016 of 3D Systems Corporation (the "Issuer").

I, Vyomesh I. Joshi, the Chief Executive Officer, President and Director (principal executive officer) of the Issuer, certify that, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, to the best of my knowledge:

- (i) the Form 10-K fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934; and
- (ii) The information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Issuer.

Date: February 28, 2017

/s/ Vyomesh I. Joshi

Name: Vyomesh I. Joshi

(principal executive officer)

Exhibit 32.2

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

This certification is provided pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 and accompanies the Annual Report on Form 10-K (the "Form 10-K") for the year ended December 31, 2016 of 3D Systems Corporation (the "Issuer").

I, John N. McMullen, the Executive Vice President and Chief Financial Officer (principal financial and accounting officer) of the Issuer, certify that, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, to the best of my knowledge:

- (i) the Form 10-K fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934; and
- (ii) the information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Issuer.

Date: February 28, 2017

/s/ John N. McMullen

Name: John N. McMullen
(principal financial and
accounting officer)

RESTRICTED STOCK AWARD AGREEMENT

This RESTRICTED STOCK AWARD AGREEMENT (this “*Agreement*”), is made and entered into as of _____ (the “Date of Grant”), by and between 3D SYSTEMS CORPORATION, a Delaware corporation (the “*Company*”), and _____ (the “*Participant*”).

The 2015 Incentive Plan (the “*Plan*”) of 3D Systems Corporation is designed to assist the Company and its subsidiaries and affiliates in attracting and retaining employees and consultants of outstanding competence by providing an incentive that permits the persons responsible for the Company’s growth to share directly in that growth and to further the identity of their interests with the interests of the Company’s stockholders. The Participant is eligible to receive grants of shares of the Company’s common stock, \$0.001 par value per share (“*Common Stock*”) under Section 7 of the Plan.

NOW, THEREFORE, the Company and the Participant mutually agree as follows:

Section 1. Award of Restricted Stock

Subject to the terms and conditions hereinafter set forth, the Company hereby grants to the Participant and the Participant accepts from the Company, _____ (_____) shares of Common Stock (the “*Award Shares*”). The Participant will receive evidence of ownership of such shares of Common Stock within a reasonable time after execution of this Agreement.

Section 2. Terms and Conditions of Plan

The Participant agrees that the Award Shares shall be held in accordance with the terms and conditions of the Plan. The authority of the Company to enter into this Agreement and to issue shares of Common Stock pursuant hereto is derived exclusively from the Plan. If any terms or conditions of this Agreement conflict with any terms or conditions of the Plan, the terms and conditions of the Plan shall control. Any capitalized terms not defined herein shall have the meaning assigned to such term in the Plan. The Participant acknowledges that a copy of the Plan has been made available to the Participant.

Section 3. Restriction on Transfer

Until the Participant’s interest in the Award Shares become vested and nonforfeitable under Section 4 of this Agreement and except as permitted by Section 4 of this Agreement and Section 10 of the Plan, none of the Award Shares, or any interest therein, shall be sold, transferred, pledged, encumbered or otherwise disposed of by the Participant so long as the Participant shall remain a Participant of the Company, except that such restrictions may expire earlier as provided by Section 9 of the Plan.

Section 4. Forfeiture and Period of Restriction

Subject to the satisfaction of any and all of the conditions set forth in this Agreement the Participant’s interest in the Award Shares shall be vested and nonforfeitable on such date (the “*Vesting Date*”) that the Common Stock has attained the performance levels set forth below;

provided, that the Participant's employment with the Company has been continuous from the Date of Grant through the Vesting Date.

The Vesting Date shall be the earliest date following the six (6) month anniversary of the Date of Grant when the Fair Market Value of a share of Common Stock on each trading day of a ninety (90) consecutive day period is equal to or exceeds:

i. with respect to _____ (_____) Shares granted under this option, Thirty Dollars (\$30.00) per share; and

ii. with respect to _____ (_____) Shares, granted under this option, Forty Dollars (\$40.00) per share.

Notwithstanding anything contained in Section 7 of the Plan to the contrary, the Compensation Committee of the Board of Directors of the Company (the "*Committee*") may, in its sole discretion, waive the forfeiture period and any other conditions set forth in this Agreement under appropriate circumstances (including, but not limited to, the death, Disability or Retirement of the Participant or a material change in circumstances arising after the date of an Award) and subject to such terms and conditions (including forfeiture of a proportionate number of the Award Shares) as the Committee shall deem appropriate.

Any Award Shares that have not become vested and nonforfeitable on or before the date of a termination of the Participant's employment (for any reason) shall be forfeited on the date that the Participant is no longer employed by the Company, a Subsidiary or an Affiliate.

Section 5. Undertakings of Participant

The Participant represents and agrees that he or she will comply with the Securities Act of 1933, as amended (the "*Securities Act*"), and the Securities Exchange Act of 1934, as amended (the "*Securities Exchange Act*"), with respect to the Award Shares, and he or she will indemnify the Company for any costs, liabilities and expenses that it may sustain by reason of any violation of the Securities Act or the Securities Exchange Act caused by any act or omission on his or her part with respect to the Award Shares.

Section 6. Restrictive Legends and Stop-Transfer Instructions

The obligation of the Company to issue Common Stock upon execution of this Agreement shall be subject to all applicable laws, rules and regulations and to such approvals by governmental agencies as may be required. Stock certificates evidencing Common Stock issued under this Agreement may bear such restrictive legends and/or appropriate stop transfer instructions may be issued to the Company's transfer agent as the Company and the Company's counsel deem necessary under applicable law or pursuant to this Agreement.

Section 7. Registration of Shares

The Company shall use its reasonable commercial efforts to cause the shares of Common Stock issuable in connection with the Plan to be registered under the Securities Act, but shall otherwise be under no obligation to register any shares of Common Stock issued under the Plan under the Securities Act or otherwise. If, at the time any shares of Common Stock are issued

pursuant to the Plan, there shall not be on file with the Securities and Exchange Commission an effective Registration Statement under the Securities Act covering such shares of Common Stock, the Participant to whom such shares are to be issued will execute and deliver to the Company upon receipt by him or her of any such shares an undertaking, in form and substance satisfactory to the Company, that (i) such Participant has had access or will, by reason of such person's employment or service with the Company, or otherwise, have access to sufficient information concerning the Company to enable him or her to evaluate the merits and risks of the acquisition of shares of the Company's Common Stock pursuant to the Plan, (ii) such Participant has such knowledge and experience in financial and business matters that such person is capable of evaluating such acquisition, (iii) it is the intention of such Participant to acquire and hold such shares for investment and not for the resale or distribution thereof, (iv) such Participant will comply with the Securities Act and the Exchange Act with respect to such shares, and (v) such Participant will indemnify the Company for any cost, liability and expense that the Company may sustain by reason of any violation of the Securities Act or the Exchange Act occasioned by any act or omission on his or her part with respect to such shares.

Section 8. No Rights in Common Stock

The prospective recipient of a Restricted Stock award shall not have any right with respect to such award, unless and until the recipient has executed an agreement evidencing the award, delivered a fully executed copy thereof to the Company, and otherwise complied with the terms and conditions of such award and of Section 7 of the Plan, and then only from the date such person becomes the record owner of the shares of Restricted Stock. Once the conditions in the foregoing sentence have been satisfied, and except as provided in Section 4 of this Agreement, the Participant shall have with respect to an award of Restricted Stock all the rights of a stockholder of the Company, including the right to vote and to receive cash dividends (if any). The Committee, in its sole discretion, as determined at the time of the award, may permit or require such cash dividends (if any) to be reinvested in additional Restricted Stock, provided that sufficient shares of Common Stock are available under Section 3 of the Plan for such reinvestment (taking into account then outstanding awards under the Plan). Stock dividends issued with respect to Restricted Stock shall be treated as additional shares of Restricted Stock that are subject to the same restrictions and other terms and conditions that apply to the shares with respect to which such dividends are issued.

Section 9. Notices

Any notice that either party hereto may be required or permitted to give to the other shall be in writing and, except as otherwise required herein, may be delivered personally or by mail to the Company at 333 Three D Systems Circle, Rock Hill, South Carolina 29730, attention of the Secretary of the Company, or to the Participant at the address set forth below or at such other address as either party may designate by notice to the other.

Section 10. Adjustments

The number of Award Shares subject to the award under this Agreement and the terms of this Agreement shall be subject to adjustment in accordance with Section 3(a) of the Plan.

Section 11. Successors

The provisions of the Plan shall be binding upon and inure to the benefit of all successors of any person receiving Common Stock of the Corporation pursuant to the Plan, including, without limitation, the estate of such person and the executors, administrators or trustees thereof, the heirs and legatees of such person, and any receiver, trustee in bankruptcy or representative of creditors of such person.

Section 12. Company's Right to Terminate Retention; Exclusivity

Nothing contained in the Plan shall prevent the Board from adopting other or additional compensation arrangements or modifying existing compensation arrangements for Participants, subject to stockholder approval if such approval is required by applicable statute, rule or regulation; and such arrangements either may be generally applicable or applicable only in specific cases. Neither the adoption of the Plan nor the grant to the Participant of the Award Shares shall confer upon any Participant any right to continued employment or service with the Company, a Subsidiary or an Affiliate.

Section 13. Payment of Withholding Tax

The Participant undertakes to comply with any appropriate requests that may be made by the Company in respect of the withholding of any federal, state or local taxes and any other charges that may be required by law to be withheld by reason of a grant or the issuance of the Award Shares.

Section 14. Applicable Law

This Agreement shall be governed and construed in accordance with the laws of the State of Delaware.

Section 15. Severability

If any provision of this Agreement is held to be illegal, void or unenforceable for any reason, it shall be adjusted rather than voided, if possible, in order to achieve the intent of the parties to the extent possible. In any event, all other provisions of this Agreement shall be deemed valid and enforceable to the fullest extent possible.

Section 16. Electronic Delivery

The Company may, in its sole discretion, decide to deliver any documents related to your current or future participation in the Plan by electronic means or to request your consent to participate in the Plan by electronic means. You hereby consent to receive such documents by electronic delivery and agree to participate in the Plan through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

[*Signature Page to Follow*]

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed pursuant to due authorization, all as of the day and year first above written.

COMPANY:

3D SYSTEMS CORPORATION,
a Delaware corporation

By: _____

Name: Andrew M. Johnson

Title: Executive Vice President, Chief Legal
Officer & Secretary

PARTICIPANT:

Address: _____

Participant hereby designates _____ to be the beneficiary of the Award Shares, to the extent that the restrictions set forth in Section 4 of this Agreement relating to such Award Shares have not yet lapsed at the time of Participant's death.

STOCK OPTION AGREEMENT

This STOCK OPTION AGREEMENT (this “*Agreement*”), is made and entered into as of _____, by and between 3D SYSTEMS CORPORATION, a Delaware corporation (the “*Company*”), and _____ (the “*Participant*”).

The 2015 Incentive Plan (the “*Plan*”) of 3D Systems Corporation is designed to assist the Company and its subsidiaries and affiliates in attracting and retaining employees and consultants of outstanding competence by providing an incentive that permits the persons responsible for the Company’s growth to share directly in that growth and to further the identity of their interests with the interests of the Company’s stockholders. The Participant is eligible to receive grants of stock options to purchase shares of the Company’s common stock, \$0.001 par value per share (“*Common Stock*”) under Section 5 of the Plan.

SECTION 1. GRANT OF OPTION.

(a) **Grant.** On the terms and conditions set forth in this Agreement, the Company grants to the Participant on the Date of Grant the option to purchase at the Exercise Price, up to _____ (_____) shares of Common Stock (the “*Shares*”). The Exercise Price per Share is the Fair Market Value on the Date of Grant.

(b) **Date of Grant.** For purposes of this Agreement, the “*Date of Grant*” shall be the date first set forth above.

(c) **Exercise Price.** For purposes of this Agreement, the “*Exercise Price*” per Share will be the Fair Market Value on the Date of Grant.

(d) **Type of Option.** This option is intended to be an Nonqualified Stock Option, as defined under the Plan.

(e) **Stock Plan and Defined Terms.** This option is granted pursuant to the Plan, a copy of which the Participant acknowledges having received. The provisions of the Plan are incorporated into this Agreement by this reference. Terms used herein with an initial capital letter have the meanings assigned to such terms in the Plan unless a different meaning is expressly specified.

SECTION 2. PERFORMANCE-BASED VESTING.

(a) **Vesting Date.** This option shall vest and become exercisable on such date (the “*Vesting Date*”) that the Common Stock has attained the performance levels set forth in the Section 2(b) below; provided, that the Participant’s employment with the Company has been continuous from the Date of Grant through the Vesting Date. Once a portion of this option has vested, such portion may be exercised, in whole or in part, at any time and from time to time prior to its expiration or earlier termination under Section 6.

(b) **Performance Levels.** The Vesting Date shall be the earliest date following the six month anniversary of the Date of Grant when the Fair Market Value of a share of Common Stock on each trading day of a ninety (90) consecutive day period is equal to or exceeds:

i. with respect to _____ (_____) Shares granted under this option, Thirty Dollars (\$30.00) per share; and

ii. with respect to _____ (_____) Shares, granted under this option, Forty Dollars (\$40.00) per share.

SECTION 3. NO TRANSFER OR ASSIGNMENT OF OPTION.

Except as otherwise provided in this Agreement, this option and the rights and privileges conferred hereby shall not be sold, pledged or otherwise transferred (whether by operation of law or otherwise) and shall not be subject to sale under execution, attachment, levy or similar process without the written consent of the Company.

SECTION 4. EXERCISE PROCEDURES.

(a) **Notice of Exercise.** The Participant or the Participant's representative may exercise this option with respect to any portion that has become vested and exercisable by giving written notice to the Company. The notice shall specify the election to exercise this option, the number of Shares for which it is being exercised and the form of payment. The person exercising this option shall sign the notice. In the event that this option is being exercised by the representative of the Participant, the notice shall be accompanied by proof (satisfactory to the Company) of the representative's right to exercise this option. The Participant or the Participant's representative shall deliver to the Company, at the time of giving the notice, payment in a form permissible under Section 5 for the full amount of the Exercise Price multiplied by the number of Shares with respect to which this option is being exercised (the "**Purchase Price**").

(b) **Issuance of Shares.** After receiving a proper notice of exercise, the Company shall cause to be issued one or more certificates evidencing the Shares for which this option has been exercised. Such shares shall be registered in the name of the person exercising this option. The Company shall cause such certificates to be delivered to or upon the order of the person exercising this option.

(c) **Withholding Taxes.** In the event that the Company determines that it is required to withhold any tax as a result of the exercise of this option, the Participant, as a condition to the exercise of this option, shall make arrangements satisfactory to the Company to enable it to satisfy all withholding requirements. The Participant shall also make arrangements satisfactory to the Company to enable it to satisfy any withholding requirements that may arise in connection with the vesting or disposition of Shares purchased by exercising this option.

SECTION 5. PAYMENT FOR STOCK.

All or part of the Purchase Price for an exercise of this option may be paid either (a) in cash, by wire transfer or by certified check or bank cashier's check, payable to the order of the Company, or (b) by surrendering a number of Shares received upon exercise of this option such that the Fair Market Value of such surrendered shares is equal to the aggregate Exercise Price of all shares being received pursuant to an exercise of this option (a "**Cashless Exercise**"); provided, however, that the Company shall have the discretion to determine whether a Cashless Exercise may be made upon each exercise of an option by the Participant. Any Cashless Exercise under

this Section 5 will be conducted in a manner acceptable to the Company through a third party broker, and otherwise in compliance with Section 402 of the Sarbanes-Oxley Act.

SECTION 6. TERM AND FORFEITURE.

(a) **Basic Term.** This option shall in any event expire on the tenth anniversary of the Date of Grant.

(b) **Forfeiture.** Any portion of this option that is not exercisable on the date of Termination shall be forfeited immediately and be of no further force or effect.

SECTION 7. TAX CONSEQUENCES.

(a) **Consult Tax Advisor.** The Participant may incur tax liability as a result of the Participant's purchase or disposition of Shares. **THE PARTICIPANT SHOULD CONSULT A TAX ADVISER BEFORE EXERCISING THE OPTION OR DISPOSING OF SHARES.**

SECTION 8. MISCELLANEOUS PROVISIONS.

(a) **Rights as a Shareholder.** Neither the Participant nor the Participant's representative shall have any rights as a shareholder with respect to any Shares subject to this option until the Participant or the Participant's representative becomes entitled to receive such Shares by filing a notice of exercise and paying the Purchase Price pursuant to Sections 4 and 5.

(b) **No Retention Rights.** Nothing in this option or in the Plan shall confer upon the Participant any right to continue in Service for any period of specific duration or interfere with or otherwise restrict in any way the rights of the Company (or any Affiliate or Subsidiary employing or retaining the Participant) or of the Participant, which rights are hereby expressly reserved by each, to terminate his or her Service at any time and for any reason, with or without cause.

(c) **Notice.** Any notice required by the terms of this Agreement shall be given in writing. It shall be deemed effective upon (i) personal delivery, (ii) deposit with the United States Postal Service, by registered or certified mail, with postage and fees prepaid or (iii) deposit with Federal Express Corporation, with shipping charges prepaid. Notice shall be addressed to the Company at its principal executive office and to the Participant at the address that he or she most recently provided to the Company in accordance with this Section 8(c).

(d) **Entire Agreement.** This Agreement and the Plan constitute the entire contract between the parties hereto with regard to the subject matter hereof. They supersede any other agreements, representations or understandings (whether oral or written and whether express or implied) which relate to the subject matter hereof.

(e) **Choice of Law.** This Agreement shall be governed by, and construed in accordance with, the laws of the State of Delaware, as such laws are applied to contracts entered into and performed in such State.

SECTION 9. ELECTRONIC DELIVERY

The Company may, in its sole discretion, decide to deliver any documents related to your current or future participation in the Plan by electronic means or to request your consent to participate in the Plan by electronic means. You hereby consent to receive such documents by electronic delivery and agree to participate in the Plan through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

[*Signature Page to Follow*]

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed pursuant to due authorization, all as of the day and year first above written.

COMPANY:

3D SYSTEMS CORPORATION,
a Delaware corporation

By: _____

Name: Andrew M. Johnson

Title: Executive Vice President, Chief Legal
Officer & Secretary

PARTICIPANT:

Address: _____

Participant hereby designates _____ to be the beneficiary of the Award Shares, to the extent that the restrictions set forth in Section 4 of this Agreement relating to such Award Shares have not yet lapsed at the time of Participant's death.