FARO TECHNOLOGIES INC
Form 10-K
February 21, 2018
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

ý ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2017
or
¨ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to
Commission File Number 0-23081

FARO TECHNOLOGIES, INC.
(Exact name of Registrant as Specified in Its Charter)

Florida	59-3157093
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification Number)
250 Technology Park, Lake Mary, FL	32746
(Address of Principal Executive Offices)	(Zip Code)

Registrant's telephone number, including area code: (407) 333-9911
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, par value $.001	Nasdaq Global Select Market

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 ý
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 ý
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 ý No ¨

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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 ý No ¨

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definite 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, a smaller reporting company or an emerging growth company. See definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	ý	Accelerated filer	¨
Non-accelerated filer	¨ (Do not check if a smaller reporting company)	Smaller reporting company	¨
Emerging growth company	¨		

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

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Act).

Yes ¨ No ý

The aggregate market value of the Registrant's common stock held by non-affiliates of the Registrant on June 30, 2017 (the last business day of the Registrant's most recently completed second fiscal quarter) was $622,261,000 based on the closing price of the Registrant's common stock on such date on the Nasdaq Global Select Market, and assuming solely for the purposes of this calculation that all directors and executive officers of the Registrant are "affiliates."

As of February 19, 2018, there were outstanding 16,797,618 shares of the Registrant's common stock.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's proxy statement for the 2018 Annual Meeting of Shareholders are incorporated by reference in Part III of this Annual Report on Form 10-K.

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PART I

CAUTIONARY STATEMENTS FOR FORWARD-LOOKING INFORMATION

FARO Technologies, Inc. ("FARO," the "Company," "us," "we" or "our") has made "forward-looking statements" in this Ann Report on Form 10-K within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. Statements that are not historical facts or that describe our plans, beliefs, goals, intentions, objectives, projections, expectations, assumptions, strategies, or future events are forward-looking statements. In addition, words such as "may," "might," "would," "will," "will be," "future," "strategy," "believe," "plan," "should," "could," "seek," "expect," "anticipate," "intend," " "objective," "project," "forecast," "target" and similar words identify forward-looking statements.

Forward-looking statements are not guarantees of future performance and are subject to a number of known and unknown risks, uncertainties, and other factors that could cause actual results to differ materially from those expressed or implied by such forward-looking statements. Consequently, undue reliance should not be placed on these forward-looking statements. We do not intend to update any forward-looking statements, whether as a result of new information, future events, or otherwise, unless otherwise required by law. Important factors that could cause actual results to differ materially from those contemplated in such forward-looking statements include, among others, the following:

- an economic downturn in the manufacturing industry or the domestic and international economies in the regions of the world where we operate;
- our inability to further penetrate our customer base and target markets;
- development by others of new or improved products, processes or technologies that make our products less competitive or obsolete;
- our inability to maintain what we believe to be our technological advantage by developing new products and enhancing our existing products;
- risks associated with expanding international operations, such as difficulties in staffing and managing foreign operations, increased political and economic instability, compliance with potentially evolving import and export regulations, and the burdens and potential exposure of complying with a wide variety of U.S. and foreign laws and labor practices;
- our inability to successfully identify and acquire target companies and achieve expected benefits from, and effectively integrate, acquisitions that are consummated;
- the cyclical nature of the industries of our customers and material adverse changes in our customers' access to liquidity and capital;
- change in the potential for the computer-aided measurement ("CAM2") market and the potential adoption rate for our products, which are difficult to quantify and predict;
- our inability to protect our patents and other proprietary rights in the United States and foreign countries;
- our inability to adequately establish and maintain effective internal controls over financial reporting;
- fluctuations in our annual and quarterly operating results and the inability to achieve our financial operating targets as a result of a number of factors including, without limitation (i) litigation and regulatory action brought against us, (ii) quality issues with our products, (iii) excess or obsolete inventory, shrinkage or other inventory losses due to product obsolescence, change in demand for our products, scrap or material price changes, (iv) raw material price fluctuations and other inflationary pressures, (v) expansion of our manufacturing capability, (vi) the size and timing of customer orders, (vii) the amount of time that it takes to fulfill orders and ship our products, (viii) the length of our sales cycle to new customers and the time and expense incurred in further penetrating our existing customer base, (ix) increases in operating expenses required for product development and new product marketing, (x) the timing and market acceptance of new products and product enhancements, (xi) customer order deferrals in anticipation of new products and product enhancements, (xii) the inability of our sales and marketing programs to achieve their sales targets, (xiii) start-up costs associated with opening new sales offices outside of the United States, (xiv) fluctuations in revenue without proportionate adjustments in fixed costs, (xv) inefficiencies in the management of our inventories and fixed assets, (xvi) compliance with government regulations including health, safety, and environmental matters, and

(xvii) investment costs associated with the training and ramp-up time for new sales people;

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- changes in gross margin due to a changing mix of products sold and the different gross margins on different products and sales channels;
- our inability to successfully comply with the requirements of Restriction of use of Hazardous Substances ("ROHS2") Directive and the Waste Electrical and Electronic Equipment ("WEEE") Directive in the European Union;
- the inability of our products to displace traditional measurement devices and attain broad market acceptance;
- the impact of competitive products and pricing on our current offerings;
- the loss of our Chief Executive Officer or other key personnel;
- difficulties in recruiting research and development engineers and application engineers;
- the failure to effectively manage the effects of any future growth;
- the impact of reductions or projected reductions in government spending, or uncertainty regarding future levels of government expenditures, particularly in the defense sector;
- variations in our effective income tax rate, which make it difficult to predict our effective income tax rate on a quarterly and annual basis, and the impact of the U.S. Tax Cuts and Jobs Act of 2017;
- the loss of key suppliers and the inability to find sufficient alternative suppliers in a reasonable period of time or on commercially reasonable terms;
- the impact of fluctuations in exchange rates;
- the effect of estimates and assumptions with respect to critical accounting policies and the impact of the adoption of recently issued accounting pronouncements;
- the impact of new product introductions, including the costs associated with new product introductions, such as product development, marketing, assembly line start-up costs and low introductory period production volumes, and manufacturing inefficiencies associated with new product introductions;
- the magnitude of increased warranty costs from new product introductions and enhancements to existing products;
- the sufficiency of our plants to meet manufacturing requirements;
- the continuation of our share repurchase program;
- the sufficiency of our working capital and cash flow from operations to fund our long-term liquidity requirements;
- the impact of geographic changes in the manufacturing or sales of our products on our effective income tax rate; and
- our ability to comply with the requirements for favorable income tax rates in foreign jurisdictions.

A detailed discussion of these and other risks and uncertainties that could cause actual results and events to differ materially from such forward-looking statements is included throughout this filing and particularly in Part I, Item 1A of this Annual Report on Form 10-K. Moreover, new risks and uncertainties emerge from time to time, and we undertake no obligation to update publicly or review the risks and uncertainties included in this Annual Report on Form 10-K, unless otherwise required by law.

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ITEM 1. BUSINESS

FARO was founded in 1982 and re-incorporated in Florida in 1992. Our worldwide headquarters are located at 250 Technology Park, Lake Mary, Florida 32746 and our telephone number is (407) 333-9911.

We are a global technology company that designs, develops, manufactures, markets and supports software driven, three-dimensional ("3D") measurement, imaging and realization systems. This technology permits high-precision 3D measurement, imaging and comparison of parts and complex structures within production and quality assurance processes. Our devices are used for inspection of components and assemblies, rapid prototyping, reverse engineering, documenting large volume or structures in 3D, surveying and construction as well as for investigation and reconstruction of accident sites or crime scenes. We sell the majority of our products through a direct sales force across a broad number of customers in a range of manufacturing, industrial, architecture, surveying, building information modeling, construction, public safety forensics, cultural heritage and other applications. Our FaroArm®, FARO ScanArm®, FARO Gage®, FARO Laser Tracker™, FARO Cobalt Array Imager, FARO Laser Projector, and their companion CAM2®, BuildIT, and RayTracer™ software solutions, provide for Computer-Aided Design ("CAD") based inspection, factory-level statistical process control, high-density surveying and laser-guided assembly and production. Together, these products integrate the measurement, quality inspection, and reverse engineering functions with CAD and 3D software to improve productivity, enhance product quality, and decrease rework and scrap in the manufacturing process, mainly supporting applications in our Factory Metrology vertical. Our FARO Focus and FARO Scanner Freestyle^{3D}X laser scanners, and their companion FARO SCENE, FARO PointSense, and FARO Zone public safety forensics software offerings, are utilized for a wide variety of 3D modeling, documentation and high-density surveying applications in our Construction Building Information Modeling - Construction Information Management ("Construction BIM-CIM") and Public Safety Forensics verticals. Our FARO ScanArm®, FARO Cobalt Array Imager, FARO Scanner Freestyle^{3D}X laser scanners and their companion SCENE software also enable a fully digital workflow used to capture real world geometry for the purpose of empowering design, enabling innovation, and speeding up the design cycle, supporting our Product Design vertical. FARO Visual Inspect enables large, complex 3D CAD data to be transferred to a tablet device and then used for mobile visualization and comparison to real world conditions, facilitating in-process inspection, assembly, guidance and positioning for applications in our Factory Metrology and Construction BIM-CIM verticals. Our line of galvanometer-based scan heads and laser scan controllers are used in a variety of laser applications and are integrated into larger components and systems.

Industry Background

We believe four principal forces drive the need for our products and services: 1) the widespread use by manufacturers of CAD in product development, which shortens product cycles; 2) the adoption by manufacturers of quality standards such as Six Sigma and ISO 9001 (and its offshoot QS 9000), which stress the measurement of every step in a manufacturing process to reduce or eliminate defects; 3) the inability of traditional measurement devices to address many manufacturing problems such as throughput, efficiency, and accuracy, especially with respect to large components for products such as automobiles, aircraft, heavy duty construction equipment and factory retrofits; and 4) the growing demand to capture and synthesize large volumes of three-dimensional data for modeling and analysis.

CAD improves the manufacturing process. The creation of physical products involves the processes of design, engineering, production, and measurement and quality inspection. These basic processes have been profoundly affected by the computer hardware and software revolution that began in the 1980s. CAD software was developed to automate the design process, providing manufacturers with computerized 3D design capability and shortening the time between design changes. Today, most manufacturers use some form of CAD software to create designs and engineering specifications for new products and to quantify and modify designs and specifications for existing products. While manufacturers previously designed their products to remain in production for longer periods of time, current manufacturing practices must accommodate more frequent product introductions and modifications, while satisfying more stringent quality and safety standards. Assembly fixtures and measurement tools must be linked to the CAD design to enable production to keep up with the rate of design change.

Quality standards dictate measurement to reduce defects. QS 9000 is the name given to the Quality System requirements of the automotive industry developed by Fiat Chrysler Automobiles N.V. (formerly Chrysler Corporation), Ford Motor Company, General Motors Company and major truck manufacturers. Companies registered

under QS 9000 are considered to have higher standards and better quality products. Six Sigma is a set of quality standards that embodies the principles of total quality management, focused on measuring results and reducing product or service failure rates to 3.4 per million. All aspects of a Six Sigma company's infrastructure must be analyzed and, if necessary, restructured to increase revenues and raise customer satisfaction levels. The all-encompassing nature of these and other quality standards has resulted in manufacturers measuring every aspect of their processes, including stages of product assembly that may never have been measured before, in part, because of the lack of suitable measurement equipment.

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Traditional products do not measure up. A significant aspect of the manufacturing process entails measurement and quality inspection. Historically, manufacturers have measured and inspected products using hand-measurement tools such as scales, calipers, micrometers and plumb lines for simple measuring tasks, test (or check) fixtures for certain large manufactured products, and traditional (or fixed) coordinate measurement machines ("CMM") for objects that require higher precision measurement. However, the broader utility of each of these measurement methods is limited. Although hand-measurement tools are often appropriate for simple geometric measurements, including hole diameters or length and width of a rectangular component, their use for complex part measurements, such as the fender of a car, is limited. Also, these devices do not allow for the measurements to be directly compared electronically to the CAD model of the part. Test fixtures (customized fixed tools used to make comparative measurements of complex production parts to "master parts") are relatively expensive and must be reworked or discarded each time a dimensional change is made in the part being measured. In addition, these manual measuring devices do not permit the manufacturer to electronically compare the dimensions of an object with its CAD model.

Conventional CMMs are generally large, fixed-base machines that provide very high levels of precision and provide a link to the CAD model of the object being measured. However, fixed-base CMMs require that the object being measured be brought to the CMM and fit within the CMM's measurement grid. As manufactured subassemblies increase in size and become integrated into even larger assemblies, they become less transportable, thus diminishing the utility of a conventional CMM. Consequently, manufacturers must continue to use hand-measurement tools, or expensive customized test fixtures, to measure large or unconventionally shaped objects. In addition, some parts or assemblies are not easily accessible and cannot be measured using traditional devices.

The market demands three-dimensional data. Various factors contribute to market demand for FARO products and services. Conventional surveying equipment is limited to single-point measurements and does not have the capacity to capture and analyze large volumes of 3D data. As data requirements for construction, civil engineering and public safety applications become more complex, single-point measurement devices will become increasingly more difficult to utilize in those applications.

Escalating global competition has created a demand for higher quality products with shorter life cycles. Customers require more rapid design, greater control of the manufacturing process, tools to compare components to their CAD specifications, the ability to precisely measure components that cannot be measured or inspected by conventional devices, and the ability to capture and analyze large volumes of three-dimensional data. Moreover, they increasingly require measurement capabilities to be integrated into manufacturing processes and to be available on the factory floor. These changing demands have contributed to the demand for FARO's products and services.

Business Segments and Markets

In 2016, we reorganized our business to align our sales, marketing, and product management to five specific vertical markets and better redefine our end market applications. In accordance with U.S. generally accepted accounting principles, vertical markets that do not meet the criteria to be a reportable segment are aggregated into one "Other" segment; therefore, we reorganized into three reporting segments encompassing our various applications and product lines: Factory Metrology, Construction BIM-CIM and Other. Our segments are distinguished by the applications they serve. Each segment is responsible for its own product management, sales, strategy and financial performance. Information regarding our net sales and profit by segment, as well as a reconciliation of total segment profit to income from operations, is set forth in Note 16 to the "Notes to Consolidated Financial Statements" included in Part II, Item 8 of this Annual Report on Form 10-K. Total assets are not allocated to a particular segment or segments.

Factory Metrology. The Factory Metrology segment provides solutions for manual and automated measurement and inspection in an industrial or manufacturing environment. Applications include alignment, part inspection, dimensional analysis, first article inspection, incoming and in-process inspection, machine calibration, non-contact inspection, robot calibration, tool building and set-up, and assembly guidance.

Construction BIM-CIM. The Construction BIM-CIM segment provides solutions for as-built data capturing and 3D visualization in building information modeling and construction information management applications, allowing our customers in the architecture, engineering and construction markets to quickly and accurately extract 2D and 3D measurement points. Applications include as-built documentation, construction monitoring, surveying, asset and facility management, and heritage preservation.

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Other. The Other segment includes our Product Design, Public Safety Forensics and 3D Machine Vision (formerly known as 3D Solutions) operating segments. Our Product Design operating segment provides advanced 3D solutions to assist in the engineering or design of a movable object, enabling a full digital workflow for applications that include reverse engineering and virtual simulation. Our Public Safety Forensics operating segment provides solutions to public safety officials and professionals to capture environmental or situational scenes in 2D and 3D for crime, crash and fire scene investigations and environmental safety evaluations. Our 3D Machine Vision operating segment provides solutions to customers who require customized 3D measurement and realization solutions not otherwise addressed by our off-the-shelf product offerings.

All operating segments that do not meet the criteria to be reportable segments are aggregated in the Other reporting segment and have been combined based on the aggregation criteria and quantitative thresholds in accordance with the provisions of Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Topic 280. Each of our reporting segments employs consistent accounting policies.

Recent Acquisitions

Instrument Associates, LLC. In April 2017, we acquired Instrument Associates, LLC d/b/a Nutfield Technology ("Nutfield"), located in Hudson, New Hampshire. Nutfield specializes in the design and manufacture of advanced galvanometer-based optical scanners, scan heads and laser kits. The acquisition supports our long-term strategy to expand our presence in key markets and improve our existing product lines with innovative technology.

MWF-Technology GmbH. In December 2016, we acquired MWF-Technology GmbH ("MWF"), located near Frankfurt, Germany. MWF is an innovator in mobile augmented reality solutions, with technology that enables large, complex 3D CAD data to be transferred to a tablet device and then used for mobile visualization and comparison to real world conditions. This enables real time, actionable manufacturing insight for in-process inspection, assembly, guidance and positioning.

Laser Projection Technologies, Inc. In August 2016, we acquired Laser Projection Technologies, Inc. ("LPT"), located in Londonderry, New Hampshire. LPT specializes in laser projection and measurement systems used throughout manufacturing environments around the globe to maximize productivity and efficiency. The acquisition enhances our portfolio of 3D measurement solutions and supports our long-term strategy to expand our presence in key markets.

BuildIT Software & Solutions Ltd. In July 2016, we acquired BuildIT Software & Solutions Ltd. ("BuildIT"), located in Montreal, Canada. BuildIT specializes in process-configurable 3D metrology software solutions with hardware agnostic interfaces. The acquisition provides customers greater software options to use in a variety of applications to reduce inspection and assembly times and increase productivity.

FARO Products

FaroArm. The FaroArm is a combination of a portable, six or seven-axis, articulated measurement arm, a computer, and CAM2 software programs, which are described below under "FARO Software" and are primarily sold in the Factory Metrology and Product Design segments.

- Articulated Arm – The articulated arm is comprised of three major joints, each of which may consist of one, two or three axes of motion. The articulated arm is available in a variety of sizes, configurations and precision levels suitable for a broad range of applications. To take a measurement, the operator simply touches the object to be measured with a probe at the end of the arm and presses a button. Data can be captured at either individual points or a series of points. Optical encoders located at each of the joints of the arm measure the angles at those joints, and this rotational measurement data is transmitted to an on-board controller that converts the arm angles to precise locations in 3D space using "xyz" position coordinates and "ijk" orientation coordinates.
- Computer – We pre-install our CAM2 software primarily on either a notebook or desktop style computer, depending on the customer's need, and the measurement arm, computer and installed software are sold as a system. We purchase the computers sold with our products from various suppliers.

FARO ScanArm. The FARO ScanArm is a FaroArm equipped with a combination of a hard probe (like that in the FaroArm) and a non-contact laser line probe. This product provides our customers with the ability to measure products without touching them and offers a seven-axis contact/non-contact measurement device with a fully

integrated laser scanner. The ScanArm is used for contact and non-contact measurement applications, including inspection, cloud-to-CAD comparison, rapid prototyping, reverse engineering and 3D modeling. This product is primarily sold in the Factory Metrology and Product Design segments.

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FARO Gage. The FARO Gage is a smaller, higher-accuracy version of the FaroArm that is sold as a combination of an articulated arm device with a computer and software. The FARO Gage is also distinguished from the FaroArm by the special mounting features and software unique to the FARO Gage. The FARO Gage is targeted at machine tools and bench tops around machine tools, where basic measurements of smaller machined parts must be taken. The CAM2 FARO Gage software developed for this device features basic 2D and 3D measurements common to these applications. This product is primarily sold in the Factory Metrology and Product Design segments.

FARO Laser Tracker. The FARO Laser Tracker combines a portable, large-volume laser measurement tool, a computer, and CAM2 software programs, representing a product offering primarily sold in the Factory Metrology segment.

- Laser Tracker Vantage – The FARO Laser Tracker Vantage utilizes an ultra-precise laser beam to measure objects of up to 80 meters. It enables manufacturing, engineering, and quality control professionals to measure and inspect large parts, machine tools and other large objects on-site and in-process.

In January 2017, we released the FARO Vantage^{S} and Vantage^{E} Laser Trackers. The Vantage^{S} is intended for short-to-long range measurement applications of up to 80 meters, while the Vantage^{E} supports short-to-medium range applications of up to 25 meters.

- Laser Tracker ION – The FARO Laser Tracker ION is an interferometer (IFM)-based measurement system that provides the high accuracy and range to complete measurement tasks, such as in-line measurements, high-speed dynamic measurements, or high-accuracy machine calibration.
- Computer – The FARO Laser Tracker includes a notebook or desktop style computer, depending on the customer's requirements, that includes the pre-installed CAM2 Software.

FARO Cobalt Array Imager. The FARO Cobalt Array Imager is a metrology-grade structured light imager that utilizes blue light technology to capture millions of high resolution 3D coordinate measurements in seconds. FARO Cobalt's versatility supports a variety of deployment options including rotary table, robot, industrial inspection cells and multiple imager arrays. This technology is used in quality control to improve product quality and reduce scrap, as well as for reverse engineering and rapid manufacturing. This product is primarily sold in the Factory Metrology segment.

FARO Laser Projector. The FARO Tracer^{M} accurately projects a laser line onto a surface or object, providing a virtual template that operators and assemblers can use to quickly and accurately position components with confidence. The laser template is created using a 3D CAD model that enables the system to visually project a laser outline of parts, reference points, or areas of interest. The result is a virtual and collaborative 3D template to streamline a wide range of assembly and production applications. This product is primarily sold in the Factory Metrology segment.

FARO Focus. The FARO Focus laser scanner utilizes laser technology to measure and collect a cloud of data points, allowing for the detailed and precise three-dimensional rendering of an object or an area as large as an industrial facility. This technology is currently used for factory planning, facility life-cycle management, quality control, forensic analysis and capturing large volumes of three-dimensional data. The FARO Focus simplifies modeling, reduces project time and maintains or increases the detail, identifies the colors and measures the dimensions of surrounding structures. The resulting data is used with major CAD systems or FARO's own proprietary FARO SCENE, PointSense, and FARO Zone. This product is primarily sold in the Construction BIM-CIM and Public Safety Forensics segments.

FARO Scanner Freestyle^{3D}X. The FARO Scanner Freestyle^{3D}X is a handheld scanner that quickly documents rooms, structures and objects in 3D and creates high-definition point clouds. The applications of the FARO Scanner Freestyle^{3D}X include architecture, construction, industrial production and forensics. The FARO Scanner Freestyle^{3D}X's durable carbon fiber design equips the user with a versatile and ergonomic tool for performing accurate scanning in confined spaces. The FARO Scanner Freestyle^{3D}X can be used independently or as a complement to the FARO Focus. The FARO Scanner Freestyle^{3D}X comes with two software applications in addition to FARO's proprietary SCENE software: SCENE Capture, which is installed on a tablet computer to record and visualize the capturing of 3D data, and SCENE Process, which processes the captured 3D data. This product is primarily sold in the Construction BIM-CIM and Public Safety Forensics segments.

FARO Software. We provide a family of proprietary CAD-based measurement and laser scanner software used with our measurement and scanning devices.

- CAM2 Measure 10 allows customers to complete measurement jobs quickly and gives customers the freedom to measure as required by the application, thereby improving every process where measuring is needed.

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- CAM2 SmartInspect is our CAM2 solution for measuring geometry and building dimensions. The software allows customers to quickly measure geometric features and report dimensions for control.
- BuildIT is a CAD-to-part inspection software that enables quick and easy dimensional verification of manufactured parts and assemblies for tool building, assembly, alignment, process automation, reverse engineering and quality control. BuildIT's advanced analysis and reporting capabilities combine measurement data from multiple sources to produce detailed graphical and textual reports that are used to quickly identify manufacturing and production trends. With both numerical and graphical feedback of real-time deviations, BuildIT allows users to position parts with micrometer accuracy for high-precision assembly and alignment applications.
- FARO SCENE software combines ease-of-use, networking, and an enhanced 3D experience to deliver a complete scan processing solution. With SCENE, customers can display, analyze, administer and edit 3D measurements in point clouds.
- FARO Zone software makes diagramming and pre-planning easier for law enforcement officers, firefighters and loss control engineers by allowing the users who need to draw site plans or crash or crime scene diagrams to be able to do so in a fast and efficient manner.
- PointSense software products enable and simplify the use of real world objects in CAD applications. Primarily serving the surveying and architecture, engineering and construction spaces, the offering allows the user to integrate 3D laser scan data with CAD environments. PointSense offerings include PointSense for Revit® (a registered trademark of Autodesk), PointSense Building, PointSense Heritage, PointSense Plant, and PointSense Pro.
- FARO RayTracer™ software streamlines processes for factory workers and enables the projection of 3D templates. Primarily serving manufacturing environments, the offering can be used to establish databases, manage their components, configure jobs and control parameters, edit projection data and reference tool data. The FARO RayTracer™ offerings include RayTracer™ Administrator and RayTracer™ Operator.

Warranties and Services. We warrant our products against defects in design, materials and workmanship for one year. To support our product lines, we also separately sell extended warranties that typically range from less than one year to three years and comprehensive support, training and technology consulting services to our customers.

Customers

Our sales are diversified across a broad number of over 15,000 customers worldwide in our Factory Metrology, Construction BIM-CIM, Product Design, Public Safety Forensics, and 3D Machine Vision vertical markets. Our ten largest customers by revenue represented an aggregate of approximately 4.2% of our total sales in 2017. No customer represented more than 1.0% of our sales in 2017.

Sales and Marketing

We conduct our sales and marketing efforts on a vertical basis. Each vertical has its own sales and marketing team coordinated by our Lake Mary headquarters. Geographically, we have operations in three main regions around the world: Americas, Europe/Middle East/Africa ("EMEA") and Asia-Pacific. The regional headquarters for the Americas, which is also our global headquarters, is located in Lake Mary, Florida; the EMEA regional headquarters is located in Stuttgart, Germany; and the regional headquarters for the Asia-Pacific region is located in Singapore. Each of these regional sales and marketing organizations support each of our reporting segments. As of December 31, 2017, we employed 705 sales and marketing specialists globally.

We sell most of our products through direct sales representation in Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Malaysia, Mexico, the Netherlands, Poland, Portugal, Singapore, South Korea, Spain, Sweden, Switzerland, Thailand, Turkey, the United Kingdom, and the United States. Our sales and marketing efforts use a process of integrated lead qualification and sales demonstration. Once a customer opportunity is identified, we employ a team-based sales approach involving inside and outside sales personnel who are supported by application engineers. Each team has the ability to sell multiple product lines. We employ a variety of marketing techniques to promote brand awareness and customer identification.

Information regarding our net sales and long-lived assets by geographic region is set forth in Note 16 to the "Notes to Consolidated Financial Statements" included in Part II, Item 8 of this Annual Report on Form 10-K.

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Research and Development

We believe that our future success depends, in part, on our ability to maintain what we believe to be our technological leadership, which will require ongoing enhancements of our products and the development of new applications and products that provide 3D measurement solutions. The field of 3D measurement continues to expand, and new technologies and applications will be essential to competing in this market. Accordingly, we intend to continue to make substantial investments in the development of new technologies, the commercialization of new products that build on our existing technological base, and the enhancement and development of additional applications for our products.

Our research and development efforts are directed primarily at enhancing the functional adaptability of our current products and developing new and innovative products that respond to specific requirements of the emerging market for 3D measurement, imaging, and realization systems. Our engineering development efforts will continue to focus on enhancing the mechanical hardware, electronics, and software in our existing products and developing new products for the CAM2 market. Additionally, certain of our acquisitions are intended, in whole or in part, to further the development of technologies which, on a risk adjusted basis, are better to be acquired than developed internally by us. Research and development activities, especially with respect to new products and technologies, are subject to significant risks, and there can be no assurance that any of our research and development activities will be completed successfully or on schedule, or, if completed, will be commercially accepted.

At December 31, 2017, we employed 229 scientists and technicians in our research and development efforts. Research and development expenses were approximately $35.4 million in 2017, compared to $30.1 million in 2016 and $26.7 million in 2015.

Intellectual Property

We own approximately 860 patents and pending patent applications worldwide, which generally expire on a rolling basis between 2018 and 2040. We also own approximately 73 trademark registrations worldwide, with 4 pending trademark applications.

Our success and ability to maintain a competitive