

Combined Management Report

The Remuneration Report and the Information and Notes relating to Takeover Law (in the chapter "Corporate Governance") are part of the Combined Management Report.

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Jenoptik remains on course for growth: in 2016, we achieved new records in revenue and earnings, in order intake and in cash flow. We want to continue to grow in 2017 – organically and with acquisitions. Here, we can build on a strong order backlog, a good asset position and a viable financing structure.

General Group Information

Group Structure

Legal and Organizational Structure

As the holding company and corporate center of the Group, JENOPTIK AG, based in Jena, performs top-level functions for the entire Group including strategic corporate development and innovation management as well as key tasks in control and finance, real estate, internal auditing, investor relations, mergers and acquisitions, human resources, accounting, legal, risk and compliance management, treasury, taxes, corporate communications and corporate marketing.

Since the realignment of the Group's structure in January 2016, its operating business has been focused more strongly on growth markets and megatrends, and is divided into the three Optics & Life Science, Mobility and Defense & Civil Systems segments. The segment reporting reflects the Group's organizational structure. Within the three segments, the operating business is spread over five divisions. The underlying cornerstone is the Shared Service Center (SSC), in which the central functions IT, human resources, purchasing, safety, occupational health and safety, environmental protection and building management are organized. **G05**

On establishing the new group structure in early 2016, Jenoptik merged its business with laser beam sources and laser systems with the Optoelectronic Systems business unit in the new Healthcare & Industry division. In the Automotive division, all activities involving laser machines and industrial metrology for the automotive and machines construction industry were combined.

Jenoptik has significantly expanded its international structures in the last few years. The US holding company at the Jupiter location in Florida, US, has led coordination of the overall strategy, financial activities and shared services for the American market. An Asian holding company in Singapore consolidates all business in Asia to centrally support the development of business in the region and provide resources for top-level processes such as shared services, business development, finance and marketing. The operating business in Europe is coordinated at the main locations in Germany.

Key Locations

Jenoptik is represented in over 80 countries worldwide, with a direct presence in 18 of them, e.g. through its own companies, investments or affiliated firms. The majority of the Group's products are manufactured in Germany, followed by the US. At the Rochester Hills, Michigan, location in the US, Jenoptik is investing in its own technology campus for metrology and laser machines for the North American automotive industry. The Jena headquarters is primarily home to optoelectronic operations, covering all aspects of Optics & Life Science. Other major sites in Germany are at Wedel near Hamburg, Essen and Altenstadt (Defense & Civil Systems), Monheim near Düsseldorf (Traffic Solutions), Villingen-Schwenningen (Automotive), Triptis and Dresden (Optical Systems) as well as Berlin (Healthcare & Industry). Outside Germany, Jenoptik maintains production and assembly sites in the US, France, the UK, China and Switzerland. In addition, the Group is represented by subsidiaries and affiliated firms in Algeria, Australia, Brazil, the Czech Republic, India, Japan, Korea, Malaysia, Mexico, the Netherlands and Singapore. **G06**



See list of shareholdings page 185

G05 New Structure of the Jenoptik Group since January 1, 2016

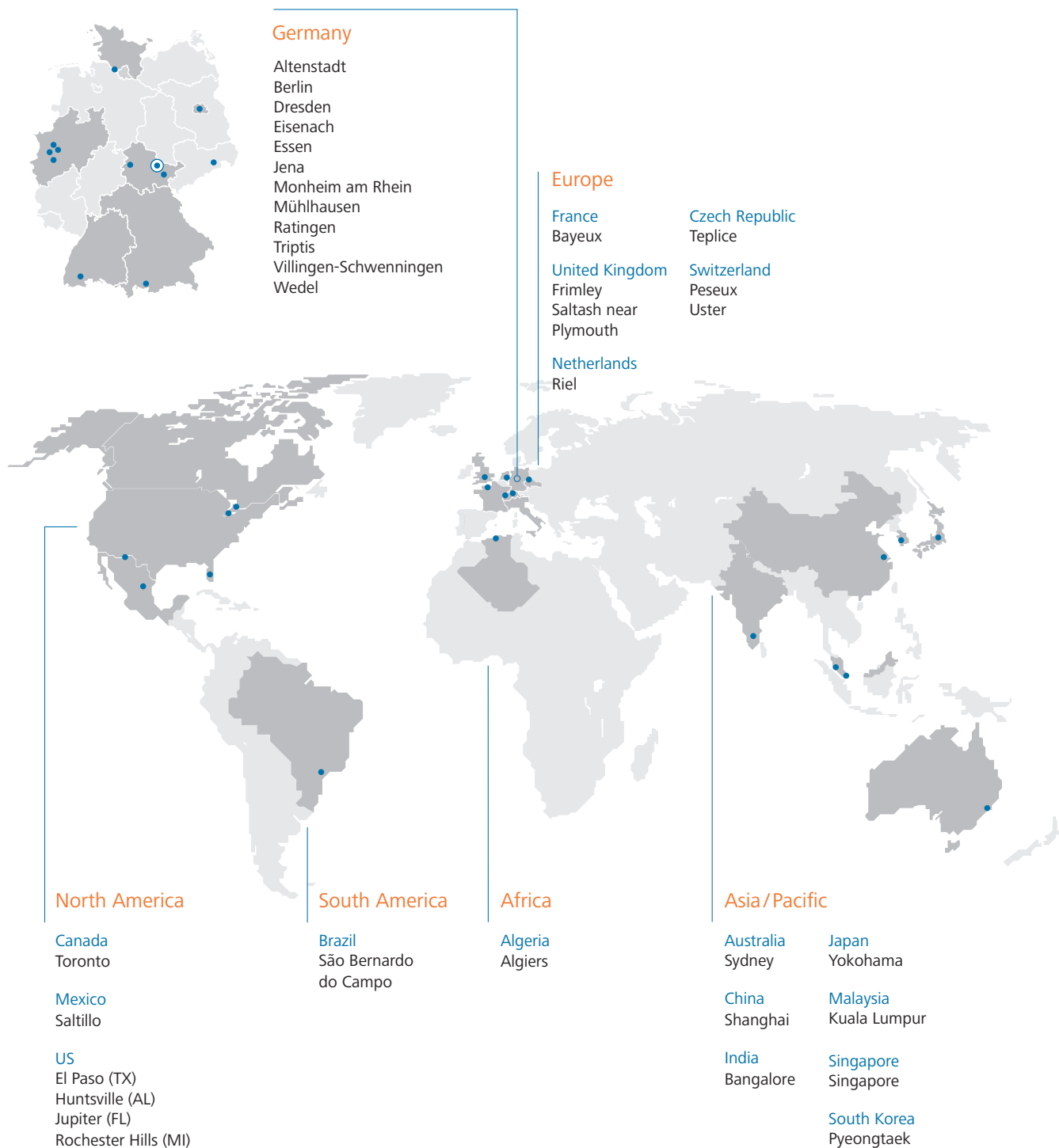
Corporate Center

Segment	Optics & Life Science		Mobility		Defense & Civil Systems
Division	Optical Systems	Healthcare & Industry	Automotive	Traffic Solutions	Defense & Civil Systems

Shared Service Center

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G06 Jenoptik: Key Locations




Business Model and Markets

Jenoptik is a globally operating integrated photonics group that devotes the majority of its work to the photonics market. Photonics are understood as the basics and areas of use of optical methods and technologies that address the transmission, storage and processing of information by light and in the process use the special physical properties of light quanta (photons) in place of electrons and also combine optics and electronics.

As a supplier of premium, innovative capital goods, the Group is primarily a partner to industrial companies. Its customers also include the public sector, in part indirectly via system integrators. Our range of products comprises OEM or standard components, modules and subsystems through to complex systems and production lines for numerous sectors. It further includes total solutions and full-service operator models.

Jenoptik competes with a wide range of internationally operating companies that not uncommonly specialize in only one or a few of the product areas listed above. Differing service ranges and highly limited comparability thus make it difficult to provide definite market share estimates. Research and development occupy a key position in Jenoptik's work, and cooperations arrangements and developments on behalf of customers are often the beginning of partnerships and business relationships along the value chain.

Jenoptik operates in the three segments of Optics & Life Science, Mobility and Defense & Civil Systems. 



Optics & Life Science

This segment pools the work in the Healthcare & Industry and Optical Systems businesses. Jenoptik is a key development and cooperation partner for optical and micro-optical systems and precision components that satisfy the highest quality demands. The product portfolio includes optoelectronic semiconductors, lasers, polymer optics, electronics and software. Based on its core expertise in laser and LED-based beam sources, optical components and modules, sensors, digital imaging and system integration, Jenoptik is a leader in the development of OEM system solutions and products. It possesses superb expertise and thus also an excellent market position in the development and manufacture of micro-optics for beam shaping used in the semiconductor equipment industry and for laser materials processing. Solutions for optical information and communication technologies and for security and defense technology complete the portfolio. The market addressed by Optical Systems is highly fragmented. The companies often specialize only in individual products groups or niches. With the stronger focus on systems

solutions the Jenoptik Group has been able to further expand its market position in the last years.

In this segment, Jenoptik also develops and manufactures specific OEM solutions for customers in the healthcare sector, with a focus on systems for the medical technology and life science industries, for example analysis and treatment systems for research, clinical use and patient self-diagnosis. Jenoptik also holds a leading position in the field of high-power diode and thin-disk lasers for ophthalmology and supplies both national and international medical technology companies. For the industry, Jenoptik supplies high-power components and modules as well as integrated solutions for material processing, automotive and consumer electronic applications, e.g. innovative components for head-up displays, special lenses for driver assistance systems and polymer optics for machine vision or augmented reality applications as well as LED lighting systems. The company also manufactures beam sources and application solutions for laser material processing is a globally acknowledged quality supplier of lasers.

Key sales regions in the segment are in Europe and North America, and increasingly also in Asia. Core markets are the semiconductor equipment, medical technology, information and communication technology, show and entertainment, automotive as well as defense and security technology industries. Jenoptik serves numerous niches within these heavily fragmented markets, where it occupies leading market positions.

Mobility

The Mobility segment pools all work in the automotive and traffic safety markets. Jenoptik is a leading manufacturer of measurement technology and laser machines for production processes in the automotive industry. The Metrology portfolio includes high-precision measurement technology for tactile, optical and pneumatic inspection of roughness, contour, shape and the determination of dimensions at every stage of the production process and in the inspection room. A wide range of services such as consultation, training, service and long-term maintenance agreements are also all provided. In its laser processing business, Jenoptik develops 3D laser processing machines that are integrated into customer production lines as part of process optimization and automation. There, they are used to machine plastics, metals and leather with maximum efficiency, precision and safety. The product portfolio is complemented by energy efficient and environmentally friendly exhaust air cleaning systems for laser machining and other industrial processes.

See Segment Report for detailed information on the course of business in the segments

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In its traffic safety business, Jenoptik develops, manufactures and sells components, systems and service that are making the world's roads safer. Its product portfolio includes comprehensive systems covering all aspects of road traffic, such as speed and red light monitoring systems and custom solutions for identifying other traffic violations. Further expertise relates to the measurement of average speeds (section control) and automatic number plate recognition (ANPR). Jenoptik's services in the segment cover the entire supporting process chain – from system development, construction and installation of the monitoring infrastructure, to capturing images of traffic violations and their automated processing. Since 2016, the company has supported the further technical development of toll payment systems, particularly in Germany. For these applications, the Group markets innovative toll payment monitoring pillars that combine various digital sensor technologies such as stereo image processing and axle number detection in a single system.

The Mobility segment has a greater international focus than any other within the Jenoptik Group. Its regional areas of focus are primarily determined by customers. In the Automotive area, these are the centers of the global automotive and automotive supplier industries in Europe, North America and Asia. As a leading company for applications involving optical production metrology and 3D laser processing systems, we are a global partner of our customers. Companies such as Marposs, Mahr and Mitytoyo compete with Jenoptik's metrology activities in the automotive area – one of our growth markets. In Traffic Solutions, Jenoptik is a leading supplier of photographic monitoring equipment, with more than 30,000 devices in the market around the world. Competitors include, e.g. Redflex, the Sensys Gatso Group and Vitronic. The market served by the Traffic Solutions division is increasingly characterized by major projects. Traffic safety systems in Germany are tested and certified by the Physikalisch-Technische Bundesanstalt (PTB) in Braunschweig. Foreign deliveries are subject to controls by national institutes, although various countries also partially or fully recognize the German PTB test certificate or licenses from other leading European licensing authorities. These procedures represent a considerable barrier to market entry for potential suppliers and demonstrate the measuring accuracy of the systems used.

Defense & Civil Systems

The Defense & Civil Systems segment develops, manufactures and markets mechatronic and sensor products for civil and military markets. Its portfolio ranges from individual assemblies for customers to integrate in their systems to turnkey solutions and final products. The segment specializes in energy systems, optical sensor systems, stabilization systems, aviation subsystems, radomes and composites. Efficient customer service ensures that customers receive support for the service life of the products, which in most cases is a very long time. Mechatronic products include diesel-electric generating units, electrical machinery such as generators, electric motors and converters, power electronics, heating systems and controllers, lift systems and rescue hoists. They are used in drive, stabilization and energy systems for military and civil vehicle, rail and aircraft equipment. Sensor products cover infrared camera systems and laser rangefinders, which are used in automation technology, security technology and military reconnaissance.

The segment supplies equipment to major systems companies such as Krauss-Maffei Wegmann and Rheinmetall in Germany, Airbus (France), BAE Systems (UK) and American company Raytheon; it also supplies government customers directly. Its business is predominantly geared toward the long-term. Many of the components and subsystems are developed specially on behalf of customers. In addition, the Group often competes with other markets participants just in the area of individual product groups. In the area of defense and security technology as well as aviation and rail equipment, Jenoptik is a business partner to national and international customers, with end products also being exported worldwide by the systems companies it supplies. The business is subject to strict security, certification and export requirements to which Jenoptik stringently adheres.



See the Forecast Report for information on future developments and strategy

Targets and Strategies

Strategic Orientation of the Group




See Forecast Report for further information

As noted in the chapter “Business Model and Markets”, the majority of services offered by the Jenoptik Group concern the photonics market. As so called enabling technologies, the extremely precise and flexible manufacturing and measuring techniques used in photonics exert a great economic leverage effect and will thus enjoy an increasing share in industrial value creation. The solutions we create all contribute to increasing energy efficiency, precision and improved environmental compatibility.

Sustained profitable growth remains the focus of Jenoptik’s strategic development. To achieve it, we have aligned our new structure more consistently towards growth markets and benefit from the global megatrends of the digital world, health, mobility & efficiency, infrastructure and security. The company focuses primarily on internationalization, innovation and operational excellence. Jenoptik is increasingly establishing itself as a strategic systems partner for international customers and together with them helping to shape forward-looking solutions related to megatrends. In addition, we place stronger focus on forward integration and systems solutions in the process of further developing the Group.



See the chapter Business Model and Markets for more information on the new structure

With the new organizational structure  that entered into force on January 1, 2016, we aim to further improve our market and customer orientation. For this purpose business operations within and between the segments were reorganized and better targeted at growth markets, such as the automotive, semiconductor equipment, consumer electronics, information and communication technology as well as medical technology sectors. This has helped us to be closer to the customer and open up better opportunities for growth.

We see our strategic orientation as a **global, integrated photonics group** as offering advantages over our competitors, many of whom only operate in one market, are in part smaller, or have only a local or regional presence. With its broad technology platform, Jenoptik serves a range of markets and is set to expand its reach in the future. The Group targets different markets and is therefore less heavily dependent on the cycles in individual sectors; this means it is better able to compensate for fluctuations in the market and achieve a higher degree of stability. This assumes the harmonization and integration of business processes with synergy potential, something Jenoptik has worked hard to achieve on a range of projects.

By the year 2018, the Jenoptik Group plans to achieve an average in EBIT margin of around 10 percent over the market cycles. Including smaller acquisitions, revenue is due to rise to approximately 800 million euros. In order to achieve these goals , the company is aiming for exceptional growth abroad, particularly in the Americas and Asia/Pacific. The aim by 2018 is for these growth regions to account for a joint share of revenue above 40 percent (2016: 34.4 percent). In the medium term, too, the Group aims to continue growing both organically and inorganically, and improve its profitability.

We are working to achieve our growth strategy by

- realigning our segments consistently towards growth markets and megatrends and, therefore, strengthening our business through targeted and accretive acquisitions,
- continuing to work on our process of internationalization, together with greater vertical integration and customer reach in the growth regions of the Americas and Asia/Pacific,
- expanding our systems and applications expertise while looking to broaden our forward-integrated business models,
- extending our excellence program into new areas and
- boosting our financial strength.

Value Levers

Our continuing growth is guided by five value levers:

- profitable growth
- internationalization
- market and customer orientation
- employees and management
- operational excellence

As an innovative high-technology company, identifying future customer needs and general trends early on, aligning our strategic actions and business activities with them and determining appropriate technology and product developments is of critical importance to Jenoptik. We will maintain a high level of investment in research and development and thus strengthen our position as one of the world’s leading suppliers of photonic products and solutions. Uniform group standards for preparing development and technology roadmaps are a key prerequisite to managing the innovation process in line with market and customer needs throughout the company. In addition, we will push ahead with the cross-divisional synergetic expansion of our technology platforms. Our planned **profitable growth** will further be supported by efficiency measures and increasingly by the expansion of the systems and service businesses and economies of scale.

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Issues relevant to the strategy and the development of business are discussed in the course of a group-wide rolling strategy process, focusing on detailed technology, market and competitor analyses, the results of which are correlated with the company's own skills and expertise. The outcomes are used to identify and prioritize future areas of growth and develop solutions to grow our business fields. These form the basis of strategic decisions which then give rise to specific activities.

To better leverage synergy, we will continue to integrate supporting cross-section functions, particularly at the Shared Service Center and the holding company, in a global group structure. The use of the "Jenoptik" brand will be stepped up at all business units to promote awareness and acceptance of the Group, in particular internationally.


We want to enhance our organic growth with acquisitions. In this context, we examine the possibilities of implementing our group and growth strategies with the aid of M&A activities. By purchasing companies or parts of companies, we plan to boost our market and customer reach, not only in Europe but particularly in the focus regions of the Americas and Asia/Pacific, or otherwise add to our business portfolio with forward integration and/or additional systems expertise. Any acquisition must satisfy the criteria of increasing the value of the company and the ability of the acquisition to be integrated.

Jenoptik sees particularly great growth potential in the regions of the Americas and Asia/Pacific, in part due to growing industrial production and demographic developments, and is therefore concentrating on [internationalization](#) in these markets. JENOPTIK Asia-Pacific Pte. Ltd. and JENOPTIK North America Inc. steer the business, structural and organizational development in these two regions, identify opportunities for growth and coordinate related actions. Jenoptik is rigorously expanding its global sales and service network. We aim to create additional value added such as production, local product developments as well as research and development. In this way, we will be able to offer local customers products and solutions together with service developed in situ to meet their various needs.

In improving its [market and customer orientation](#), Jenoptik is driven by two key aspects. On the one hand, we develop and

manufacture products and solutions specifically geared toward market trends and customer needs. To this end, internal structures now more strongly reflect individual market requirements and proximity to customers. In the process of growing the business, the Group's own, direct distribution channels are given preference over dealership structures. In the future, too, the company will further invest in developing new and existing sales and service structures, particularly in our focus regions. At the Rochester Hills, Michigan, location in the US, for example, a new, modern technology campus for metrology and laser machines for the North American automotive industry has been under construction since mid-2016. Other Jenoptik divisions will in future also expand their businesses in North America from this location.

As a systems partner, we also seek out new solutions together with our customers, thereby cementing long-term strategic partnerships. Wherever possible, our customers are already involved in the early stages of development processes. In addition, there are also potential customers who consult with us at very early stages of product realization and commission Jenoptik to deliver relevant solutions in line with our expertise. This allows us to strengthen our customer relationships and boost value creation.

Securing qualified and capable [employees](#)  and ensuring their loyalty to the company remains the key topic in strategic HR work. Structured HR planning is necessary to achieve this in an environment which is becoming increasingly demanding from the demographic aspect. Now and in the future, Jenoptik aims to utilize targeted HR marketing activities to maintain its position as an attractive employer. Personnel development measures and improved framework conditions help to strengthen employees' loyalty to the company.


Active support of the corporate values is another key issue within HR work. The six corporate values of performance, responsibility, change, integrity, trust and openness are implemented on the basis of the "Jenoptik vision" and the "aspiration statements". These help to boost Jenoptik's growth across various culture and legal systems and form the basis for a uniform corporate culture.



See the chapters Employees and Sustainability for more information on this topic



More information can be found in the chapter Sustainability


All processes in the Group are subject to regular scrutiny in order to increase their efficiency, harmonize them and optimize costs. In both the operating business and commercial processes, initiatives for creating harmonized and **excellent processes**  are rigorously pursued to cement the basis for profitable future growth. These initiatives essentially comprise programs such as the group-wide Jenoptik Excellence Program (JEP), which includes Go-Lean and Global Sourcing, the Market Excellence Program and the Jenoptik One ERP project (JOE).

The Go-Lean program is geared toward integrated process improvements and an increase in operational performance. The JOE project focuses on the efficient standardization of internal processes and the accounting systems that will in future employ SAP, and covers all organizational units in the Group. The project is due to be completed by the end of 2019. The Market Excellence Program focuses on adapting the sales and service organization and activities in line with strategic markets and customers.

Strategic Orientation of the Operating Business



See the Segment Report and chapter Business Model and Markets for more information on the segments

Jenoptik's **three segments**  are interlinked in diverse ways. The Optics & Life Science segment, in particular, provides technologies and expertise for the other two segments. Infrastructures and cross-section functions are also increasingly used jointly, for example for global procurement or in the expansion of the international sales network. The segments' joint locations enable Jenoptik to quickly achieve critical mass in important regions around the world. At present, Jenoptik is investing in a modern technology campus for the engineering, production, sale and service of metrology and laser machines for the automotive industry in North America. Other Jenoptik divisions will in future also expand their businesses in the US from this location. The common use of infrastructure facilitates market entry and helps to optimize our cost base through the leverage of synergy. Cost benefits are realized and currency risks minimized through global sourcing and production.

In the **Optics & Life Science** segment, we are continuing to sharpen our focus on the "digital world" megatrend with our optical systems. On the basis of our strengths in optical and

micro-optical solutions, we aim to access further digital world markets in addition to the semiconductor equipment sector. Jenoptik will in future thus boost its position on these growth markets with optical information and communication technologies. Ongoing internationalization, the expansion of the systems business and a focus on key customers form the basis for lastingly profitable growth, to which the use of economies of scale and both customer and technology synergies will additionally contribute.

In addition, we focus on the "health" megatrend in the area of Healthcare & Industry. Based on beam sources that use lasers and LEDs, precision optics and digital imaging and innovative software solutions, we want to increasingly position ourselves as a leading, sustainably profitable partner for the development of system solutions and products for diagnostics, analysis, medical screening and therapy in the healthcare and life science industries. On the other hand, we are also participating in the "mobility & efficiency" megatrend with innovative industrial applications. One business focus is on expanding volume business with optoelectronic and polymer optical high-performance components and modules. Employing our core areas of expertise, we also pursue promising growth options in innovative applications such as driver assistance systems or technologies for autonomous driving. In these fields, too, we want to become an internationally operating supplier of application solutions.

We target the megatrend of "mobility & efficiency" in the **Mobility** segment. With our production metrology and laser machines for the automotive industry, we support the manufacture of sustainable and resource-efficient products. Jenoptik's use of optical, tactile and pneumatic production metrology puts it in a position to focus on issues to reduce fuel consumption and CO₂ emissions, as well as on hybridization. The aim, in particular, is to expand its position as a leading company in the area of production metrology for engine and gear parts, as well as for new applications. A concentration on automated plastic and metal processing will support further growth in the field of laser machines. At regional level, we intend to grow our business primarily in Asia and North America.

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“Infrastructure” is another megatrend of the future. As a globally leading supplier of traffic monitoring systems, our Traffic Solutions business remains committed to supporting our customers in achieving their targets to improve traffic safety with complete solutions. With the global trends toward increasing mobility, urbanization and security, particularly in newly industrialized countries, Jenoptik is also tapping into new sales regions. A trend can be seen toward major projects in the global traffic safety technology market with a combination of the equipment business and services, known as Traffic Service Provision. That’s why Jenoptik is focusing on strengthening this profitable service business. Following successful entry into a new market with a major order for toll monitoring systems in 2016, Jenoptik plans to place more emphasis on this business in the future. Our growing reach into international markets, selected cooperation arrangements and a focus on innovative and competitive products are aimed at securing future growth and boosting our position as a leading supplier.

The **Defense & Civil Systems** segment remains positioned as a partner for systems companies and customers who have a need for individual solutions that meet the stringent requirements of the aviation, rail and defense technology markets. We see opportunities for further growth in the global megatrends, the growing need for security, mobility & efficiency and increasing electrification in military and civil sectors. As a result, the segment is focused on the high-growth business areas of energy systems and optical sensor systems. Beyond this, it is looking to increase the share of systems used in civilian fields such as railway engineering. Customer relations with OEMs and end customers will be stepped up around the world. The segment is also seeking to expand its service business and international sales and service structures, especially in North America and Asia.

Control System

The company control system is geared toward the long-term corporate strategy. It is also consistently aligned with the Group’s short to medium-term objectives. The Executive Board is responsible for overall planning and thus for achieving the stated objectives as part of the strategic corporate development.

Jenoptik controls the business units on both the strategic and operational levels. As part of a rolling strategy process, the Executive Board and the Executive Management Board (EMB), with the support of a central project management office, steer the development of the business units and monitor the implementation of defined measures using project maps with specific targets for each project. On the basis of global megatrends, growth paths are defined, opportunities and risks are evaluated, portfolio decisions are made and the focuses of in-house research and development are determined using technology roadmaps at strategy and results meetings held twice a year.

A planning forecast for the coming year and a five-year period is created annually on the basis of the long-term corporate strategy, summarizing the proposed economic development. In the course of a fiscal year, the planning for that year is updated in several forecast cycles. Planning follows the bottom up/top down principle in the new segment structure in force since January 1, 2016. The starting point for this is formed by the harmonized strategic plans from the segments and operational business units that are geared towards market requirements. Possible larger acquisitions are not included in the planning process.

The group-wide introduction of the “LucaNet” software solution at the beginning of the 2016 fiscal year improved the efficiency of the planning process, forecasting reliability – also thanks to a rolling forecast –, analysis of business development and reporting. Now global financial information can be recorded and evaluated automatically.

Monthly results meetings are used for operational control. At these meetings, the division heads report to the Executive Board on the economic situation, the development of customer relationships, the competitive situation and any special business events. They employ standardized reporting methods largely involving performance indicators, information parameters and qualitative assessments, which can then be used to define further operating and strategic measures to achieve the objectives in the event of planning deviations. The internal reports for the monthly Executive Board meetings provide financial



Further information
 see chapter Forecast

information aggregated by segment, which is used as the basis for Executive Board resolutions, global management of the Group and targeted resource allocation.

The indicator system used in internal reports and, for example, to manage the business units in 2016 comprises high-priority performance indicators (“key performance indicators”) and other financial and non-financial information parameters. All the indicators chiefly focus on shareholder value, the requirements of the capital market and the strategy of profitable growth. The key indicators are shown in the diagram below. A rolling forecast is used to plan and control the company’s development. **G07**

In the 2016 fiscal year, the control system underwent further development that resulted in a greater focus of the indicator base to better foreground the performance indicators relevant to the company control system from 2017 on. In the current fiscal year 2017, too, the Jenoptik Group is committed to the continuous improvement of its processes. Key aspects of this are the implementation of an SAP business warehouse and the further development of the treasury management system. This will allow us to better reflect the markets’ dynamic growth and thus obtain important control information both faster and more efficiently.

G07 Performance Indicators for Corporate Management in 2016

Key performance indicators	Growth	Revenue, order intake	Growth	Number of employees
	Profitability	Group operating result (EBIT) earnings before tax (EBT), EBITDA		
Information parameters	Liquidity	Free cash flow, net debt		
	Return	EBIT margin, return on capital employed (ROCE)		
	Growth	Order backlog, frame contracts	HR management	Training, fluctuation, sick days
	Liquidity	Working capital	Process Control	Throughput times, reject quotes quality management
	Financial indicators		Non-financial indicators	

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Research and Development

As a technology group, research and development (R+D) is of key importance to Jenoptik and it is crucial to the company’s future performance and thus its economic success. Our key strategic aim is to acquire, secure and expand our position as an innovation leader in the areas relevant to us. We also strive to develop market-oriented products and platforms with unique selling points and protect them by means of industrial property rights. For our positioning in the B2B business, this means helping to make our industry clients more efficient and consequently increasing their own earnings capacity.

Innovation Process

A strategic analysis of global megatrends and the requirements of our customers are first used to identify potential opportunities for growth. These then become innovation projects aligned with our core competencies and often in direct cooperation with key customers.

The Jenoptik Group’s innovation process is multi-stage and follows the procedural guidelines set by the central innovation management. Strategic development projects are planned in R + D roadmaps on the basis of corresponding milestones. This applies to product, technology and process innovations.

To further increase our innovative power, we must not only develop technologies and products. In particular, new digital business models based on our already existing technologies and expertise are huge growth levers. The most recent example and also the winner of the Jenoptik Innovation Award 2016 was the toll project in the Mobility segment. Its toll monitoring pillar will enable Jenoptik to be a partner in the future for the truck tolls charged on German federal highways. In 2016, it secured a contract in the mid double-digit million euros range in a new market segment. The reason for this success was that we were able to combine our outstanding technology and product base with our expertise in software and data processing.

T07 Employees in R+D

	2016	2015
Number of employees in R+D	426	425
Percentage of overall workforce	11.7	11.7

Employees in Research and Development

The experience and expertise of our employees are a key factor in the success of our research and development work, and the qualification standards we expect of them are correspondingly demanding. Their knowledge is used both for segment-specific tasks and across all segments in corresponding development projects. T07

The Scientific Advisory Council  is a committee of experts available to Jenoptik which supports the Group in the monitoring and evaluation of long-term technology trends. In 2016, the Advisory Council was adapted in line with the current technological and market-related orientation of the company, with some new members. Its first meeting in its new form saw the generation of a large number of ideas and these are currently being worked on with the intention that they will lead to innovative new products in the future.

Cooperation Arrangements and Associations

The Group procures external expertise with the help of targeted cooperation arrangements. The objectives of research cooperation arrangements range from the market-driven realization of joint projects to reductions in development time frames through to the successful organization of specialist expertise. Jenoptik works together with both universities and non-university institutions – and also with industrial partners and key customers.

In 2016, Jenoptik was active in the following cooperation arrangements, among other things: A group of ten partners (including the Fraunhofer Institute for Applied Optics and Precision Engineering (IOF) Jena and the Friedrich-Schiller University Jena) working on the fo+ Project laid the basis for a manufacturing chain for the manufacture of freeform optics from the basic design to installation in a system. Freeform optics offer advantages over spherical or aspherical optics, in particular with respect to flexibility, weight and robustness, but their manufacture is much more costly. The project was funded partly by the German Federal Ministry of Education and Research (BMBF) as a growth center and was successfully completed on time at the end of 2016, having achieved all the planned results.



Information can be found on page 191

The **InnRet Project** is aimed at developing a demonstrator of a wireless and tamper-proof radio control for the next generation of helicopter rescue winches. This will enable the winch to be operated by the winchman in person, thus significantly improving the level of safety. Work on the InnRet Project is being carried out in conjunction with the German Aerospace Center and the Airbus Group, and is funded in part by the German Federal Ministry for Economic Affairs and Energy (BMWi) within the scope of the Aerospace Research Program (LuFo). Once completed, the results will be used to develop and offer a radio control as an additional piece of equipment.

In everyday traffic, pedestrians and cyclists are particularly vulnerable as so-called weak road users. The aim of the **XCYCLE Project** is to predict the likelihood of a collision between cyclists and motorized road users at intersections using a combination of different sensor data and to use appropriate measures to prevent such a collision. As part of the "Horizon 2020" project, funded in part by the EU, Jenoptik cooperated with the German Aerospace Center, Volvo and other project partners in 2016 to develop the hardware and software required for this project, testing and demonstrating its operational capability at a research intersection in Braunschweig.

Jenoptik also strongly advocates an environment that encourages innovation, promotes the image of photonic technologies and plays an active role in numerous sector and technology-oriented associations. The German Industry Association for Optical, Medical and Mechatronical Technologies e.V. (SPECTARIS) or the European Technology Platform Photonics21 are just two examples of this.

Development Output

The **R + D output** of the Jenoptik Group, including developments on behalf of customers, totaled 57.4 million euros in 2016 (prior year 53.1 million euros). Development costs in connection with customer orders are apportioned to the cost of sales. **T08**

R + D output is distributed among the segments as follows: **T09**

R + D output in the **Optics & Life Science segment** includes development costs on behalf of customers worth 7.6 million euros (prior year 5.9 million euros), as key development projects are frequently carried out together with customers. R + D expenses in 2016 totaled 14.3 million euros (prior year 15.0 million euros).

T08 R + D Output (in million euros)

	2016	2015	2014	2013	2012
R + D expenses	42.3	41.8	39.4	39.8	36.0
Capitalized development costs	0.1	0.4	0.5	0.2	1.2
Developments on behalf of customers	15.0	10.9	10.5	12.2	13.3
R + D output	57.4	53.1	50.4	52.2	50.6
R + D ratio 1 (R + D output/revenue) in %	8.4	7.9	8.5	8.7	8.6
R + D ratio 2 (R + D expenses/revenue) in %	6.2	6.2	6.7	6.6	6.2

T09 R + D Output by Segment (in million euros)

	2016	2015	Change in %
Group	57.4	53.1	8.2
Optics & Life Science	21.9	21.0	4.5
Mobility	24.5	24.5	0.0
Defense & Civil Systems	10.6	7.5	42.4
Other, incl. consolidation	0.3	0.1	234.8

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The R+D output of the [Mobility segment](#) included developments on behalf of customers totaling 4.2 million euros (prior year 3.2 million euros). The segment's R+D expenses came to 20.3 million euros (prior year 21.0 million euros).

In 2016, developments directly on behalf of customers in the [Defense & Civil Systems segment](#) came to 3.3 million euros (prior year 1.8 million euros). The segment is also a long-term partner for large systems companies and develops platform technologies in conjunction with its customers. The segment's R+D expenses totaled 7.4 million euros (prior year 5.6 million euros).

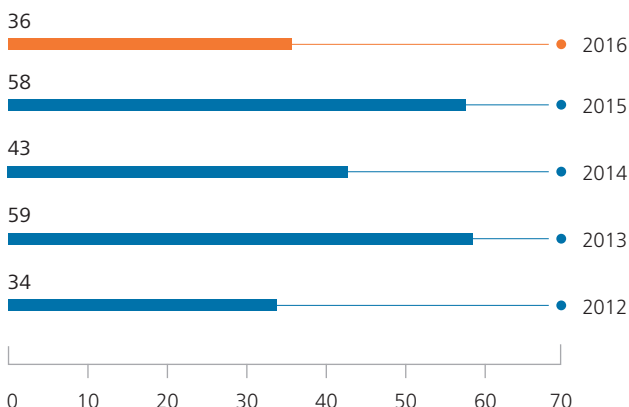
Patents

Our R+D capital expenditure is protected via central IP management in close cooperation with the operating areas. We accord particular importance to patent applications in dynamic growth markets such as China, Korea and the US. A total of 36 patents were filed in 2016 (prior year 58). Alongside numerous patent registrations in the field of "optical components" and "optical modules", particular growth was seen in the patent portfolio for "surface metrology" and "traffic safety systems".

G08

The number of patents does not include registered designs, utility models or brand registrations. For competition reasons, Jenoptik does not publish information on the receipt and issue of licenses.

G08 Number of Patent Registrations



Key Projects and Results

Our aim is to offer our customers the very best solutions. We do this by combining our all-round expertise with a broad wealth of experience in managing innovation in photonic technologies to the benefit of our customers. The following solutions are some of those developed and brought to the market by Jenoptik in 2016:

2016 saw the further development of microoptical solutions for the [semiconductor equipment industry](#) along with the optimization of technologies for microstructuring, the expansion of system integration options and the creation of new product platforms. Particularly for manufacturing and test equipment used in consumer electronics manufacturing, it has been possible to introduce to the market new products such as encapsulated transmission gratings with maximum efficiency or precise beam-shaping elements. The new applications also expand the activities in information and communication technology.

In the area of [optical systems for laser material processing](#), Jenoptik was able to significantly expand its market position in 2016 thanks to a very successful further development of the catalog range of F-Theta lenses and beam expander optics. Our developments in the field of high-performance laser applications as well as for micro material processing are characterized by unique precision and thermal stability. Optics for processing with ultrashort pulse lasers are supplied with special certification and convince customers with their particularly long service life. These products are targeted, for example, at the automotive/machine construction and medical technology growth markets.

For our customers in [medical technology](#) and for scientific applications, 2016 saw the launch of several new microscope cameras in the PROGRES GRYPHAX product range. Combined with the further developed application software, it was once again possible to significantly increase the quality of the digital image processing. The new cameras are used, for example, in life science research, for routine microscopy, e.g. in material inspection or in forensics. Especially in scientific applications with difficult light conditions, the cameras provide an outstand-

ing image quality with brilliant colors, extremely low noise and consequently high richness of detail. Thanks to the video speed of 30 frames per second, there is absolutely no delay in the display of the live images. Positioning and focusing on the sample to be examined is now also even more time-saving.

In order to be able to offer powerful and innovative system solutions for imaging techniques and diagnostic applications in the healthcare market, Jenoptik expanded its technology portfolio in the past fiscal year to include next generation laser beam sources and image processing systems. The Group also participated in the growing market for aesthetic laser treatments, for which more integrated solutions will be offered from 2017 onwards. Instead of the existing laser modules, Jenoptik will in the future supply application-specific assemblies which will facilitate more efficient treatment.

Jenoptik has also developed numerous new products for the [automotive industry](#) over the past fiscal year. In the JENOPTIK-VOTAN A product family, for example, the JENOPTIK-VOTAN A Scan laser machine has been further developed to also enable perforation of leather-covered dashboards for passenger airbags. In the US state of Michigan, Jenoptik, along with US automotive supplier Magna Exterior Inc. and automotive manufacturer GM, received the "SPE Automotive Innovation Award" in the "Processes, Production & Key Technologies" category. The excellent laser cutting and welding machines optimize the machining of bumpers in the plastics sector. Environment detection sensors have been developed for driver assistance systems. In future these may also be used in driverless cars.

Maximum precision and measuring speed ensure the high production quality demanded by the global automotive industry. In order to respond more effectively to the future requirements of customers, our developers modernized the measuring machines used for the final inspections of crankshafts and camshafts. The "TOLARIS Shaft" software designed for this purpose and newly launched in 2016, improves the measurement and control electronics of these machines. Our "TOLARIS" software product portfolio now offers software for all application areas of dimensional metrology. It has uniform interfaces to customer QA systems and standardized internal data formats.

In order to meet the needs of its customers to an optimal extent, Jenoptik offers "wavemove" modular, fully-automated measuring systems, which are used worldwide to measure the roughness of components in the car and truck powertrain. The technology was simultaneously transferred to the USA, thereby enabling the business units there to generate local added value in this important growth market.

Parallel to the individual product developments, our R+D team also intensively examines the effects of Industry 4.0 and digitization so that these can be incorporated into the specifications for future developments. The automation, flexibility and shortening of measurement times to improve process efficiency for customers are already the focus of the product requirement for current developments.

In the [Traffic Solutions](#) area, Jenoptik successfully entered the market for truck toll payment systems in 2016, offering a unique solution for recording and classifying trucks on federal highways through the digital combination of different sensor technologies. The new system is connected to the nationwide top-level control system of the toll company Toll Collect, combining modern sensor technology with stereo image processing and side-view cameras. This facilitates axle detection together with recording of the dimensions. This means that the toll payment systems can be installed on the side of federal highways, making the comprehensive installation of control bridges unnecessary. This limits interference in the environment.

Since 2016, the Jenoptik TraffiSection system has been tested in a pilot project for the traffic monitoring market aimed at determining average speed, taking into account the German data protection regulations and with the inclusion of the Physikalisch-Technische Bundesanstalt (PTB) regulatory authority.

Over the past fiscal year, the development of the laser range-finder product line has been one of the key development topics in the area of [security](#). The new DLEM SR High Precision is char-

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acterized by a significant increase in range and precision combined with a lower weight, smaller form factor and reduced manufacturing costs. A new distance measuring module for installation in military monitoring systems – a lightweight unit weighing 33 grams and the size of a matchbox – was introduced to the market. It measures distances up to several kilometers away to an accuracy of just a few centimeters. It is the smallest and lightest of its kind in the world. The prototypes have proved themselves in practical use. Selected key customers were given the first test devices for field tests under realistic conditions.

In the **aviation** area, the prototype of the new “SkyHoist 800” civilian electric rescue winch for helicopters, which is used to rescue people, for example, was presented to the international market during a trade fair in 2016. The rescue hoist is being developed in cooperation with external partners and its expected launch is in 2018. A number of different innovations should make it a success: the new electric drive concept, a completely new operating concept with radio remote control and a new maintenance concept, which facilitates scheduled maintenance and repairs. Another innovative product is a new fault current sensor for use in airplanes for the early detection of fault currents in heating elements, for example in floor panels, ensuring their safe shutdown before damage can occur. This component can also be retrofitted and works in conjunction with the Ice Protection Control Unit (IPCU) from Jenoptik.

Employees

Development of Employee Numbers

At 3,539, the number of Jenoptik employees (incl. trainees) was almost unchanged as at December 31, 2016 (31/12/2015: 3,512) – increase of 0.8 percent. The Group’s internationalization strategy has led the number of Jenoptik employees abroad to increase by 9.1 percent to 686 employees (31/12/2015: 629). Thus the proportion of employees abroad increased to 19.4 percent (31/12/2015: 17.9 percent). **T10**

The expansion of the Shared Service Center structures into the growth regions of the Americas and Asia/Pacific has resulted in an increase in the number of employees in the Other segment. This was primarily due to the transfer of employees from the segments due to the centralization of tasks. **T11**

Temporary workers are employed to cover short-term peaks in production. On December 31, 2016, 64 temporary workers were employed in the Group (31/12/2015: 101).

At 246.1 million euros, personnel expenses in 2016 (wages, salaries, social security deductions, costs for retirement provision) were up 2.7 percent compared with the prior year’s figure of 239.6 million euros. Reasons for this include the slight increase in the number of employees and the new collective agreements.

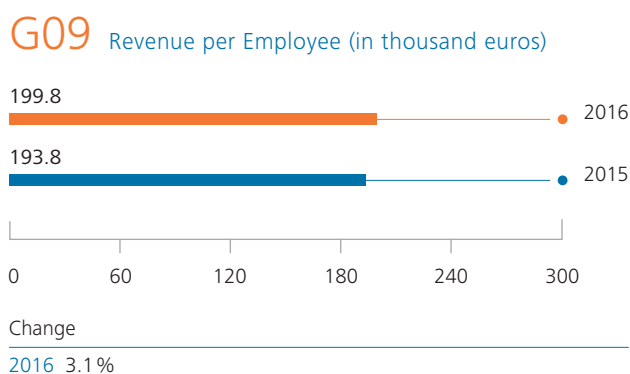
T10 Employees as of December 31 by Segment (incl. trainees and academy students)

	2016	2015	Change in %
Group	3,539	3,512	0.8
Optics & Life Science	1,123	1,144	-1.9
Mobility	1,229	1,207	1.8
Defense & Civil Systems	881	881	0
Other	306	280	9.3

T11 Employees as of December 31 by Region (incl. trainees and academy students)

	2016	2015	Change in %
Germany	2,853	2,883	-1.1
Abroad	686	629	9.1
Europe (excl. Germany)	174	163	6.7
Americas	285	260	9.6
Asia/Pacific	227	206	10.2

Revenue per employee increased by 3.1 percent to 199.8 thousand euros. The positive change compared with the prior year (193.8 thousand euros) was due to the disproportionate increase in revenue. **G09**



As at December 31, 2016, the proportion of women in the Group (in Germany and abroad) was 27.0 percent, remaining almost unchanged in the past year (31/12/2015: 26.9 percent).

The employee age distribution, as can be seen in the table below, is balanced and corresponds as far as possible to the figures of the prior year. **T12**

T12 Employee Age Distribution (in percent)

Under 30 years old	30–39 years old	40–49 years old	50–59 years old	60–65 years old	More than 65 years old
12.99	26.07	23.08	25.63	11.49	0.74

The absenteeism rate among Jenoptik employees in Germany decreased slightly from 5.6 percent in the prior year to 5.4 percent in 2016. The employee turnover rate has increased slightly, from 3.6 to 4.2 percent.

Training

As of December 31, 2016, the Group had 123 trainees and career academy students (31/12/2015: 125), of which 39 new trainees were taken on at the European Jenoptik sites in the year covered by the report. At the same time, 30 apprentices and students of the dual university at the European sites successfully completed their apprenticeship in the year under review and took up positions in the Group.

At the Wedel, Villingen-Schwenningen, Jena and Triptis sites, the new trainees receive job-specific training for optical, precision engineering, electronic and business occupations at training centers. Jenaer Bildungszentrum gGmbH – Schott, Zeiss, Jenoptik – in which Jenoptik is a partner, has also established itself as a training center for optics and photonics at a national level.

Human Resources Development

In 2016, Jenoptik invested around 1.8 million euros (prior year 1.6 million euros) in training and professional development, benefiting 1,832 employees (prior year 1,601 employees) in the year covered by the report. HR development requirements are reviewed once a year as part of an analysis of training needs.



Further information can be found in the Sustainability chapter on page 90

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Economic Report

Macro-economic and Sectoral Developments

The [global economy](#) developed moderately in 2016: The International Monetary Fund (IMF) noted in its "World Economic Outlook" subdued trading dynamics in the first half of the year and moderate industrial production, slightly mitigated by growth in the last months. The sluggish momentum was chiefly caused by weakness in the industrialized nations, especially the US, in the first half of the year. By contrast, the market reaction to the Brexit decision – apart from a noticeable drop in the value of the British pound – has been largely modest. Investments were weaker in the newly industrialized countries due to the low oil prices. **T13**

In various press releases the US Department of Commerce informed about the development of the [US economy](#), which began to improve again from the Autumn, although it was once again mostly driven by consumer spending. The third quarter was the strongest for two years, recording an increase of 3.5 percent in the gross domestic product (GDP). However, momentum fell sharply again in the final quarter, with the result that the economic output increased by just 1.6 percent in 2016. This was the lowest growth recorded in five years, due primarily to recent weak exports.

T13 Change in Gross Domestic Product (in percent)

	2016	2015
World	3.1	3.2
USA	1.6	2.6
Euro zone	1.7	2.0
Germany	1.7	1.5
China	6.7	6.9
India	6.6	7.6
Newly industrialized countries	4.1	4.1

Source: International Monetary Fund, World Economic Outlook, January 2017

[China's](#) economy in 2016 grew at a slower pace than at any time in the past 26 years, although it was sustained in the second half of the year by a real estate boom, credit growth and massive public investment in infrastructure. According to data in a press release of the Beijing Municipal Bureau of Statistics, the GDP increased by 6.7 percent. Exports declined significantly by 7.7 per cent and imports by 5.5 percent. The IMF warned that growth in China is still heavily dependent on state investment and is burdened by high corporate debt.

The economy in the [euro zone](#) remained on a moderate growth path in 2016. According to a preliminary estimate published in a press release by the statistical office Eurostat, GDP increased by 1.7 percent compared with the prior year. By the end of the year, industrial production, order intake and purchasing managers' indices had in part improved significantly.

Despite a weak 3rd quarter, the [German economy](#) grew more strongly than expected in 2016. According to the German Federal Statistics Office, the 2016 GDP increased by 1.9 percent compared with the previous year. This was mainly due to consumer spending, government spending, which rose by 4.2 percent, as well as to the continuing real estate boom. Capital expenditure on machinery and vehicles increased by 1.7 percent. New record values were achieved in foreign trade: goods worth more than 1.2 trillion euros were exported; the value of imports totaled 954.6 billion euros. Although, at the end of the year, German companies, particularly in the industrial sector, recorded the strongest production slump for almost eight years, industrial orders and the Business Climate Index of the Ifo institute for the current situation indicated an upturn into the new year.

Revenue in the [semiconductor equipment industry](#) increased globally in 2016 by 8.7 percent to 39.7 billion US dollars (prior year 36.5 billion US dollars), according to provisional calculations by the Semiconductor Equipment and Materials International (SEMI) trade association published in a press release. According to a press release of the Semiconductor Industry Association (SIA), the [semiconductor](#) industry achieved a record revenue of almost 339 billion US dollars in 2016, 1.1 percent above the figure for the prior year. After a poor start, momen-

tum improved from midway through the year, driven primarily by macroeconomic factors, industry trends and the increasing use of semiconductor technology in communications, production and healthcare applications. On a regional basis, revenue increased only in China and Japan, falling in the remaining APAC countries, Europe and America compared to the prior year. IT analyst Gartner calculated industry revenue of just under 340 billion US dollars, which was 1.5 percent higher than in 2015.

G10

According to a press release of the [German Engineering Federation](#) (VDMA) published at the beginning of the year, the industry suffered as a result of the weak global economy and due to political uncertainties in 2016. Demand for capital goods remained globally weak in 2016 and without growth. Production and revenue from German machine tool manufacturers stagnated in comparison with the prior year, the order intake fell by 2 percent throughout the year.

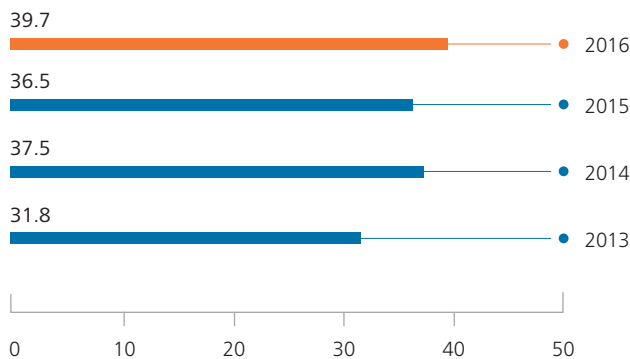
According to a press release of the Association of German [Machine Tool Manufacturers](#), VDW, German manufacturers received 7 percent more orders in 2016 than in the prior year. Orders from abroad rose by 10 percent, while domestic orders remained at the prior year's level. According to the VDW, the German machine tool industry benefited primarily from large-volume and automotive-driven project business worldwide. At 15.2 billion euros, the production value reached a new record.

Despite the scandal surrounding manipulated emissions testing data, the major markets in the [automotive industry](#) once again showed positive development in 2016 as stated by VDA, the German industry association, in various press releases: In Western Europe, the number of new registrations rose to 14.0 million passenger cars – the highest level since 2007. The US market for light vehicles (cars and vans) increased only modestly to 17.5 million vehicles, also a new record. In China, tax incentives helped car sales to increase by almost 18 percent to 23.7 million new vehicles sold by the Autumn of 2016. The market in India also saw positive development, while sales in Brazil and Russia declined by double digits. In Germany, the number of new registrations rose for the third time in succession, thus reaching the highest volume this decade. Exports from Germany remained at the same level as the previous year. According to the VDA, the world market for heavy commercial vehicles grew further in 2016. 2.9 million trucks were sold worldwide, 6 percent up on 2015. The main drivers were China and Western Europe, while as expected, business in the US and Brazil declined significantly. Regarding the US market, the VDA reported that the German car manufacturers and suppliers have quadrupled their US production since 2009, with the number of locations tripling over the past 20 years.

In the [traffic safety](#) sector, the German Federal Statistical Office's preliminary accident statistics indicate that the number of road deaths in Germany fell in 2016 compared with the prior year. Using the figures until December as a base, it is estimated that around 3,200 people died on the roads throughout the year, 7.1 percent less than in the prior year. According to the World Health Organization, more than 3,400 people are killed every day worldwide. In the US, the number has risen for two years and last year, for the first time since 2007, the figure exceeded 40,000 as reported by the National Safety Council (NSC) in a press release. Together with injuries and property damage, the estimated costs amounted to more than 430 billion US dollars, a 12 percent increase on 2015, as stated by the NSC. Regarding traffic monitoring, a decision was made in Germany that is important for Jenoptik: the German government decided to extend the truck toll to around 40,000 kilometers of federal highways with the aim of improving the infrastructure and its financing.

The German [railway industry](#) recorded record revenue in the first half of 2016: according to a press release of the German Railway Industry Association (VDB), revenue increased by 5.8 percent to 5.5 billion euros in comparison with the same period

G10 Semiconductor Equipment: Global Revenue
 (in billion US dollars)



Source: Semiconductor Equipment and Materials International (SEMI)

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last year. However, the order intake fell by almost a quarter in the first six months, with orders from abroad alone falling by a good 46 percent. According to the VDB, this is not yet a warning indicator in light of the high order backlog from the prior year. However, at the industry trade fair Innotrans in the Autumn of 2016, market analysts from SCI Verkehr and McKinsey reported in industry reports that the global railway technology sector is under pressure following a growth phase. It is suffering from considerable overcapacity, lower margins and high competitive pressure. Above all, the new market leader among the Chinese railway companies was increasingly investing in exports, as investment in Chinese rail projects is declining, and is thereby undermining established railway technology manufacturers.

In the [aviation](#) industry, aircraft manufacturer Airbus achieved a new record in delivery numbers in 2016, but with 688 aircraft once again trailed behind Boeing, which delivered 748 – as reported in group press releases at the beginning of 2017. The order intake situation was the other way round: although Airbus received 731 orders, significantly less than in the previous year (more than 1,000), it was ahead of its US competitor, which recorded 668 new orders. According to the most recent calculations from the International Air Transport Association (IATA) published in a press release, the international aviation industry achieved record profits in 2016 of 35.6 billion US dollars, somewhat lower than the association's June forecast. This was due primarily to weaker global economic growth and higher costs.

At the beginning of 2017, the German Federal Ministry for Economic Affairs and Energy published its provisional Armaments Export Report for the German [security and defense technology industry](#) for the prior year. As a result, fewer arms exports were approved in 2016: at 6.88 billion euros, the value of the individual export licenses permits was around one billion below the prior year's figure of 7.86 billion euros. This put the brakes on the trend from the first half of 2016, but according to the armaments companies this was also due to long testing and approval procedures. In a report published in the Autumn of 2016, the Federal Ministry of Defense drew up an interim report on the reform of military procurement. The documentation of the status and risks of current armament projects revealed some successes in modernization, but also increased costs and delays, for example in the new tactical air defense system (TLVS).

Legal framework conditions

The [legal framework conditions](#) governing business operations essentially remained constant in the fiscal year 2016 and therefore had no significant impact on the business development of the Jenoptik Group.

Earnings, Financial and Asset Position

Comparison of Actual and Forecast Course of Business

In January 2016 with the publication of the preliminary results, the Jenoptik Management predicted moderate organic growth in revenue and earnings in a first outlook for the current fiscal year. In March, the forecast for revenue was set at between 680 and 700 million euros. Growth was supposed to be achieved in the Optics & Life Science and Mobility segments. Following the strong increase in revenue and earnings in 2015, stable development was expected in the Defense & Civil Systems segment. The Group EBIT was also supposed to rise moderately and, depending on revenue, the EBIT margin to come in at between 9.0 and 9.5 percent. Acquisitions were not included in these forecasts but were not ruled out for the 2016 fiscal year.

In the light of a good development in the first nine months, the Executive Board then firmed up its projection for the EBIT margin in the nine-months report in mid November. This should then be at the upper end of the previous range of 9.0 to 9.5 percent. Group revenue was expected to be unchanged at between 680 and 700 million euros.

In the reporting year, the Jenoptik Group generated revenue of 684.8 million euros, falling within the forecast range.

The EBIT margin of 9.7 percent (including the EBIT from discontinued operations of 10.0 percent) is a value which exceeds that which was announced in November. Profitability thus significantly improved compared to the prior year.

The development of revenue and EBIT for the segments is shown in the following table. **T14**

EBITDA also saw an increase. However, since investments and depreciation were lower than planned, the growth was lower than in EBIT.

Due to several large orders received by the Group in 2016, the increase in order intake was significantly higher than that in revenue and thus also greater than expected.

The free cash flow developed better than predicted in the Spring of 2016; at 80.4 million euros at the end of 2016, it was significantly above the prior year's value.

As of December 31, 2016, the Jenoptik Group had completely eliminated the net debt; the cash and cash equivalents and current financial investments even exceeded the current and non-current financial debt. Since unchanged net debt had been assumed in the forecast of March 2016, the Group also showed better development here than originally expected.

Capital expenditure, at 27.5 million euros, remained below the planned figure, in part due to postponements and in individual business units due to changed business developments.

Our projection issued in the Management Report in March 2016 regarding other key indicators for the year as a whole proved to be generally accurate.

T14 Actual and Forecast Course of Business (in million euros/or as specified)

Indicator	Year-end 2015	Forecast 2016	Year-end 2016	Change in %
Revenue	668.6	January: Moderate organic growth March: Between 680 and 700 million euros	684.8	2.4
Optics & Life Science	213.7	March: Growth in the mid single-digit percentage range	221.5	3.7
Mobility	244.6	March: Growth in the mid single-digit percentage range	247.7	1.3
Defense & Civil Systems	211.4	March: Stable	218.3	3.2
EBITDA ¹⁾	88.8	March: Slightly stronger rise than EBIT	96.9	9.1
EBIT ¹⁾	61.2	January: Moderate rise March: Moderate increase	68.5	11.8
Optics & Life Science	19.7	March: Rise stronger than revenue	33.4	69.4
Mobility	27.0	March: Rise stronger than revenue November: EBIT slightly below prior-year level	24.4	-9.5
Defense & Civil Systems	17.9	March: Stable November: Slight rise in EBIT	19.1	6.8
EBIT margin ¹⁾ in %	9.2	March: EBIT margin between 9.0 and 9.5 % November: EBIT margin at upper end of the range from 9.0 to 9.5 %	10.0	
EBT ¹⁾	57.4	March: Development as EBIT	64.7	12.7
Order intake	636.7	March: Rise corresponding to moderate revenue growth	733.8	15.2
Net debt	43.9	March: Stable (without acquisitions)	-17.9	
Free cash flow	71.8	March: Considerably below 2015 figure	80.4	12.0
ROCE ¹⁾ in %	13.5	March: Around the 2015 level	16.1	
Capital expenditure ²⁾	24.7	March: 35 to 40 million euros	27.5	11.4
Employees (number)	3,512	March: Slight rise, at slower rate than business growth	3,539	0.8


¹⁾ incl. discontinued operations

²⁾ excluding company acquisitions

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Earnings Position

The tables in the Management Report, which show a breakdown of the key indicators by segment, include the Corporate Center, the Shared Service Center, real estate and consolidation effects under "Other."

In the 2016 fiscal year, the Jenoptik Group generated revenue of 684.8 million euros (prior year 668.6 million euros) and thus achieved growth of 2.4 percent compared to the prior year. At 192.2 million euros, the fourth quarter of 2016 was the strongest in both the past fiscal year and the years before. All the segments reported revenue growth in 2016. Reasons for this increase included higher demand for energy and sensor systems, an upswing in investment in the automotive industry, especially in the field of laser machines, and stronger demand for optical systems.  T15

On a regional basis, growth stimulus came mainly from the Asia/Pacific region and the Americas, but also from Germany. Compared with the previous year, revenue in the Asia/Pacific region increased by 11.3 percent to 100.2 million euros (prior year 90.0 million euros), chiefly due to the increased demand

for traffic safety products in Australia and for railway technology in Korea. Group revenue also saw a sharp rise of 5.3 percent in the Americas. The reasons for this include higher demand for optical systems and laser processing machines for the automotive industry. The share of revenue for both growth regions of the Americas and Asia/Pacific combined came to 34.4 percent of group revenue (prior year 32.7 percent). Revenue in the Middle East and Africa of 25.1 million euros was below that of the prior year (prior year 34.2 million euros), particularly due to a lack of investment by the oil-exporting countries. At 458.2 million euros, Jenoptik generated 66.9 percent of revenue abroad in the past fiscal year (prior year 450.8 million euros or 67.4 percent). Outside Germany, Europe remained the region with the highest revenue, accounting for 28.9 percent of group revenue, followed by the Americas with 19.7 percent. T16

In 2016, Jenoptik again generated its greatest share of revenue (31.1 percent) in the automotive/machine construction target market. The share of revenue in the security and defense technology sector fell to 21.4 percent (prior year 25.7 percent). Major orders had been settled here in 2015. Revenue in the aviation and traffic market rose significantly, above all due to greater revenue generated in the railway technology area. In



See the Segment Report for more information on the development of revenue in the segments

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T15 Revenue by Segment (in million euros)

	2016	2015	Change in %
Group	684.8	668.6	2.4
Optics & Life Science	221.5	213.7	3.7
Mobility	247.7	244.6	1.3
Defense & Civil Systems	218.3	211.4	3.2
Other	-2.7	-1.1	-160.4

T16 Revenue by Region (in million euros and in percent of total revenue)

Group	2016		2015	
	Revenue	% of Total	Revenue	% of Total
Group	684.8	100.0%	668.6	100.0%
Germany	226.5	33.1%	217.8	32.6%
Europe	197.8	28.9%	198.1	29.6%
Americas	135.2	19.7%	128.4	19.2%
Asia/Pacific	100.2	14.6%	90.0	13.5%
Middle East/Africa	25.1	3.7%	34.2	5.1%

2016, 16.3 percent of group revenue was attributable to the top three customers (prior year 13.8 percent). **T17**

The **cost of sales** rose by 1.0 percent to 446.9 million euros and at a slightly lower rate than revenue (prior year 442.5 million euros). The cost of sales includes expenses arising from developments directly on behalf of customers of 15.0 million euros (prior year 10.9 million euros), which were offset by corresponding revenues. **T18**

The gross profit correspondingly increased to 237.9 million euros (prior year 226.2 million euros). The **gross margin** rose to 34.7 percent (prior year 33.8 percent), due to a changed product mix. **G11**

Key factors in the Group's future performance and competitiveness are the **research and development expenses (R+D expenses)**. These increased slightly to 42.3 million euros (prior year 41.8 million euros). The share of R+D expenses as a

proportion of revenue remained constant at 6.2 percent due to increased developments on behalf of customers compared with the prior year. **G11**

The Jenoptik Group again pushed ahead with its internationalization strategy in the 2016 fiscal year. In the course of expanding international activities, **selling expenses** rose by 1.4 percent to 73.6 million euros in 2016. Selling expenses include personnel expenses and the cost of materials as well as sales-related depreciation. They also include the expenses for sales commissions as well as marketing and communication. At 10.7 percent, the selling expenses ratio was slightly down on the prior year level of 10.9 percent.

General and administrative expenses came to 57.6 million euros (prior year 54.0 million euros). These costs increased as expected due to the ongoing internationalization process, the expansion of global Shared Service Center structures as well as in connection with the change in the make-up of the Execu-

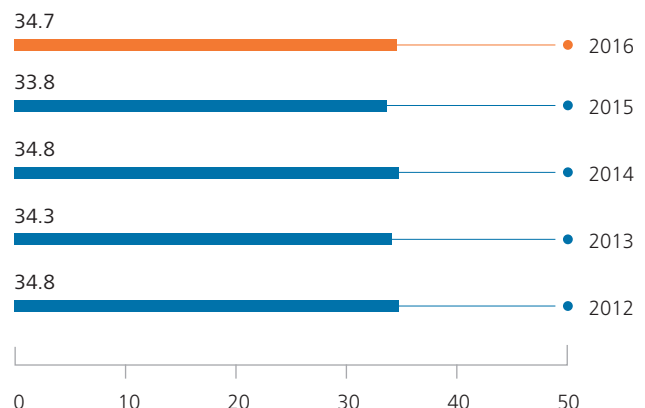
T17 Revenue by Target Market (in million euros and in percent of total revenue)

Group	2016		2015	
	Revenue (million euros)	Percent of total revenue	Revenue (million euros)	Percent of total revenue
Group	684.8	100.0 %	668.6	100.0 %
Automotive & machine construction	213.3	31.1 %	177.2	26.5 %
Security & defense technology	146.3	21.4 %	171.9	25.7 %
Aviation & traffic	142.3	20.8 %	139.8	20.9 %
Semiconductor equipment industry	91.8	13.4 %	81.2	12.1 %
Medical technology	42.1	6.1 %	47.6	7.1 %
Other	49.1	7.2 %	51.0	7.6 %

T18 Key Items in the Statement of Comprehensive Income (in million euros)

	2016	2015	Change in %
Cost of sales	446.9	442.5	1.0
R+D expenses	42.3	41.8	1.3
Selling expenses	73.6	72.6	1.4
Administrative expenses	57.6	54.0	6.6
Other operating income	23.4	27.0	-13.5
Other operating expenses	21.5	23.8	-9.4

G11 Development of the Gross Margin (in percent)



More detailed information on research and development can be found from page 63 on

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tive Board. The administrative expenses ratio was at 8.4 percent above that of the prior year (prior year 8.1 percent).

Other operating income reduced to 23.4 million euros (prior year 27.0 million euros) and was primarily influenced by positive currency effects, income from impairments on receivables as well as from reversals of impairment losses on real estate and profit from the sale of an investment.

Other operating expenses, at 21.5 million euros, were also down the level of the prior year (prior year 23.8 million euros). They included currency losses, expenses for services and leasing, as well as costs for group projects such as Jenoptik One ERP (JOE).

Following a slow start to the year, Jenoptik also achieved a new record in its operating results over the 2016 fiscal year. The total **operating result (EBIT)** rose faster than revenue by

11.8 percent to a total of 68.5 million euros (prior year 61.2 million euros). This includes earnings of 2.3 million euros originating in the sale of a former business unit (prior year 0.2 million euros) and is disclosed as EBIT from discontinued operations. Overall, the EBIT margin improved correspondingly to 10.0 percent (prior year 9.2 percent) and was thus considerably above the target corridor for 2016. The EBIT in continuing operations came to 66.2 million euros in 2016, equating to an EBIT margin of 9.7 percent (prior year 61.0 million euros). While earnings in the Optics & Life Science and Defense & Civil Systems segments rose sharply, EBIT in the Mobility segment remained below the level of the prior year. **T19**

As a result of the revenue growth, a change in the revenue mix and consistently applied efficiency measures, the operating results rose significantly compared to revenue.

The **earnings before interest, taxes, depreciation and amortization (EBITDA)** including impairment losses and reversals of impairment losses also increased at a faster rate than revenue by 9.1 percent to a total of 96.9 million euros (prior year 88.8 million euros). The EBITDA for continuing operations came to 94.7 million euros in 2016 (prior year 88.6 million euros). **T20**

As of December 31, 2016, the **ROCE (Return on Capital Employed)** improved to in total 16.1 percent (prior year 13.5 percent), for the continuing operations to 15.6 percent, due to boosted earnings compared to tied operating capital. Jenoptik shows this indicator inclusive of goodwill and before taxes. The method of calculating ROCE is explained in the Financial Glossary on page 192, the calculation for the continuing operations is presented in the table below. **T21**

The **financial result** in total comprised the discontinued operations and at a total of minus 3.7 million euros was slightly above the value from the prior year (prior year minus 3.8 million

T19 EBIT (in million euros)

	2016	2015	Change in %
Optics & Life Science	33.4	19.7	69.4
Mobility	24.4	27.0	-9.5
Defense & Civil Systems	19.1	17.9	6.8
Other	-10.8	-3.6	-201.2
EBIT continuing operations	66.2	61.0	8.5
EBIT discontinued operations	2.3	0.2	-
EBIT	68.5	61.2	11.8

T20 EBITDA (in million euros)

	2016	2015	Change in %
Optics & Life Science	41.7	28.3	47.3
Mobility	32.3	35.7	-9.4
Defense & Civil Systems	23.8	23.1	2.7
Other	-3.1	1.5	-307.3
EBITDA continuing operations	94.7	88.6	6.8
EBITDA discontinued operations	2.3	0.2	-
EBITDA	96.9	88.8	9.1

T21 ROCE (in million euros)

	2016	2015
Long-term non-interest bearing assets	277.6	289.3
Short-term non-interest bearing assets	301.2	318.3
Non-interest bearing borrowings	-152.3	-154.4
Average tied capital	426.5	453.2
EBIT	66.2	61.0
ROCE (in percent)	15.6	13.5



Detailed information on other operating income and expenses as well as the Statement of Comprehensive Income can be found in the Notes



Information on the segment EBIT can be found in the Segment Report on page 84 on

euros). It was influenced by negative currency effects totaling minus 0.4 million euros (prior year 2.6 million euros). The interest income fell in comparison with the prior year to 0.4 million euros (prior year 0.5 million euros). The interest expenses also reduced to 4.9 million euros (prior year 7.2 million euros) due to the payment of liabilities. In addition, the financial result was impacted by the fair value assessment of the existing put options in connection with the acquisition of the outstanding shares in the Vysionics Group in the amount of 0.6 million euros. The financial result for continuing operations came to minus 5.2 million euros in 2016 (prior year minus 3.8 million euros). Despite dividend payments received, particularly due to impairments on issued loans to and shares in non-consolidated associated companies, the result from investments of 0.3 million euros was significantly down on the prior year's figure (prior year 1.6 million euros), which was characterized by a revaluation on an issued loan.

The sharp rise in EBIT was also reflected in the **earnings before tax**, which at a total of 64.7 million euros were 12.7 percent up on the prior year (prior year 57.4 million euros). The earnings before tax for continuing operations amounted to 61.0 million euros (prior year 57.3 million euros).

The current income taxes increased to in total 9.1 million euros (prior year 5.8 million euros), income taxes of the continuing

operations rose to 8.9 million euros. 5.0 million euros (prior year 3.0 million euros) were levied in Germany and 4.2 million euros (prior year 2.7 million euros) abroad. The increase is due in particular to the increasing tax burden abroad. In Germany, JENOPTIK AG's loss carried forward had the effect of reducing the tax burden.

The cash effective tax rate, the ratio of current income taxes and earnings before tax, remained with in total 14.1 percent (prior year 10.1 percent) at a relatively low level for a German company.

Non-cash deferred tax income came to 1.8 million euros in the past fiscal year (prior year deferred tax expenses 1.7 million euros). The change resulted in particular from the recognition of additional deferred tax assets on the domestic losses carried forward of JENOPTIK AG.

In 2016, Jenoptik generated **earnings after tax** totaling 57.5 million euros (prior year 49.9 million euros). At 57.4 million euros, earnings attributable to shareholders were well above the prior year's figure of 49.6 million euros. **Earnings per share** therefore totaled 1.00 euros (prior year 0.87 euros). The earnings after tax for continuing operations amounted to 53.9 million euros (prior year 49.7 million euros), resulting in earnings per share of 0.94 euros (prior year 0.86 euros).

In the 2016 fiscal year, the group **order intake** rose by a total of 97.0 million euros to a new record high of 733.8 million euros (prior year 636.7 million euros). The major orders to equip the Patriot missile defense system and the major traffic safety orders announced are included in part. The order intake in 2016 was thus both above the prior-year value and above the revenue level. The book-to-bill-ratio increased as a result of this to 1.07 (prior year 0.95). **T22 T24 G12**



See the Notes for detailed information on the subject of taxes

T22 Order Intake (in million euros)

	2016	2015	Change in %
Group	733.8	636.7	15.2
Optics & Life Science	236.6	206.7	14.5
Mobility	267.4	253.5	5.5
Defense & Civil Systems	231.6	177.8	30.2
Other	-1.8	-1.3	-39.8



See the Segment Report for detailed information on the order intake in the segments

T23 Order Backlog (in million euros)

	2016	2015	Change in %
Group	405.2	373.4	8.5
Optics & Life Science	80.7	73.7	9.5
Mobility	108.3	92.7	16.8
Defense & Civil Systems	217.8	209.7	3.9
Other	-1.6	-2.6	38.6

T24 Book-to-bill ratio (in percent)

	2016	2015
Group	1.07	0.95
Optics & Life Science	1.07	0.97
Mobility	1.08	1.04
Defense & Civil Systems	1.06	0.84

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The **order backlog** at the end of 2016 increased accordingly to 405.2 million euros (31/12/2015: 373.4 million euros). Of this order backlog, 71 percent will be converted to revenue in the current year. In conjunction with a well-filled project pipeline, this is a good basis for forecast growth in the 2017 fiscal year.

T23

There were also **frame contracts** worth 160.9 million euros (prior year 59.2 million euros). Frame contracts are contracts or framework agreements with customers, where the exact extent and probability of occurrence cannot yet be specified precisely.

T25

The increase in order sizes is essentially the result of stronger demand in the Mobility segment as well as in the defense industry.

Financial Position

Principles and Targets of Finance Management

The central Treasury department of JENOPTIK AG plans and controls the demand for and provision of liquid resources within the Group. The financial flexibility and financial solvency of the Group at any time is guaranteed on the basis of a multi-year financial plan and monthly rolling liquidity planning.

A cash pooling system also ensures the liquidity supply to the companies in the euro zone and limits their liquidity risk. In the 2016 fiscal year, the Dutch and French companies were integrated into the system, which now includes all major Jenoptik companies in the euro region. For the companies in North America, JENOPTIK North America, Inc. manages the cash pool which pools the liquidity of all major American Jenoptik companies.

As a result of the above measures, the existing syndicated loan, the outstanding debenture loans and the successively increased cash in hand, the Group's liquidity in the past fiscal year was sufficiently secured at any point.

T25 Frame Contracts (in million euros)

	2016	2015	Change in %
Group	160.9	59.2	172.1
Optics & Life Science	14.5	5.5	162.4
Mobility	79.1	11.5	586.7
Defense & Civil Systems	67.4	42.1	60.0

Primarily using currency forward transactions, Jenoptik hedges orders in foreign currencies, thereby reducing the consequences of exchange rate fluctuations on results and cash flow. Derivative financial instruments are used exclusively to hedge the operational business as well as financial transactions required for operational purposes.

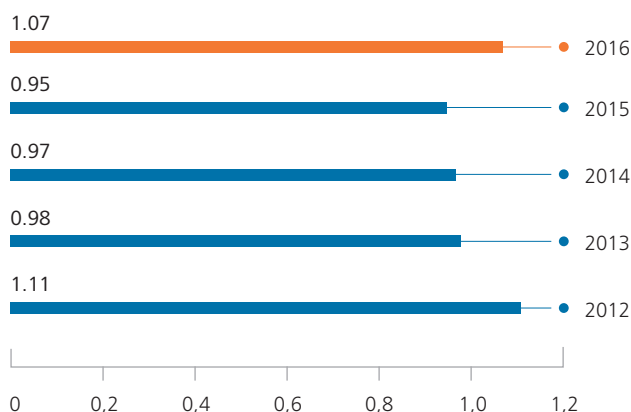
Capital Structure and Financing Analysis

As early as 2015, Jenoptik secured further financial latitude as well as flexibility through the conclusion of new capital instruments to implement its medium to long-term international growth strategy, i.e. the financing of future organic growth and of acquisitions. With a sound equity ratio of 58.6 percent as at December 31, 2016, debenture loans as well as a syndicated loan, the Group has a viable financing structure.

The debenture loans newly issued or converted in 2015, originally with a maturity of five or seven years and a total volume of 125.0 million euros, are subject to variable or fixed interest rates. With the issue of these debenture loans, Jenoptik also secured a medium and long-term financing structure. An installment of the non-exchanged debenture loans from 2011 of more than 11.0 million euros was paid back in due time in October 2016. In addition, a syndicated loan agreement for more than 230.0 million euros was concluded in 2015. This will enable Jenoptik to use a line of credit at attractive terms over five years. Jenoptik complied with the financial covenants that were agreed for the debenture loans and the syndicated loan.

In addition to cash and cash equivalents of 92.0 million euros and current financial investments of 50.5 million euros, the Group also has unused capacity from frame loan agreements

G12 Development of the Book-to-Bill Ratio (in percent)



More information can be found in the Notes

totaling 231.5 million euros to fall back on. This means that the company has more than 300 million euros available for corporate development measures.

A loan was taken out in association with the construction of the new technology campus at the US Rochester Hills site in Michigan. In 2016, the Group's **non-current financial debt** rose to 120.5 million euros (31/12/2015: 113.2 million euros). In 2016, the items in the statement of financial position comprised almost exclusively financial liabilities to banks in the amount of 120.4 million euros (31/12/2015: 113.2 million euros). At the end of 2016, non-current financial debt accounted for around 97 percent of Jenoptik's financial debt (31/12/2015: 88 percent).

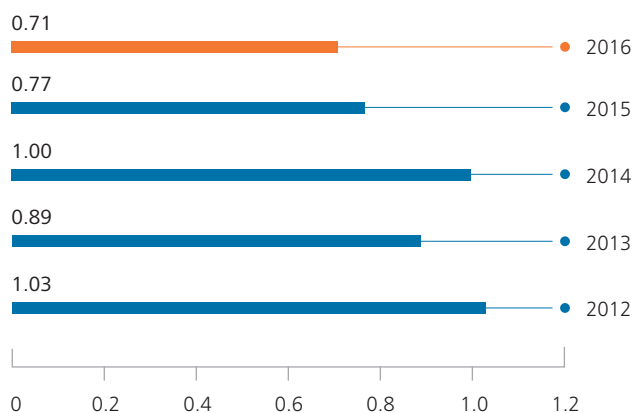
The **current financial debt** reduced to 4.1 million euros (31/12/2015: 14.9 million euros), due among other things to the scheduled repayment of the debenture loan installment due in October 2016.

As the equity posted at the end of 2016 increased by 41.2 million euros and the borrowing increased in comparison to the prior year by only 2.6 million euros, the **debt ratio** in the period covered by the report fell again to 0.71 (31/12/2015: 0.77). The debt ratio is defined as the ratio between borrowings (336.7 million euros) and equity (476.4 million euros). **G13**

At year-end the **net cash position** amounted to 138.4 million euros (31/12/2015: 69.4 million euros). It is defined as the total cash and cash equivalents and current financial investments in the amount of 142.5 million euros (31/12/2015: 84.2 million euros) less current financial debt in the sum of 4.1 million euros.

Thanks to a strong free cash flow, the **net debt** could be completely eliminated at the end of the 2016 fiscal year, amounting to minus 17.9 million euros on December 31, 2016 (31/12/2015: 43.9 million euros). The significant reduction was achieved despite the dividend payment in the amount of 12.6 million years (prior year 11.4 million euros), simultaneous financing of the growth and the above-mentioned investment in Rochester Hills, Michigan. **T26**

G13 Debt to Equity Ratio (in percent)



Analysis of Capital Expenditure


The focus of capital expenditure is derived from the Group strategy and is in line with the planned growth targets and the asset structure of the Group. To ensure this, the central investment controlling systematically checks the individual investments on the basis of performance and financial indicators with respect to sustainability or their value contribution and thoroughly analyzes the opportunities and risks.

Areas of investment in 2016 included technical equipment and an expansion in production capacities, as well as the purchase of land and construction of a technology campus in Rochester Hills, Michigan in the US. Further investment was made in the continued expansion of sales structures and optimized internal procedures in order to support future growth. In total, the

T26 Net and Gross Debt (in million euros)

	2016	2015	2014	2013	2012
Non-current financial debt	120.5	113.2	156.8	115.2	115.8
Current financial debt	4.1	14.9	5.1	1.2	4.7
Gross debt	124.6	128.1	161.9	116.4	120.5
minus securities	50.5	0.4	0.3	0.7	0.6
minus cash and cash equivalents	92.0	83.8	69.5	71.6	45.4
Net debt	-17.9	43.9	92.1	44.1	74.5

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Group invested 27.5 million euros (prior year 24.7 million euros) in intangible assets and property, plant and equipment. The focus of capital expenditure in all three segments was on technical systems for customer projects as well as for an increase in efficiency and capacity. Areas of capital expenditure also included technological upgrades and increased capacities in the manufacturing infrastructure for optical and micro-optical precision components at various sites in the Optics & Life Science segment. The machinery in the Defense & Civil Systems segment was also modernized.  T27

At 24.5 million euros, once again the largest share of capital expenditure was on property, plant and equipment (prior year 20.4 million euros).

Capital expenditure on intangible assets of 3.0 million euros remained below the level of the prior year (prior year 4.3 million euros). The capital expenditure was within the scope of the JOE project as well as other group projects. No development costs were capitalized (prior year 0.4 million euros).

Scheduled depreciation of 27.6 million euros (prior year 28.8 million euros) was slightly down on the prior year. This was offset by impairment losses and reversals totaling minus 0.9 million euros (prior year 1.2 million euros).

Depreciation on property, plant and equipment was unchanged at 21.0 million euros (prior year 21.0 million euros) and was therefore below the figure for capital expenditure on property, plant and equipment.

Depreciation on intangible assets amounted to 6.5 million euros (prior year 7.4 million euros) and, as in the previous year, primarily included depreciation on patents, trademarks and software, capitalized development services as well as regular customers. Impairments on intangible assets within the scope of the impairment test were recorded only to an insignificant extent (prior year 0.3 million euros). T28

In the 2016 fiscal year, no investment property was sold (prior year 8.2 million euros).



Further information on capital expenditure by segment can be found in the segment report from page 84 or for future investment projects in the Forecast Report from page 111

T27 Capital Expenditure and Depreciation/Amortization (in million euros)

	2016	2015	Change in %
Capital expenditure	27.5	24.7	11.4
Intangible assets	3.0	4.3	-30.4
Property, plant and equipment	24.5	20.4	20.2
Depreciation/amortization/impairment losses and reversals	28.5	27.6	3.2
Intangible assets	6.5	7.8	-15.9
Property, plant and equipment	21.8	21.2	3.0
Investment properties	0.1	-1.4	106.8

T28 Capital Expenditure by Segment – Intangible Assets and Property, Plant and Equipment (in million euros)

	2016	2015	Change in %
Group	27.5	24.7	11.4
Optics & Life Science	6.0	8.3	-28.2
Mobility	13.8	6.3	121.6
Defense & Civil Systems	4.1	4.9	-16.0
Other	3.5	5.2	-32.1

Analysis of Cash Flows

In the year covered by the report, the **cash flows from operating activities** of 100.1 million euros significantly exceeded the level of the prior year (prior year 85.1 million euros) and at the same time were the best operating cash flows generated in recent years. Higher earnings before tax, but also the positive change in working capital, in particular through the reduction in inventories, as well as the change in provisions and other assets and liabilities, had a positive effect on cash flows. The change in provisions is set out in the Notes under the item "Other provisions" on page 163. **T29**

Cash flows from investing activities were negatively influenced in particular by payments due to cash investments in the amount of 49.7 million euros (prior year 0), which resulted from short-term financial investments, as well as higher capital expenditure for property, plant and equipment and intangible assets (see table from page 148 on). On the other hand, proceeds from the sale of financial investments had a positive effect along with proceeds from non-operating income from investments (dividend payment) as well as the interest received. In 2016, the outflow of funds for investing activities amounted to 71.3 million euros, significantly above the figure for the prior year (prior year 7.2 million euros).

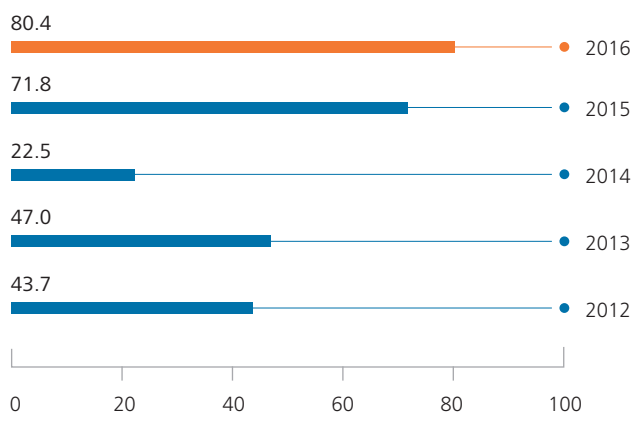
The **free cash flow** arises from the cash flows from operating activities before interest and taxes in the amount of 109.2 million euros (prior year 91.7 million euros) less the expenditure for operating investment activities in the amount of 28.8 million euros (prior year 19.9 million euros). During the period covered by the report, the free cash flow consequently improved to 80.4 million euros (prior year 71.8 million euros). As was the case with the operating cash flows, the best free cash flow of recent years was generated. **G14**

In the 2016 fiscal year, the **cash flows from financing activities** were minus 20.7 million euros (prior year minus 66.5 million euros) and were influenced by, among other things, the payment of a higher dividend of 12.6 million euros and the repayment of an installment of the debenture loans in the amount of 11.0 million euros. In the prior year, it was largely influenced by the issue and repayment of bonds and loans, together with changes in group financing, above all due to the payment made to the last remaining silent real estate investor.

Asset Position

The **total assets** of the Jenoptik Group as of December 31, 2016 increased to 813.1 million euros compared with year-end 2015 (31/12/2015: 769.2 million euros). The increase of 43.9 million euros is attributable, among other things, to


G14 Free Cash Flow (in million euros)



T29 Cash Flows (in million euros)

	2016	2015	2014	2013	2012
Cash flows from operating activities	100.1	85.1	46.3	60.6	66.6
Cash flows from investing activities	-71.3	-7.2	-37.6	-16.4	-33.8
Cash flows from financing activities	-20.7	-66.5	-13.8	-19.1	-36.1
Cash-effective change in cash and cash equivalents	8.0	11.4	-5.0	25.1	-3.4
Non-cash change in cash and cash equivalents	0.1	2.9	2.9	1.1	-0.1
Change in cash and cash equivalents	8.1	14.3	-2.1	26.2	-3.5
Cash and cash equivalents at the end of the fiscal year	92.0	83.8	69.5	71.6	45.5

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the increase in current financial investments and cash on the assets side, as well as to the increase in other reserves and the non-current financial debt on the liabilities side. By contrast, a decline was recorded in intangible assets and current financial debt in particular. 

The **non-current assets** fell overall by 10.9 million euros to 371.9 million euros, due primarily to the reduction in intangible assets. This resulted in particular from a reduction in the items patents, trademarks and software to 13.6 million euros (31/12/2015: 19.4 million euros), mainly due to scheduled depreciation. In addition, goodwill fell to 94.3 million euros (31/12/2015: 100.0 million euros) due to currency effects. Furthermore, the financial investments were reduced due, among other things, to payment receipts and impairment losses recognized.

As has been the case in previous years, the largest item in intangible assets  was goodwill valued at 94.3 million euros (31/12/2015: 100.0 million euros). The reduction compared with the prior year was exclusively the result of the conversion of foreign currency amounts on the reporting date.

Property, plant and equipment increased slightly to 157.9 million euros (31/12/2015: 155.7 million euros). The purchase of land

and construction of the technology campus at the US site Rochester Hills, Michigan, made a particular contribution to this increase.

There were only minor changes in the remaining items under non-current assets. **T30**

Due to the high levels of revenue at the end of the 4th quarter of 2016, the inventories fell to 159.3 million euros (31/12/2015: 167.1 million euros). At the same time, the trade accounts receivable from third parties increased slightly from 120.0 million euros to 129.0 million euros. Since short-term investments were made, the current financial investments increased from 0.4 million euros to 49.0 million euros. The significantly improved operating cash flows led to an increase in the cash and cash equivalents to 209.9 million euros (31/12/2015: 215.5 million euros). Overall, the **current assets** rose by 54.8 million euros to 441.2 million euros (31/12/2015: 386.3 million euros).

Due to improved inventory and receivables management, the **working capital** fell despite the revenue growth in the past year, amounting to 209.9 million euros (31/12/2015: 215.5 million euros) at the end of December. This was due mainly to the reduction in inventories as well as to higher trade accounts payable and liabilities from construction contracts. The working



More detailed information on the changes to the consolidated companies can be found in the Notes



More information on the intangible assets and property, plant and equipment can be found in the Notes, items 5.1 and 5.2

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T30 Composition of Non-Current Assets

(in million euros and as percent of total value of non-current assets)

	2016		2015		Change in %
	Value	%	Value	%	
Intangible assets	111.4	29.9 %	122.7	32.1 %	-9.3
Property, plant and equipment incl. investment property	162.3	43.6 %	160.2	41.8 %	1.3
Financial investments	19.0	5.1 %	21.7	5.7 %	-12.5
Other non-current assets	5.0	1.3 %	4.5	1.2 %	9.0
Deferred taxes	74.2	20.0 %	73.6	19.2 %	0.8
Total	371.9	100.0 %	382.8	100.0 %	-2.9

T31 Elements of Working Capital (in million euros)

	2016	2015	Change in %
Inventories	159.3	167.1	-4.7
Trade accounts receivable from third parties and construction contracts	129.0	121.4	6.3
Trade accounts payable to third parties and construction contracts	49.0	47.8	2.5
Liabilities from advance payments received	29.5	25.2	17.1
Total	209.9	215.5	-2.6

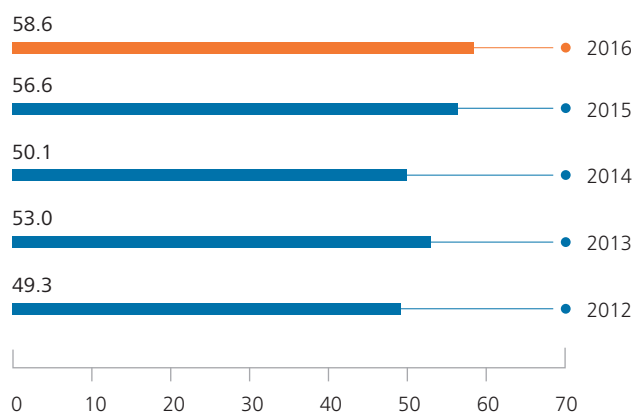
capital ratio, the proportion of working capital to revenue, improved compared with the previous year to 30.7 percent (31/12/2015: 32.2 percent). **T31**

The earnings after tax posted at the end of December 2016, reduced by the dividend payment, currency effects from the conversion of consolidated accounts as well as effects from the measurement of cash-flow hedges, resulted in an increase in equity including non-controlling interests by 41.2 million euros to 476.4 million euros (31/12/2015: 435.1 million euros). Despite the increase in total equity and liabilities, the equity ratio, the ratio between equity and total equity and liabilities, improved to 58.6 percent (31/12/2015: 56.6 percent). **G15**

At the end of 2016, the non-current liabilities increased to 175.4 million euros (31/12/2015: 169.5 million euros). The growth of 5.8 million euros is mainly due to higher non-current financial debt, which increased to 120.5 million euros (31/12/2015: 113.2 million euros). Among other things, a loan was taken out for the real estate and land financing in Rochester Hills. A key element of the non-current financial debt are the debenture loans totaling 114 million euros. The pension provisions increased to 37.6 million euros (31/12/2015: 36.1 million euros). Term-related transfers in current liabilities reduced the other non-current liabilities.

The current liabilities fell to 161.3 million euros (31/12/2015: 164.5 million euros). This is due in particular to the decline in current financial debt as a result of the scheduled repayment of a non-renewed installment of debenture loans of 11.0 million euros. The other current non-financial liabilities rose, mainly due to higher liabilities from advance payments received, to 53.6 million euros (31/12/2015: 45.1 million euros). At the end of 2016, the item contained trade accounts payable in the amount of 48.4 million euros (31/12/2015: 48.4 million euros)

G15 Equity Ratio (in percent)



T32 Financial Debt by Due Date (in million euros)

	Up to 1 year		1 to 5 years		More than 5 years		Total as at 31/12	
	2016	2015	2016	2015	2016	2015	2016	2015
Liabilities to banks	4.1	14.8	44.8	44.8	75.6	68.4	124.5	128.0
Liabilities from finance leases	0.0	0.0	0.0	0.1	0	0	0.1	0.1
Total	4.1	14.8	44.9	44.9	75.6	68.4	124.6	128.1

T33 Elements of Interest-Bearing Liabilities (in million euros)

	2016	2015	Change in %
Current	4.1	14.8	-72.2
Liabilities to banks	4.1	14.8	-72.4
Non-current	120.5	113.3	6.4
Liabilities to banks	120.4	113.2	6.4
Liabilities from finance leases	0.0	0.1	-35.3

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and additionally liabilities to third parties and a small amount of liabilities to unconsolidated associates and investments. The other current financial liabilities increased to 46.2 million euros (31/12/2015: 42.7 million euros), in part due to higher personnel provisions. [T32](#) [T33](#)

Values and Obligations Not Included in the Balance Sheet

The value of the [Jenoptik brand](#) is one of the main items not included in the balance sheet. A brand positioning has been drawn up in recent years in order to further strengthen the brand image, on the basis of which Jenoptik commenced a globally uniform brand image communication. In the course of internationalization, we are also increasingly anchoring the Jenoptik brand in our growth markets.

Non-capitalized tax losses carried forward. Tax losses carried forward arise from losses in the past which have not yet been offset against taxable profits. They represent potential future cash flow benefits, since actual tax payments can be reduced by these losses being offset against taxable profits.

For the remaining losses carried forward, no deferred tax assets have been accounted in the amount of 172.7 million euros (prior year 209.9 million euros) for the purposes of corporate income tax and in the amount of 330.9 million euros (prior year 369.6 million euros) for the purposes of trade tax as they will probably not be used within a determined planning time frame. Equally, no deferred tax assets were recognized for deductible timing differences in the amount of 9.4 million euros (prior year 14.4 million euros).

Jenoptik does not utilize any [off-balance sheet financing for the financial and asset position](#), such as sales of accounts receivable or asset-backed securities. For details on operating leases we refer to the Notes from page 153 on.

Information on [contingent assets and liabilities](#) can be found in the Notes from page 178 on.

[Clauses in contracts concluded by JENOPTIK AG, which apply in the event of a change of control](#) within the ownership structure of JENOPTIK AG following a takeover bid, exist for financing agreements with a total utilized volume of approximately 125.7 million euros (prior year 138.6 million euros). Further information can be found in the Corporate Governance Report from page 48 on as well as in the Information on Takeover Law from page 44 on.

General Statement by the Executive Board on the Development of Business

Jenoptik successfully continued on its growth path in the 2016 fiscal year. Group revenue increased, with all three segments contributing to this rise. Thanks to the continued internationalization, a more profitable revenue mix, the consistent implementation of the efficiency programs as well as the strategic realignment, we have been able to achieve an exceptional rise in EBIT to a new record level.

We also recorded a significant increase in the order intake, order backlog and frame contracts. We were able to secure several major international orders. As a result, we have created a very good basis on which to promote the further profitable growth of the Group.

Thanks to strong cash flows, we were able to finance both our operating growth as well as capital expenditure. In addition, we were able to fully offset the net debt. Our equity ratio rose again. We were able to improve our total assets as well as other financial indicators and items in the statement of financial position. These reflect the business model and development of our company.

The Executive Board is therefore of the opinion that business as a whole has developed very well.

Segment Report

The segments' range of services and competitive positioning are set out in greater detail in the "Business Model and Markets" chapter from page 56 on.

Information on the various markets can be found in the Sector Report from page 69 on, and on future developments in the Forecast Report from page 111 on.

Optics & Life Science Segment

In the 2016 fiscal year, the Jenoptik Group grew its role as a leading supplier of photonic system solutions in the Optics & Life Science segment, which stepped up its role as a development and production partner to numerous international market leaders and also managed to secure further key customers. The segment also boosted its value creation in the field of lithography and again made considerable progress in integrated solutions for semiconductor production. The past fiscal year also saw a focus on the medical technology and life science, and on the information and communication technology (ICT) markets. Improved market coverage and the production start-up of new optical products allowed us to successfully increase our international reach in the strategically relevant growth regions of the Americas and Asia/Pacific in 2016. **T34**

In the 2016 fiscal year, **revenue** in the Optics & Life Science segment rose by 3.7 percent to 221.5 million euros (prior year 213.7 million euros), with the segment particularly benefiting from good demand for solutions in the ICT market, the semiconductor equipment industry, and the medical technology sector. In total, around 79 percent of the segment's revenue was generated abroad in 2016 (prior year 76 percent), with Europe again enjoying the greatest share, followed by the Americas and Asia/Pacific.

The segment generated **EBIT** of 33.4 million euros. The operating results were accordingly 69.4 percent higher than in the prior year (prior year 19.7 million euros), primarily due to an improved product mix and one-off income of around 2.9 million euros resulting from a positive court of arbitration judgment in the third quarter. The EBIT margin increased sharply to 15.1 percent (prior year 9.2 percent).

At 236.6 million euros, the **order intake** exceeded the high prior-year level (prior year 206.7 million euros) by 14.5 percent. The good order intake, particularly in the areas of micro-optics and healthcare, was a key determinant of the segment's positive development of business in the past reporting year. Because the order intake grew at a greater rate than revenue, the book-to-bill ratio also rose, to 1.07 (prior year 0.97).

T34 Optics & Life Science Segment at a Glance (in million euros)


	2016	2015	Change in %
Revenue	221.5	213.7	3.7
EBITDA	41.7	28.3	47.3
EBITDA margin in %	18.8	13.3	
EBIT	33.4	19.7	69.4
EBIT margin in %	15.1	9.2	
Free cash flow	34.6	26.9	28.6
Order intake	236.6	206.7	14.5
Order backlog	80.7	73.7	9.5
Frame contracts	14.5	5.5	162.4
Employees	1,123	1,144	-1.8

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The **order backlog** in the segment increased by 7.0 million euros at the end of the year, to 80.7 million euros (31/12/2015: 73.7 million euros). The segment also has **frame contracts** worth 14.5 million euros (31/12/2015: 5.5 million euros).

With a **free cash flow** of 34.6 million euros (before interest and income taxes), the segment managed to far exceed the good level of the prior year (prior year 26.9 million euros). This was chiefly due to good earnings performance and the one-off income specified under EBIT. At 56.6 million euros, the segment's working capital was only marginally up on the prior year (prior year 56.2 million euros).

The Optics & Life Science segment employed a total of 1,123 **employees** as of December 31, 2016, 21 fewer than in the prior year. As at year-end 2016, the segment had 35 young people in trainee positions.

R+D expenses in 2016 totaled 14.3 million euros (prior year 15.0 million euros). Including development services on behalf of customers, the segment's **R+D output** came to 21.9 million euros, slightly above the level of the prior year (prior year 21.0 million euros). The share of total costs in segment revenue was 9.9 percent (prior year 9.8 percent). 

The segment's **capital expenditure** in property, plant and equipment and intangible assets came to 6.0 million euros (prior year 8.3 million euros). This was offset by depreciation in the sum of 8.2 million euros (prior year 8.3 million euros). Key areas of investment in the 2016 fiscal year included the technological upgrade and expansion of manufacturing capacity for optical and micro-optical precision components at the Jupiter (Florida) and Huntsville (Alabama) locations in the US, and in Jena and Dresden in Germany.

Production and organization. At the start of 2016, a new organizational structure for the divisions and thus a new seg-

ment structure was introduced. In the Optics & Life Science segment, the former Lasers and Optoelectronic Systems business units were consolidated to form a new Healthcare & Industry division. In addition to its expertise in digital imaging for new analysis and diagnostics procedures, its work is particularly focused on products and services for ophthalmology and dermatology. With their core businesses in micro-optics and high-performance optics, the remaining business units in the Optical Systems division are focused on the semiconductor equipment and information and communication technology markets.

Restructuring of the Laser business unit at the company headquarters in Jena was completed in 2016. This move represented the Group's response to intense competition and growing price pressure in the laser market. A program to secure the future viability of the business was carried out in the year covered by the report, streamlining the product portfolio and reducing costs in line with the unit's growth strategy.

Go-Lean activities continued in the past fiscal year, for example in the Lasers business unit, aiming to optimize and harmonize internal processes and thus lastingly boost productivity. A switchover to a paced assembly line for higher-volume products was successfully completed. A range of measures enabled tangible savings in assembly and production times, which in turn helped to keep costs down.

Alongside the Americas, Asia/Pacific is the key target market for Jenoptik's internationalization and ongoing growth. In the past reporting year, the segment therefore continued to optimize its sales and distribution infrastructure in Asia/Pacific. It focused on strategic developments in the field of medical technology. The Asian market for medical technology and life science will be subject to further analysis this year, with the aim of securing new key customers.



For more information on the key development topics, see the Research and Development chapter

Mobility Segment

Thanks to an improved range of services, the segment boosted its position in relevant markets such as the automotive, machine construction and traffic technology industries in 2016. In the light of current trends relating to Industry 4.0 and megatrends such as digitization and mobility, the Group is positioning itself to address customers' specific requirements for flexible, innovative concepts. The segment's new range of innovative technological solutions for toll payment monitoring also allowed it to successfully enter a new area of business in the 2016 fiscal year.

Revenue in the Mobility segment increased by 1.3 percent to 247.7 million euros in 2016 (prior year 244.6 million euros). Demand from the automotive industry, the key customer sector for industrial metrology, developed favorably in the fiscal year despite weaker demand in Europe and the enduring repercussions of the emissions scandal. The upswing in investment within the NAFTA region, particularly in the first half-year 2016, made a positive contribution to this development. In the Traffic Solutions business, by contrast, the reluctance to invest seen in the oil-exporting countries produced, as expected, weaker revenue growth in the Middle East and Africa region. At around 74 percent, the segment generated most of its revenue abroad (prior year approximately 78 percent). **T35**

The **segment EBIT**, at 24.4 million euros, was below the prior-year level (prior year 27.0 million euros). Due to restrained revenue development, a changed revenue mix and development services for major new traffic safety projects, the EBIT margin was below the prior year. EBITDA closely paralleled this development, falling 9.4 percent to 32.3 million euros (prior year 35.7 million euros).

The **order intake** in the segment increased by 5.5 percent in 2016 to 267.4 million euros (prior year 253.5 million euros). This growth was predominantly driven by the automotive industry, while major traffic technology projects secured in the 2016 fiscal year produced a significant increase in frame contracts. The Group was thus able to report the signing of long-term projects to increase road safety each valued in the mid double-digit million euros range, for example in the Province of Ontario, Canada, and in the Australian state of Western Australia and for new systems to monitor truck toll payments on Germany's federal highways. The segment's order intake exceeded the level of revenue in the year covered by the report, resulting in a **book-to-bill ratio** of 1.08 (prior year 1.04).

The **order backlog** increased by 16.8 percent, to 108.3 million euros at the end of the year (31/12/2015: 92.7 million euros). On the back of the aforementioned traffic safety projects, the value of **frame contracts** rose sharply to 79.1 million euros (31/12/2015: 11.5 million euros).


T35 Mobility Segment at a Glance (in million euros)

	2016	2015	Change in %
Revenue	247.7	244.6	1.3
EBITDA	32.3	35.7	-9.4
EBITDA margin in %	13.0	14.6	
EBIT	24.4	27.0	-9.5
EBIT margin in %	9.9	11.0	
Free cash flow	14.5	34.6	-58.0
Order intake	267.4	253.5	5.5
Order backlog	108.3	92.7	16.8
Frame contracts	79.1	11.5	586.7
Employees	1,229	1,207	1.8

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The **free cash flow** (before interest and income taxes) in the segment fell to 14.5 million euros (prior year 34.6 million euros), chiefly due to the earnings position and higher working capital. The working capital in the segment rose to 64.7 million euros (prior year 58.4 million euros), mainly due to an increase in trade receivables.

As of December 31, 2016, the Mobility segment had 1,229 **employees** (31/12/2015: 1,207 employees). As at the reporting date, 25 young people were in trainee positions (31/12/2015: 32 trainees).

The segment's **R+D output** totaled 24.5 million euros (prior year 24.5 million euros). This included developments on behalf of customers in the amount of 4.2 million euros (prior year 3.2 million euros). The R+D expenses came to 20.3 million euros (prior year 21.0 million euros). In 2016, the share of R+D output in total revenue in the Mobility segment was 9.9 percent (prior year 10.0 percent). 

The segment's **capital expenditure** in property, plant and equipment and intangible assets more than doubled in 2016, coming to a total of 13.8 million euros (prior year 6.3 million euros). The 121.6-percent increase in investment is due in part to the project status of major traffic safety orders. Over the past fiscal year, the Group also invested around 7.7 million euros in the construction of a new technology campus for metrology and laser machines at the Rochester Hills, Michigan, location in the US. Capital expenditure was offset by depreciation and impairment losses in the sum of 7.9 million euros (prior year 8.5 million euros).

Production and organization. As part of the strategic reorganization of the segment structure effective from January 2016, the Laser Machines unit was integrated in the Industrial Metrology business unit with the aim of serving customers in the automotive market from a single source in the future. There were no structural changes in the Traffic Solutions area.

In recent years, the Mobility segment has optimized its structures, chiefly guided by the twin pillars of internationalization in key sales markets and the expansion of business in the automotive industry. The major production and development locations in Germany and the US were further expanded. Work on the standardization of the product portfolio and on internationalization was continued in the Traffic Solutions business unit. In recent years, the Jenoptik Group thus has considerably strengthened its market position in the growth regions of Asia/Pacific and Europe.

In the past fiscal year, preparations were made to implement a new global sales structure in the Traffic Solutions business unit. Activities concentrated on the establishment of Regional Competence Centers (RCC) that aim to show a stronger presence in local markets, step up customer relations and respond faster to market trends. The five RCC, cover the following regions: North and South America, Western Europe and Africa, Central and Eastern Europe, the Middle East and Central Asia, and Asia/Pacific. The decentralized functional areas of sales, customer services, order handling, project management and regional product management have been consolidated at the operational RCCs since early 2017.

In January of 2017, Jenoptik reported its acquisition of ESSA Technology, based in Plymouth, England. The company specializes in software for traffic monitoring, particularly automatic number plate recognition applications for the police. This acquisition not only boosts Jenoptik's existing traffic technology product range but also marks a further important step in its development to become an integrated solution provider for public safety and future "smart cities".



For more information on the key development topics, see the Research and Development chapter

Defense & Civil Systems Segment

2016 was again a year of record figures in the Defense & Civil Systems segment. In 2016, it further established itself as a partner for systems companies and customers with a need for individual solutions, and also launched a wide range of new products. Over the fiscal year, the segment pushed ahead to expand its international sales and service structures, particularly in North America and Asia, and boost technology and knowledge transfer to civilian fields. The fruits of these efforts are evident, for example, in the orders reported with international customers from the defense and railway industries.

Revenue rose to 218.3 million euros, 3.2 percent above that of the prior year (prior year 211.4 million euros). The increase is due in part to good business with energy and aviation systems as well as the completion of several major orders to equip the Patriot missile defense system. At approximately 47 percent and thus unchanged on the prior year, the share of revenue generated abroad was considerably lower than in the other two segments. The majority of products are still sold to German buyers, whose end customers, however, are largely active on the international sales market. The goal still remains to further expand the direct foreign share in the future. **T36**

The **segment's EBIT** climbed to 19.1 million euros, 6.8 percent up on the prior year (prior year 17.9 million euros). Alongside international growth in the core regions and a consistently market-oriented business focus in the segment, this improve-

ment is also attributable to better margins in the revenue mix. The EBIT margin in the segment improved to 8.8 percent (prior year 8.5 percent). EBITDA totaled 23.8 million euros, compared with 23.1 million euros in the prior year.

In 2016, the segment **order intake** came to 231.6 million euros, a sharp rise of 30.2 percent on the figure for the prior year (prior year 177.8 million euros). During the course of the year, Jenoptik received several major orders, including one to equip military ground vehicles in Poland worth around 22 million euros and another to produce components for the Patriot missile defense system worth over 50 million euros. The **book-to-bill ratio** in the segment consequently saw a sharp increase to 1.06 (prior year 0.84).

As of December 31, 2016, the **order backlog** of 217.8 million euros was higher than in the prior year (31/12/2015: 209.7 million euros). The segment also had **frame contracts** worth 67.4 million euros (31/12/2015: 42.1 million euros) which included agreements for the supply of spare parts for the Patriot missile defense system amounting to more than 30 million euros.

Alongside the growth in earnings, optimized inventory and receivables management was primarily responsible for the **free cash flow** (before interest and income tax) improving significantly from 14.6 million euros in the prior year to 33.5 million euros in the 2016 fiscal year. As of December 31, the working capital came to 93.5 million euros, down on the prior-year figure of 106.0 million euros.

T36 Defense & Civil Systems Segment at a Glance (in million euros)

	2016	2015	Change in %
Revenue	218.3	211.4	3.2
EBITDA	23.8	23.1	2.7
EBITDA margin in %	10.9	10.9	
EBIT	19.1	17.9	6.8
EBIT margin in %	8.8	8.5	
Free cash flow	33.5	14.6	130.5
Order intake	231.6	177.8	30.2
Order backlog	217.8	209.7	3.9
Frame contracts	67.4	42.1	60.0
Employees	881	881	0.0

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With a total of 881 employees, the number of people in the Defense & Civil Systems segment at the end of the year remained constant, despite the rise in revenue and earnings (31/12/2015: 881 employees). At the year end, the segment had a total of 60 young people in trainee positions (31/12/2015: 57 trainees).

The segment's R + D output rose to 10.6 million euros in 2016 (prior year 7.5 million euros). Developments directly on behalf of customers rose to 3.3 million euros (prior year 1.8 million euros). This figure is primarily due to joint development projects with systems companies. At 7.4 million euros, the segment's R + D expenses were higher than in the prior year (prior year 5.6 million euros).

The segment invested 4.1 million euros in property, plant and equipment and intangible assets (prior year 4.9 million euros). As a result, the level of capital expenditure was 16.0 percent lower than in the prior year. Key projects were the modernization of machinery at the Wedel and Altenstadt locations as well as of the infrastructure in Wedel. Capital expenditure was offset by depreciation and impairment losses in the sum of 4.7 million euros (prior year 5.2 million euros).

Cooperation, production and organization. In 2016, the segment signed a cooperation agreement with the Croatian railway engineering manufacturer Končar Electric Vehicles. The agreement aims to achieve closer cooperation in the global railway market, primarily in the modernization and refurbishment of existing rolling stock and the manufacture of new rolling stock. Jenoptik manufactures alternators and electric motors for the railway market, together with customized complete systems that supply on-board networks, traction motors or locomotives and power units with electricity independently of external power supply networks.

On its "FLEXPack" project, the segment developed a modular platform system for modern and powerful turret and weapons stabilization systems in 2016. The system's core components are standardized and can be expanded by modules defined in advance on the basis of an international market analysis. The concept will in future enable a rapid response to customer inquiries, thereby boosting the segment's global competitiveness.

Now for the fifth time, the segment received the Performance Excellence Award in the "Silver" category for its above-average quality and delivery reliability performance from aircraft manufacturer Boeing.

General Statement by the Executive Board on the Development of the Segments

With their different target markets and international reach, the Jenoptik Group's three operating segments developed well in 2016. All the segments achieved new record levels of revenue in a challenging global economic environment. The three segments succeeded in consistently taking advantage of the opportunities arising from the reorientation towards megatrends and markets and translating them into new orders and frame contracts. In addition, the share of total revenue generated abroad was successfully expanded in the past fiscal year, or, in the case of the defense area, at least maintained at a stable level.

Differing investment cycles, divergent patterns of demand and measures to boost efficiency influenced the operating areas' development of earnings over the year. In the past fiscal year, the EBIT margin in the Optics & Life Science segment was above the Group margin target corridor, even disregarding the one-off income in the third quarter. In the Mobility segment, the EBIT margin was at the upper end of our mid-term guidance. In addition to revenue, the Defense & Civil Systems segment also again improved its operating result and margin.

The Optics & Life Science as well as the Defense & Civil Systems segments also improved their ability to generate cash and cash equivalents, thus making a highly positive contribution to the increased free cash flow in the Group. Over the course of the past fiscal year, Jenoptik boosted its capital expenditure on expanding international sales structures, in efficient processes and the development of profitable cutting-edge products.

These measures, the successful entry into new areas of business and the stronger focus on megatrends allowed us to strengthen our position in international growth markets, establish a broader range of systems and secure both major international projects and new customers. This is also confirmed by the significant rise in order intakes and the frame contracts in all three segments.



For information on the key development topics, see the Research and Development chapter

Sustainability

Jenoptik sees entrepreneurial activity not purely as the pursuit and realization of commercial objectives but also something that brings with it an obligation to the environment and society. Corporate social responsibility (CSR) encompasses the sustainable and responsible orientation of our business activity, taking into account underlying economic, ecological and social conditions as well as the consequences of our economic activities.

Employee Issues

The principle of “Sharing Excellence” not only pertains to aspects of technology but also to our employees. By supporting, challenging and promoting the best minds in their particular areas of expertise, we are able to ensure the quality of our products and processes, our innovative potential and thus also our ability to create value in the long term.

We see the expertise and experience of our employees, and their efforts and commitment to the company, as key values. We conduct structured dialogs as a means of strengthening communications with employees. The low staff [fluctuation rate](#) of 4.2 percent itself reflects a high level of employee satisfaction with Jenoptik (prior year 3.6 percent).

Personnel Recruitment

Jenoptik’s personnel requirements are guided by the Group’s international growth strategy, resulting in a higher need in Asia and the US. The audiences addressed by recruitment and thus also HR marketing are primarily specialists and skilled workers in the fields of natural and engineering sciences as well as experts with business management and legal backgrounds.

Promoting New Talent

Specific support for [school students](#), [university students](#) and [graduates](#) forms part of the Group’s expertise strategy, ensuring early loyalty to the company and thus simplifying the recruitment process. In total, Jenoptik supported seven different career preparation projects at nine schools in 2016. Throughout the Group, 46 school students completed internships. To position itself as a potential employer and thus counteract the shortage

of skilled workers, Jenoptik cooperates with selected universities around the world and provides support to chosen students in the form of scholarships, degree theses and internships. Jenoptik also cooperates with the Abbe School of Photonics and actively works to promote training and professional development in various industry organizations. As one example, Jenoptik has been cooperating as a pilot partner with Ilmenau University of Technology on the BASICplus project – an open study platform for in-service training and professional development in the engineering disciplines. The qualification options for the so-called MINT professions (mathematics, IT, natural sciences and technology) have thus been significantly expanded, as has the range of individual training and professional development options for employees.

The [Jenoptik Junior Leadership Program](#) (J²LP) enables the targeted development and promotion of potential leaders within the Group. In addition to preparing management trainees for their future career paths, it aims to develop a uniform leadership culture and encourage cross-segmental networking among the participants. 2016 saw the successful completion of the tenth generation of this program. Jenoptik’s [leadership program](#) provides training to established managers in areas such as leadership and change management, helping to ensure a standardized understanding of management and the use of uniform management tools within the Group. This program was also successfully continued in the past fiscal year.

Healthcare and Family-Friendliness

Health and safety are firmly anchored priorities in the operating processes of Jenoptik. There are health and safety committee meetings at all Jenoptik companies each quarter. In addition, all employees are briefed on issues relating to [occupational safety and environmental protection](#) at least once a year. At all of the German locations, around ten percent of the workforce are trained as first-aiders. In 2016, the number of [workplace accidents](#) fell to 10.86 per 1,000 employees, placing Jenoptik well under the average of 15.8 in the ETEM trade association. In the interests of our employees’ health and performance, the Group offers regular medical examinations by a company physician, and in 2016 launched a [health day](#) for employees of all segments in Jena.

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Flexitime, part-time work and flexible parental leave all make it easier for Jenoptik's employees to strike their own balance between family and working life. In 2016, 167 employees made use of parental leave – 58.7 percent of whom were men. 6.8 percent of the workforce were on part-time contracts in 2016. One of the most important preconditions for **balancing career and family** is the availability of childcare. For several years, Jenoptik has been investing in daycare centers at the Jena, Wedel and Monheim locations, as well as flexible childcare models. This means that our employees are assured a fixed number of places at the daycare centers.

Environmental Issues

Environmental Management

Environmental management is an established part of our corporate activities; we hold ourselves, as well as our suppliers and contractual partners, responsible for complying with environmental laws. A number of Jenoptik companies are certified according to ISO 14001 environmental management standards, and one Jenoptik company holds an ISO 5000 energy management system certificate.

Jenoptik continued to implement statutory requirements relating to nature conservation and environmental protection for new buildings, extensions and the modernization of existing production facilities. For example, state-of-the-art technologies for saving resources and protecting the environment were applied when fitting out production facilities. On the basis of the energy certificates issued in prior years, cost-benefit analyses for all buildings in Germany continued in 2016. Building on this, the medium-term planning up to 2019 incorporates specific measures to increase energy efficiency. In 2016, for example, roof refurbishments were undertaken at buildings in Jena Göschwitz and the solar shading system at the technology center was replaced. In all construction activities undertaken in the past fiscal year, attention was focused more strongly on energy

efficiency, leading to a sustainably higher conservation of resources. Prime examples include the new production facility in Rochester Hills, Michigan, US, and the partial refurbishment of the building in Shanghai, China. The new building in Michigan was fitted with the latest sensor-controlled LED lighting for the offices and production environment, as well as special energy-saving heating and air-conditioning equipment. The insulation values are better than current requirements, which is attributable to the heat insulation used. Building refurbishment and the new build at the Wedel location, together with the refurbishment of buildings at the Jena location, was largely completed in the course of 2016. In addition, the machinery at all key locations was also modernized, taking into account the requirements of energy efficiency.

In the field of environmental management, a **CO₂ balance** was also drawn up for the German locations in 2016. This provides comparison values that allow for an assessment of the energy consumption levels as a ratio of revenue and consequently in relation to changing levels of energy efficiency in production. The consumption of resources increased more slowly than the expansion of business. The consumption of the various media (electricity, district heating, gas, heating oil, wood pellets) at all Jenoptik sites in Germany was used to calculate the CO₂ emissions, which came to 8,565 tons in 2016 (prior year 8,039 tons). The increase on the prior year is mainly due to the commissioning of a new production hall for the Defense & Civil Systems segment in Wedel, during which production in selected areas of manufacturing continued in the former building, and the expansion of clean room production facilities for the Optical Systems division in Dresden. Although all segments at the Jena location and the Healthcare & Industry division sites at the Triptis and Berlin locations use green electricity, it was not possible to fully compensate for the absolute increase of approximately 500 tons of CO₂. **T37**

Within all segments in Germany, types of waste are systematically recorded and the quantities calculated. The volume of hazardous **waste** in the 2016 reporting year fell marginally to

T37 CO₂ Emissions of the Jenoptik Locations in Germany (in tons)

	2016	2015	2014
CO ₂	8,565	8,039	12,220

183 tons; this was disposed of through the transportation of hazardous goods to waste treatment/disposal plants (prior year 185 tons). By contrast, the quantity of non-hazardous waste increased to 620 tons (prior year 559 tons), primarily due to the move at the Wedel location.

As a technology company, Jenoptik is dependent on a wide range of raw materials. In the face of an increasing scarcity of resources and rising global prices, it is both an ecological imperative and good economic sense for the Group to make efficient use of the materials it requires. We comply with applicable regulations to ensure we use these materials in a responsible manner, for example the requirements of the European chemicals regulation REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) and the RoHS directive (Restriction of certain Hazardous Substances), and are fully involved on associated committees. **T38 T39**

Resource Management

Many of Jenoptik's innovative products make a contribution to the efficient and responsible use of resources. As a B2B provider, we are mostly involved in the areas where our customers' production processes and products can be made more efficient. The examples below from our three segments illustrate this:

Diode lasers are one of the most efficient light sources available, with an efficiency of up to 70 percent. With their excellent flexibility and efficiency, lasers are becoming increasingly important tools in production. As a provider of laser machines for a wide range of applications, Jenoptik offers its customers a durable and resource-saving alternative to conventional machining processes.

The efficient new generation of lighting for industrial applications, "JENOPTIK RayLance", not only offers high performance and a long service life; with its impressive **energy efficiency**, the light is also ideal for use in many situations, particularly high industrial spaces such as warehouses, logistics halls and production halls, and its light yield is about 40 percent greater than that of the previous generation.

The supply of electrical power is increasingly important in modern vehicles. Electric motors and generators, power electronics and complete assemblies are extremely efficient and feature a very good power to weight ratio, i. e. an improved ratio between the level of electrical or mechanical energy generated and the weight of the systems.

With continuing advances in development, optical technologies are increasingly opening up potential new areas of application that allow for simpler process design, the protection of resources

T38 Energy Consumption of the Jenoptik Locations in Germany (in megawatt hours)

	2016	2015	2014
Electricity	34,439	34,416	34,757
Gas	10,252	7,989	7,957
Wood pellets	772	1,250	1,326
District heating	10,621	9,633	9,103
Heating oil	264	199	387
Total energy consumption	56,348	53,487	53,530

T39 Water Consumption of the Jenoptik Locations in Germany (in cubic meters)

	2016	2015	2014
Water	54,953	57,229	57,084

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and a reduction in the size of crystalline structures in semiconductor production. Jenoptik also supplies optical systems for new communication technologies in the field of fiber coupling, optical diagnostic procedures, e.g. for endoscopy, and opto-electronic system solutions in life sciences.

Fuel and CO₂ savings as well as hybridization. One objective of the automotive industry is to reduce fuel consumption and both carbon and pollutant emissions. High-precision metrology systems and plants can be used for rapid and accurate testing of shapes and surfaces. The results are more precise surfaces on engine components and thus vehicles that require less fuel. The increasingly widespread use of hybrid drive units is leading to the use of ever more complex transmissions containing a large number of new components, in turn demanding greater use of metrology. For customers, this means longer life cycles and less service expenditure, equating to excellent product sustainability and reduced costs in the manufacturing process. But it's not only the automotive industry that is reaping these benefits: for example, Jenoptik also developed an innovative hybrid power generation system for the Patriot missile defense system, ensuring a more efficient supply of energy to the Patriot launching stations in the future.

Jenoptik's **traffic monitoring system** help to ensure compliance with applicable laws. They thus help to make road traffic safer,

reduce the probability of accidents and injuries and lower pollutant and noise emissions. For the first time, Jenoptik is also supplying truck toll payment monitoring systems for Germany's federal highways that, thanks to the digital combination of various sensor technologies, represents a unique solution on the market. The monitoring systems can be installed on the side of the highways, eliminating the need for monitoring gantries and thus limiting the impact on the environment.

Social Commitment

In addition to economic and ecological matters, Jenoptik's promotion of sustainability also focuses on social issues. Supporting young people in their education and scientific activities, as well as in social projects – this is at the heart of our social commitment. The Group supports a whole range of non-profit projects, organizations and initiatives and is actively involved in science, education and culture as well as in the area of social welfare and charity, primarily in Germany but increasingly also abroad. **G16**

Jenoptik's main concern is to achieve close, long-term partnerships, with the aim of providing not just financial but also personal assistance. The Group has long been pursuing this approach, e.g. since 1996 through its patronage of the

G16 Social Commitment – Examples of Projects in 2016

Social issues >	Jenoptik supports:	<ul style="list-style-type: none"> Easter Charity Concert by the International Youth Orchestra Academy for the Elterninitiative für krebskranke Kinder Jena e.V. "Habitat for Humanity"; Jupiter (FI) Fund-raising campaign on the occasion of the New Year's Eve Reception for the social work with children and young people in the church community in Bürgel Summer camp for children of employees and for the first time for children from recognized refugee families
Science and education >	Jenoptik has been a partner for many years for...	<ul style="list-style-type: none"> the Thuringian youth researchers competition "Jugend forscht" (since 1991) the competition of school students "Schüler experimentieren" (since 2012) long "Night of Sciences" in (since 2005) the workshops "BEGEGNUNGEN Kultur Technik Wirtschaft" for students of the Ernst-Abbe-Hochschule Jena
Art and culture >	Jenoptik focuses on promoting regional and young artists with its in-house "tangente" art exhibition	<ul style="list-style-type: none"> tangente "Sequences" – Susan Liebold tangente "Farbe Formen Räume" – Falko Bärenwald and together with partners the exhibition dedicated to the German-French artist Rotraut, organized by the Friedrich-Schiller-University Jena

“Elterninitiative für krebskranke Kinder Jena e.V.” (Adult Initiative for Children with Cancer Jena). Donations both made by Jenoptik and collected from partners as well as the organization of diverse events help to support children with cancer and their parents. Particularly worthy of note is the Easter Charity Concert given by the International Youth Orchestra Academy, the proceeds of which are donated to the initiative. In the US, employees at the Rochester Hills (Michigan) location provide education and career guidance to young people from financially disadvantaged families. Jenoptik employees in Jupiter (Florida) assist the “Habitat for Humanity” organization in championing affordable, decent housing, and help to build homes for families in need.

Further priorities of Jenoptik’s commitment to society have for many years included the [promotion of science, education, art and culture](#). Our work as a longstanding and reliable partner in the region is exemplified by our sponsorship of the Thuringian “Jugend forscht” (Young Researchers) state competition. The Group has also been supporting the “Schüler experimentieren” (School Students Experiment) competition since 2012, takes part in the Long Night of Sciences and works closely with universities and research institutes.

Since the company’s earliest days, Jenoptik has been enriching life in Jena with art and cultural projects. The in-house “tangente” art exhibition is a key part of this endeavor, but Jenoptik also supports other art projects in association with various partners. On the occasion of our 25th company anniversary, the highlight of 2016 was our support for the exhibition dedicated to the French-German artist Rotraut organized by the Friedrich Schiller University of Jena. Jenoptik offers students at Jena’s University of Applied Sciences an innovative type of cultural education through its workshop “BEGEGNUNGEN Kultur Technik Wirtschaft” (“ENCOUNTERS culture technology business”).

Together with numerous partners, the Group is also active as a member of the “Familienfreundliches Jena e.V.” (Family-Friendly Jena) support group for projects conducted by the “Jenaer Bündnis für Familie” (Jena Family Alliance) to improve general underlying conditions, the [work/life balance](#) and equal opportunities in education. Since 2014, Jenoptik has also held a summer camp for children of employees. Children from recognized refugee families also attended the camp for the first time in 2016, with financial support provided by Jenoptik.

Human Rights

Upholding human rights is one of Jenoptik’s key priorities – in its operating business as well as in the supply chain. All suppliers are obliged to respect the rights of their employees, for example the ban on forced or child labor, under Jenoptik’s code of conduct for suppliers. The aim of a current project is to develop further measures and checks within our business operations and supply chain to prevent any violations of human rights.

Anti-Corruption

Jenoptik fights all forms of active and passive corruption and expects all its business partners to do the same. Clear employee guidelines on dealing with gifts and donations as well as training on specific topics aim to ensure sufficient awareness and legal compliance. The purpose of a centralized business partner screening process is to ensure that Jenoptik cooperates only with those business partners that meet all of its compliance requirements. Obliging suppliers to comply with Jenoptik’s code of conduct and reviewing risky contractual arrangements is an essential part of preventing corruption. In accordance with international standards, the code of conduct requires our suppliers to comply with a number of different compliance requirements. A project for group-wide uniform handling of conflict minerals extends across the entire supply chain. Compliance with our group-wide standards is reviewed in the course of regular internal audits.

Other Non-financial Issues

Quality Management

Jenoptik’s success as a company rests on the quality of the products and solutions we offer our customers. 2016 therefore saw the continuation of efforts to comprehensively certify various group companies. All certifications are subject to annual review audits that were also successfully conducted in all areas in the past fiscal year. Almost all Jenoptik companies met the requirements of the ISO 9001 quality management standard.

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The recertification/surveillance audits were successfully completed in 2016 for all companies in the Optics & Life Science segment certified according to DIN EN ISO 9001:2008. Also in this segment, JENOPTIK Polymer Systems GmbH complied with the stringent medical technology standards of DIN EN ISO 13485:2012 as well as those for the automotive industry codified in DIN ISO/TS 16949:2009.

In the Mobility segment, JENOPTIK Robot GmbH at the Monheim location successfully passed a surveillance audit for data protection and security for order data processing. A surveillance audit according to DIN EN ISO 9001:2008, carried out by DEKRA and valid for all locations, was also passed. JENOPTIK Industrial Metrology Germany GmbH was one of the first providers to be awarded a license by the German Accreditation Agency DAKS for the calibration of roughness, contours and shapes. The calibration laboratory of this Jenoptik business has been allowed to use the mark of the International Laboratory Accreditation Cooperation (ILAC) since 2012. Products and services thus gain a higher acceptance on an international level. Since June 2016, almost all global production locations in the Automotive unit have been certified according to DIN EN ISO 9001:2008. In the Defense & Civil Systems segment, all of the JENOPTIK Advanced Systems GmbH's locations are certified according to EN 9100, a quality management system specific to the demanding requirements of the aerospace and defense industries. At Wedel, the segment is also certified as a manufacturer for the European Aviation Safety Agency (EASA) and as a maintenance company under the respective regulations of the European, US, Canadian, and Chinese aviation authorities. At the Altenstadt site, the subsidiary JENOPTIK Power Systems GmbH is certified both in accordance with quality management certification (DIN EN ISO 9001:2008) and the International Railway Industry Standard (IRIS).

Customer Relationships

Jenoptik predominantly manufactures capital goods, provides a wide range of services and is both a supplier and partner of industrial companies. Our technology-intensive products and systems are often created in close collaboration with the customer. This requires confidence on both sides as well as knowledge of target audience requirements. That's why successful, longstanding collaborations with key customers are an important factor of success at Jenoptik. In part, good customer relationships are reflected in our high order backlog.

Procurement

In recent years, Jenoptik has managed to leverage significant opportunities in purchasing and thus contribute to an increase in operational excellence on the group level.

The strategic and operational purchasing structures were more closely interlinked in 2016 as part of the segment reorganization process and procurement responsibility was centralized. Operational purchasing is structured by product groups and is responsible for the segments' procurement processes. In the past fiscal year, operational purchasing successfully integrated the North American Alabama and Rochester Hills locations in procurement at the Shared Service Center (SSC) America. All key local procurement volumes in the US thus fall within the remit of the SSC, which has already produced a reduction in costs for bought-in parts in this region. Strategic purchasing is responsible for the group-wide material group and supplier strategy, as well as procurement processes in the Group. This ensures good access to the relevant markets and thus the creation of synergies.

T40 Certification within the Group (selection)

ISO 9001	Certification of quality management processes
EN 9100	Certification of quality management processes specific to the aerospace and defense industries
ISO 13485	Certification of comprehensive quality management systems for the design and manufacture of medical products
ISO 14001	Certification of the environmental management system
ISO/TS 16949	Certification for the automotive industry
EG 748/2012	Certification as a manufacturer for the civil aviation industry
EG 2042/2003	Certification as a maintenance company for the civil aviation industry
IRIS	International Railway Industry Standard
ILO-OSH-2001/ OHSAS 18001	Certification of occupational safety and health management

Key initiatives for achieving our objectives are the Global Sourcing Project, the Purchasing Academy and Material Group Purchasing, which was further centralized. Alongside on-schedule standard and project procurement, in 2016 the Group again focused on central bundling of material requirements and arranging further international sources of supply, particularly in Asia and North America. The share of sourcing in these regions was increased by a double-digit million amount. In addition, preferred strategic suppliers were selected for the various material groups, which are supported and coordinated with systematic supplier management. This process is managed by strategic purchasing together with the segments' quality management.

Processes

Jenoptik continued to invest in improving its structures and processes to achieve [organizational and procedural advantages](#). This included the continual international expansion of the Shared Service Center functions as well as the Jenoptik Excellence Program (JEP), which was prioritized and successfully continued.


Thanks to far-reaching JEP initiatives, including those supporting the organization of tasks in the new segment structure, internal processes were successfully synchronized and streamlined in 2016. This enabled a lasting reduction in complexity and an increase in the flexibility required by the market. The program thus again made a significant contribution to the growth in earnings achieved in the past fiscal year. We continue to focus on ever-increasing process performance, both nationally and internationally.

To further improve the organization's consistent alignment with market requirements, the ongoing transformation of sales as part of the "Market Excellence Program" was another priority in the past fiscal year. It aims to increase market orientation throughout the Group, enabling the efficient generation of growth momentum. The integrated Market Excellence Program therefore focuses not only on strategy, organization, processes and performance in sales and service, but also explicitly on supporting business development, pricing and internationalization.

Across-the-board use of established tools shows that the lean methodology promoted by the Go Lean Program has now been successfully established in the Group, once again reducing operating costs, increasing flexibility and improving quality. Lean methodology is due to be rolled out further at Jenoptik in the years ahead. The first administrative areas have already received training and successfully begun implementing improvement projects, such that entire process chains are increasingly being organized along lean principles.

The most extensive group-wide project designed to bring about organizational and procedural advantages is the JOE project (Jenoptik One ERP). It has three objectives at its heart:

- to support international growth with harmonized processes and standardized IT systems
- to boost efficiency in the operating functions with the development of a standardized ERP system and
- to improve group controls with further method development in financial control and accounting.

The project chiefly addresses the key management, core and support processes in every one of the Group's organizational units worldwide. In the course of 2016, a standardized ERP system was established in the Traffic Solutions business unit, at the Shared Service Center and at JENOPTIK AG. Relevant software-assisted business processes within the Group are subject to identical models and thus simplify the centralized management of the company. 

Reputation

The Jenoptik Group benefits from the reputation of our headquarters in Jena, which is highly renowned by both scientists and customers as an "Optical Valley". Jenoptik is conscious of this reputation and is involved in various activities aimed at sustainably improving the location.



For information on changes to the organizational and production processes in the operating areas, see the Segment Report from page 84 on

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Management Report of JENOPTIK AG

(Abridged Version According to HGB)

Supplementary to the reports on the Jenoptik Group, the development of JENOPTIK AG is set out below.

JENOPTIK AG is the parent company of the Jenoptik Group and based in Jena. Its asset, financial and earnings position is fundamentally defined by its capacity as the holding company of the Jenoptik Group. In 2016, the operating activities of JENOPTIK AG, which primarily cover the subleasing of commercial premises, increased in significance on the prior year due to the accrual of LEUTRA SAALE Gewerbegrundstücksgesellschaft mbH & Co. KG., Grünwald and the merger of JORENT Techno GmbH, Jena, with JENOPTIK AG.

The Annual Financial Statements of JENOPTIK AG are prepared in accordance with German commercial law (HGB), incorporating the changes arising from the Accounting Law Modernization Act (BilRUG). The Consolidated Financial Statements are prepared according to the International Financial Reporting Standards (IFRS) valid on the reporting date and the interpretations of the International Financial Reporting Interpretations Committee (IFRIC) whose application is mandatory within the European Union. This gives rise to differences in the accounting and valuation methods, chiefly concerning fixed assets, derivatives, provisions and deferred taxes.

Asset, Financial and Earnings Position

Earnings Position

Revenue increased by 25.6 million euros to 27.4 million euros on the prior year, primarily due to rental income worth 14.5 million euros from the merged subsidiary JORENT Techno GmbH, Jena, and the changed definition of revenue according to BilRUG equating to 10.8 million euros (of which 9.1 million euros holding company allocation to the group entities).

With the change in the composition of revenue, the cost of sales rose too, by 20.7 million euros. This was primarily attributable to costs of the merged JORENT Techno GmbH covered in the amount of 9.4 million euros due to the changed definition of revenue according to BilRUG.

As a result the gross profit improved from 0.5 million euros to 5.4 million euros of which earnings from the merged real estate firms accounted for 5.1 million euros.

The 2.4 million euros drop in administrative expenses compared to the prior year is, in the amount of minus 6.1 million euros, due to the adjustment of administrative expenses to match the new definition of revenue according to BilRUG. This was countered by higher expenses in the amount of 3.0 million euros, chiefly in conjunction with the changes to the Executive Board in the fiscal year 2017.

T41 Abbreviated Income Statement of JENOPTIK AG (in thousand euros)

	1/1 to 31/12/2016	1/1 to 31/12/2015
Revenue	27,407	1,820
Cost of sales	22,014	1,340
Gross profit	5,393	480
Selling expenses	861	1,840
General administrative expenses	15,409	17,848
Research and development expenses	304	596
Other operating result	4,034	10,521
Income and expenses from profit and loss transfer agreements and income from investment companies	53,505	40,274
Financial result	-2,287	1,587
Income taxes	4,682	2,765
Earnings after tax	39,388	29,812
Other taxes	1	18
Net profit	39,388	29,794
Transfer to revenue reserves	0	739
Retained profits from prior year	34,420	17,957
Accumulated profit*	73,808	47,012

* According to the proposal put forward by the Executive Board to the Supervisory Board regarding appropriation of profits

JENOPTIK AG reported research and development expenses amounting to 0.3 million euros (prior year 0.6 million euros), covering expenses for innovation management and the coordination of research and development work within the Jenoptik Group.

Selling expenses of 0.9 million euros (prior year 1.8 million euros) concerned communications and marketing, and also include expenses for advertising and sponsorship. The fall on the prior year was mainly due to the reclassification of selling expenses in the cost of sales effected in the course of changes to reflect BilRUG.

The other operating result includes other operating income of 11.4 million euros (prior year 25.1 million euros) and other operating expenses of 7.4 million euros (prior year 14.6 million euros).

Other operating income fell 13.7 million euros in the 2016 fiscal year, again primarily due to the new presentation required by BilRUG. 10.8 million euros were reclassified as revenue. Key elements in the year covered by the report were earnings from the reversal of provisions in the amount of 3.5 million euros, currency gains worth 2.9 million euros and internal group cost allocations of 1.6 million euros. During the reporting period, other operating expenses fell from 14.6 million euros to 7.4 million euros. The changes were due to a fall of 2.8 million euros in expenses arising from cost allocations, one-off expenses from the prior year arising from settlement obligations in the value of 2.8 million euros and lower currency losses. They include currency losses of 2.7 million euros, cost allocations to subsidiaries worth 1.6 million euros, unscheduled depreciation on intangible assets of 1.5 million euros and expenses for internal group optimization projects in the amount of 0.9 million euros.

The financial result of minus 2.3 million euros (prior year 1.6 million euros), consisting of earnings from securities and loans, depreciation on loans and the interest result, fell 3.9 million euros on the prior year. These changes result from lost interest income of 2.1 million euros due to the reduced loan volumes to unconsolidated associates as well as 2.3 million euros of higher depreciation on financial investments. By contrast, interest income arising from a settlement in connection with the sale of M+W Zander Holding AG in the 2005 fiscal year amounted to a gain of 1.5 million euros.

The increase in income taxes by 1.9 million euros to 4.7 million euros (prior year 2.8 million euros) is mainly due to higher income in the subsidiaries. This, however, was coun-

tered by tax effects from the sale of real estate and non-tax-effective earnings from discontinued operations. The comparatively low overall income taxes are attributable to the use of tax losses carried forward.

JENOPTIK AG's annual net profit increased by 9.6 million euros, or 32.2 percent, to 39.4 million euros (prior year 29.8 million euros). The company's earnings position was mainly influenced by the income generated by the accrual and merger of the real estate firms in the fiscal year, and by the subsidiaries' contributions to earnings that are then paid to JENOPTIK AG on the basis of existing control and profit and loss transfer agreements. The net earnings contribution of the subsidiaries increased on the prior year, by 13.2 million euros, to 53.5 million euros. In the details, however, the earnings contributions are composed differently: the Optics & Life Science segment further improved

T42 JENOPTIK AG Statement of Financial Position (in thousand euros)

	31/12/2016	31/12/2015
Assets		
Non-current assets	443,991	451,378
Inventories, trade receivables, securities and other assets	78,557	99,405
Cash on hand, bank balances	132,257	74,885
Current assets	210,814	174,290
Expenses and deferred charges	3,432	3,706
	658,237	629,374
Liabilities		
Share capital	148,819	148,819
(Conditional capital 28,600 thousand euros)		
Capital reserves	180,756	180,756
Revenue reserves *	74,410	74,410
Accumulated profit *	73,808	47,012
Equity	477,793	450,997
Pension provisions	2,921	4,402
Other provisions	18,042	13,059
Provisions	20,963	17,461
Liabilities to banks	114,002	125,000
Trade accounts payable	1,125	1,011
Other liabilities	44,355	34,905
Liabilities	159,481	160,916
	658,237	629,374

* According to the proposal put forward by the Executive Board to the Supervisory Board regarding appropriation of profits

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its contribution to earnings due its position as a leading supplier of photonic system solutions, and the Defense & Civil Systems segment also improved its contribution on the basis of good business with energy and aviation systems and various completed major orders.

Asset and Financial Position

At 658.2 million euros, JENOPTIK AG's total assets were 4.6 percent up on the figure for the prior year (prior year 629.3 million euros).

The asset side of the statement of financial position reflected JENOPTIK AG's status as a holding company. Alongside a large share of the fixed assets (67.5 percent) in total assets, of which 56.7 percent is attributable to financial investments and 10.8 percent to property, plant and equipment, total assets are also dominated by a high level of cash and cash equivalents (20.1 percent) and loans to unconsolidated associates (11.7 percent).

In the 2016 fiscal year, loans to unconsolidated associates, which form part of the financial investments, fell 61.6 million euros to 29.9 million euros (prior year 91.5 million euros). In addition to scheduled repayments of existing loans in the amount of 10.3 million euros, loan receivables worth 52.7 million euros were consolidated with the relevant liabilities of JENOPTIK AG by means of amalgamation, in the course of the accrual of LEUTRA SAALE Gewergrundstücksgesellschaft mbH & Co. KG, Grünwald. On the other hand, property, plant and equipment rose by 54.9 million euros due to the accrual of LEUTRA SAALE Gewergrundstücksgesellschaft mbH & Co. KG, Grünwald.

Receivables from unconsolidated associates fell by 21.1 million euros, and chiefly affected the settlement accounts for cash pool holdings of subsidiaries. The reduction was due to positive cash flow developments at subsidiaries.

The increase in liquid funds by 57.3 million euros to 132.3 million euros must be seen in connection with reduced settlement accounts and the subsidiaries' positive contributions to earnings.

Expenses and deferred charges were predominantly due to capitalized costs in connection with the expansion and extension of financial debt. These were distributed over the terms of the financing agreements.

In terms of liabilities, JENOPTIK AG's financing function as the holding company for the Jenoptik Group is of particular note. Equity came to 477.8 million euros, liabilities to banks 114.0 million euros (17.3 percent of the total equity and liabilities).

Thanks to the positive annual result of 39.4 million euros equity rose to 26.8 million euros. This was countered by the payment of dividends worth a total of 12.6 million euros for the 2015 fiscal year. The equity ratio grew from 71.7 percent to 72.6 percent.

The increase of 5.0 million euros in other provisions was in part due to a rise of 1.9 million euros in tax provisions and additions to personnel provisions worth 3.6 million euros, in particular arising from bonuses and expenses in connection with the pending changes to the Executive Board. On the other hand, provisions for onerous contracts reduced by 0.8 million euros.

Due to the scheduled repayment of a debenture loan installment, liabilities to banks fell by a total of 11.0 million euros in the fiscal year.

Other liabilities increased by 9.4 million euros, primarily due to the increase of settlement accounts for cashpool balances and a loan of a subsidiary. On the other hand, compensation obligations in connection with profit and loss transfer agreements reduced.

Over the reporting year, JENOPTIK AG's debt ratio fell due to the rise in equity from 39.6 percent to 37.8 percent.

As of December 31, 2016, JENOPTIK AG had 121 employees, of which 12 were temporary workers (prior year 119 employees, of which 14 temporary workers and 2 trainees).

Report on Post-Balance Sheet Events

Risks and Opportunities

Due to its function as a holding company, JENOPTIK AG's development of business is subject to the same risks and opportunities as the Jenoptik Group. It generally participates in the risks of equity holdings and subsidiaries in line with their equity interest. The risks and opportunities of the Group and the segments are set out in the Risk and Opportunity Report from page 108 on.

Forecast Report

The annual result of JENOPTIK AG in its capacity as a holding company is largely dependent on the development of contributions to earnings by the subsidiaries. On the basis of the development presented in the Forecast Report, JENOPTIK AG also expects to report growth in the 2017 fiscal year.


In the 2017 fiscal year rental income is expected at the same level as in 2016, holding company allocation are expected to be slightly lower on the basis of offsetable costs.

For a detailed presentation of the expected future development of the Jenoptik Group and its segments, we refer to the Forecast Report from page 114 on.

The Executive Board of JENOPTIK AG authorized that the present Consolidated Financial Statements may be passed on to the Supervisory Board on March 8, 2017. It is the task of the Supervisory Board to review and approve the Consolidated Financial Statements in its meeting on March 21, 2017.

Dividends. In compliance with the German Stock Corporation Act, the amount that can be paid as a dividend to shareholders is set on the basis of the accumulated profit of the parent company, JENOPTIK AG, which has been determined in accordance with German commercial law (HGB). For the 2016 fiscal year, the accumulated profit of JENOPTIK AG totaled 73,807,624.13 euros, comprising net profit for the 2016 fiscal year in the amount of 39,387,813.03 euros plus retained profits of 34,419,811.10 euros.

On the basis of the good annual result for the past fiscal year 2016, the Executive Board recommends that the Supervisory Board propose to the Annual General Meeting an increase of 14 percent, to 0.25 euros, in the dividend to be paid per qualifying no-par value share (prior year 0.22 euros). This means that an amount of 14,309,528.75 euros from JENOPTIK AG's accumulated profits in the 2016 fiscal year will be distributed and an amount of 59,498,095.38 euros will be carried forward.

Acquisition. In January 2017, the Jenoptik Group acquired all shares in the British company Domestic and Commercial Security Limited (ESSA Technology), Saltash, Great Britain. 

No further events of significance occurred after December 31, 2016.




For more information, we refer to the details in the chapter 2.4 Entities Acquired and Sold on page 132 f.

Internal Auditing monitors the effectiveness of the risk management system as an internal authority, while the Audit Committee of the Supervisory Board takes up the external monitoring function for or in conjunction with the Supervisory Board.

On the Risk & Compliance Committee, all aggregated reporting results are consolidated to form a top-level evaluation of the Group's risk position. The committee comprises the members of the Executive Board and the heads of the central Legal, Internal Auditing and Risk & Compliance Management departments. **G18**



The consolidated companies exposed to risk correspond to those included in the consolidated balance sheet. 

For further information see Notes page 130

Structure and Processes of the Risk and Opportunity Management System

The Jenoptik risk management system is based on the standard ISO 31000.

The definition and ongoing development of the system takes place with the close cooperation of the Risk & Compliance Committee and the Audit Committee of the Supervisory Board. The Executive Board is responsible for the system and also approves it. The central Risk & Compliance Management department is the link between all involved parties. It communicates the requirements of the risk management system, advises on their efficient implementation and monitors the measures and results of the risk management processes.

One core process of risk management is the risk assessment. This takes place in a combination of top-down and bottom-up elements. In order to ensure the most in-depth risk identification and comparability possible within the company, a risk register was developed that supports management in the evalua-

G18 Process of Risk Reporting

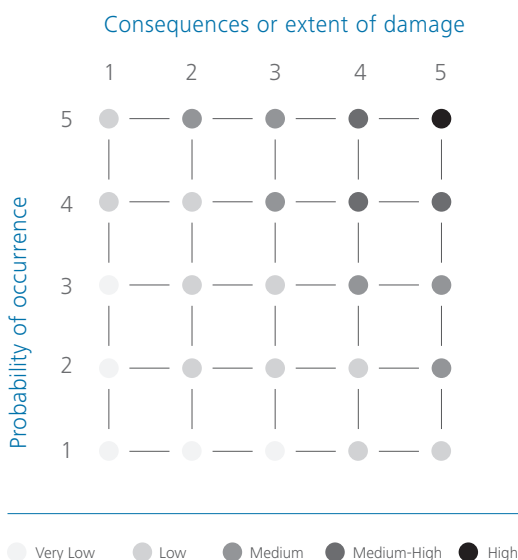
✓	Risk Officers in the Divisions and Central Departments	Assessment of single risks
	Central Functions	Review of aggregated risks
✓	Central Department Risk & Compliance Management	Review and analysis of group risks
	Risk & Compliance Committee	Analysis of group risks
✓	Executive Board	Final assessment of risks
✓	Audit Committee Supervisory Board	Evaluation of group risks

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tion of risks. It comprises several specified categories to which potential risks are allocated by the risk reporting units. This is to ensure that each risk reporting unit deals with the entire risk landscape and that, simultaneously, an aggregation of the results is guaranteed across the specified categories. Within the scope of the risk analysis, the risk reporting units determine the risks and opportunities in order to be able to undertake a valid risk assessment in the next stage regarding the assessment methods (qualitative or quantitative) and the measures already taken or still required (risk management). This takes place in accordance with the net method, i.e. mitigating measures are already included in the assessment so that only the assessed residual risk is reported and aggregated. The assessment of a risk is the product of the probability of occurrence and the quantitative amount of loss or the qualitative extent of damage. The opportunities are evaluated in the same way. **G19**

There is a scale of 1 to 5 for both assessment factors mentioned (probability of occurrence and amount of loss), with 1 being the smallest and 25 the greatest possible risk score. **G20**

G20 Calculation of Risk Scores



G19 Risk Assessment

Metrics	Probability of occurrence	Consequences resp. extent of damage	
		Qualitative	Quantitative
5 = High	up to 50%	The goal of the Group or the division is jeopardized	or > 20% or 500,000 euros
4 = Medium-high	up to 40%	The goal of the Group or the division has to be adapted immediately	or > 15 to 20%
3 = Medium	up to 30%	The goal of the Group or the division has to be adapted in the medium term	or > 10 to 15%
2 = Low	up to 20%	Further measures are necessary in order to achieve the goals of the Group or the division	or > 5 to 10%
1 = Very low	up to 10%	Minor consequences	or > 0 to 5%

Every six months, the results of the risk assessments are requested by the central Risk & Compliance Management department via the Chief Risk & Compliance Officer at the risk reporting units and aggregated to the Group Risk Report. The central departments of the Corporate Center and the Shared Service Center can then undertake a comprehensive evaluation before the results are discussed at the Risk & Compliance Committee and a comprehensive evaluation is recommended to the Executive Board along with other measures if necessary. Once the Executive Board has approved the Group Risk Report, it is presented and discussed at the Audit Committee of the Supervisory Board before being submitted to the Supervisory Board.

In addition, any risks identified during the year which have a high probability of occurrence and significant potential for damage, are communicated without delay to the Chief Risk & Compliance Officer and the Executive Board. Following joint analysis with the technical departments, they decide on further measures to be taken and, if necessary, the required communication.

The abovementioned reporting instruments also form the basis for the risk early warning system. This is reviewed within the framework of the audit of the financial statements by the auditor in order to ensure that the system is appropriate for promptly recording, evaluating and communicating all risks that could potentially jeopardize the Group's existence.


Risk Prevention and Ensuring Compliance

Risk prevention is a key element of the risk management system, and an integral part of regular business operations and committee work.

It essentially comprises risk monitoring at regularly scheduled meetings and special approval procedures. Consequently, risks and opportunities as well as their impact on the company are discussed during the monthly meetings of the Executive Board, meetings of the Executive Management Board as well as at strategy and results meetings. In addition to the Executive Board and the heads of Group Controlling, Strategy and the operating units, the Chief Risk & Compliance Officer also participates in the six-monthly strategy meetings, the purpose of which is to be able to evaluate the impact of risks identified throughout the year on the strategic goals of the Group. At the same time, potential risks to achieving the strategic goals can be considered directly in the strategy development process and minimized by taking suitable measures.

Jenoptik's Group Guidelines represent a further risk prevention measure. The "Transactions with particular characteristics" guideline is used particularly for risk prevention. If a contract which is to be concluded or an obligation to be entered into meets one of the criteria defined in this guideline identifying the transaction as deviating from the norm (for example, a high order value, special financing conditions, regulations on knowledge transfer or strategic aspects), a special control process is started, involving the respective central group departments and the Chief Risk & Compliance Officer. All opinions are submitted to the Executive Board prior to the possible approval being granted, so that the final decision regarding such a transaction can always be made after consideration of all identified potential risks and opportunities.

Compliance with national and international compliance requirements is an integral part of risk prevention and of the processes of Jenoptik's risk management system. In order to improve employee awareness and achieve company-wide uniform understanding of our compliance standards, regular training is provided on subjects relevant to compliance, such as anti-corruption or anti-trust law. Web-based online training on key compliance issues is obligatory for all employees. A help desk is available on the intranet to assist employees on any risk or compliance issues they may have. The corporate guidelines implemented within the Group with regard to important company processes are continually being reexamined, expanded and updated. They are published on the intranet.

In accordance with international standards, a supplier code of conduct requires Jenoptik's suppliers to comply with a number of different compliance requirements. 

Central business partner screening (third-party due diligence) is used to check whether cooperation with a business partner is viable from a compliance perspective.

Jenoptik therefore has a system of regulations, processes and controls that enable it to identify any possible deficits in the company and to minimize them using appropriate measures at an early stage.

Alongside the risk management and compliance management systems, the [Internal Control System \(ICS\)](#) is a key element of corporate governance. It covers technical and organizational regulations and control steps that serve to ensure compliance with guidelines and prevent losses as well as clear responsibilities and division of functions in adherence to the cross-check



For further information on compliance see Corporate Governance Report

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principle. In particular, its intention is to ensure the security and efficiency of businesses as well as the reliability of financial reporting, and it is regularly reviewed by Internal Auditing. The ICS and compliance self-assessments established in 2015, to be completed by the management of all subsidiaries and JENOPTIK AG in the form of questionnaires, were also carried out in the past fiscal year. Monitoring and assessment of the completed questionnaires is carried out by the central departments of Accounting, Controlling, Internal Auditing as well as Risk & Compliance. Reported deficits are analyzed and appropriate countermeasures are defined to ensure they are lastingly eliminated.

Internal Auditing is permanently incorporated into the ongoing further development of the internal monitoring and risk management system through process-independent audits. As a staff department, it reports directly to the Chairman of the Executive Board. Internal Auditing conducts audits in the form of so-called independent Jenaudits. This involves the organizational units of the Jenoptik Group being analyzed and audited on the basis of a risk-oriented audit plan. The compliance with and proper implementation of the applicable guidelines form integral parts of the audit. This not only identifies errors or process weaknesses but also potential process improvements in the sense of a “best practice approach”. The recommendations are prioritized, categorized and reported directly to the persons responsible for the audited units, the respective central departments as well as to the Executive Board. Breaches or errors are analyzed and work on their elimination initiated as quickly as possible. The audited unit then submits a report to the Executive Board, indicating which of the stated recommendations were implemented by a defined date. This is followed by follow-up audits that review the implementation of the recommendations, with information on the results being sent to the respective management levels and central departments as well as the Executive Board. Internal Auditing submits a report to the Audit Committee of the Supervisory Board at least once a year on its key findings since the last report. In 2016, two Jenaudits, two follow-up audits and two special audits were conducted. Six units received support for implementation of the measures.

Jenoptik has a centralized financial management system. The central Treasury department coordinates the financing needs of the Group, ensuring liquidity and monitors the currency, interest rate and liquidity risks on the basis of group-wide guidelines. These guidelines include provisions for the clear separation of transaction and corporate oversight functions as well as trading within predetermined limits.

The purpose of financial risk management is to limit financial risks arising from changes in market rates, for example interest

and exchange rates. Financial instruments are used exclusively for the purpose of securing underlying transactions and not for speculative purposes and are only concluded with banks with good to very good credit ratings. Currency-related risks arise from the Group’s international activities. The central Treasury department identifies these risks in collaboration with the group companies and controls them with appropriate measures such as the conclusion of currency forward transactions. As a basic principle, all group companies must hedge foreign currency positions on the date they are created. Hedging has the aim of establishing an accounting hedge relationship with the greatest possible effectiveness.

The interest rate risk is in part reduced by the conclusion of fixed-interest loans. In addition, interest rate swaps are used to reduce the risk of changing interest rates for loans with variable interest. Because the swaps were concluded on the basis of variable-interest debenture loans that have since been paid, the accounting hedge relationship no longer exists here. A variable interest rate was consciously agreed for a part of the loans in order to fully profit from the current low interest rate environment.

The purpose of the liquidity planning is to identify liquidity risks at any early stage and to systematically minimize them on a group-wide basis. Regular Treasury reports and a monthly rolling liquidity forecast are used for liquidity control and monitoring.

Key Features of the Internal Control and Risk Management System with regard to the Consolidated Accounting Process (§ 289 (5) and § 315 (2) (5) of the German Commercial Code (HGB))

The accounting-related internal control system is part of the overall ICS of the Jenoptik Group. Its purpose is to ensure a due and proper process in preparing the Consolidated Financial Statements, guaranteeing compliance with statutory regulations, accounting rules and internal guidelines for uniform accounting and valuation principles, which are binding for all companies included in the Consolidated Financial Statements. New regulations and changes to existing rules are analyzed promptly and implemented. All employees involved in the accounting process receive regular training.

Access restrictions in the respective IT systems protect the financial systems against abuse. Centralized control and regular backup of the IT systems reduce the risk of data loss.

In order to prepare the Consolidated Financial Statements, the IFRS data of the companies is recorded directly by them in the consolidation tool LucaNet. The transferred data from the statements and financial statements of consolidated companies is verified by technical system inspections. All the consolidation processes required for the preparation of the Consolidated Financial Statements are documented. These processes, systems and controls enable Jenoptik to ensure a reliable group accounting process that complies with both the IFRS and statutory requirements. The group auditor audits the consolidated financial statements of the companies in accordance with the IFRS regulations, as adopted by the EU.

The [Corporate Governance Report](#) can be found on pages 38 ff. of the Annual Report. The [Corporate Governance Statement](#) in accordance with § 289a and § 315(5) of the German Commercial

Code (HGB) can be found on our website www.jenoptik.com in the section Investors/Corporate Governance. In accordance with § 317(2)(3) of the German Commercial Code, the information required under § 289a and § 315(5) is not considered by the auditor.

The Group's Risk and Opportunity Profile

The Group's risk profile was determined based on the year 2016 for 2017 and subsequent years with the aid of the various risk and opportunity assessments from the segments. Our risk and opportunity management makes possible a direct comparison of the individual risk subcategories and the associated risk symptoms. **T43**

T43 Risk Profile of the Jenoptik Group 2016

	Group risk assessment	
	Current year	Prior year
Strategic risks		
Market development	Medium	Medium
Product development (incl. R+D)	Medium	Medium
Corporate development (portfolio and structure)	Medium	Medium
Organizational setup (processes and resources)	Medium	Medium
Operational risks		
Supply chain management	Medium	Medium
Safety and environmental protection	Low	Low
Production (incl. quality management)	Medium	Medium
Marketing and sales	Medium	Medium
Patents and IP rights	Low	Low
Human resources management	Medium	Medium
IT (incl. implementation of JOE)	Medium	Medium
Compliance	Low	Low
Legal affairs	Low	Low
Real estate	Low	Low
Financial management risks		
Accounting	Low	Medium
Finance management	Low	Medium
Controlling	Medium	Medium
Taxes	Low	Low
Total risk	Medium	Medium

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Overall, the risks to which the Group is exposed reduced slightly on the prior year and are currently at the lower end of the medium risk range.

Once again, **strategic risks** were assessed as most important compared to operational and finance management risks in 2016. Jenoptik operates on very different, in part very volatile markets, such as the semiconductor equipment, automotive, health-care and defense markets, such that their development can represent both a continuous risk and opportunity.

Uncertainty surrounding the development of Jenoptik's growth markets, potential negative effects of Great Britain's withdrawal from the European Union, political unrest in the Middle East and the difficulty in assessing the trade and foreign policy positions of the current US administration all run the risk of negatively influencing the Group.

Jenoptik is exposed to intense competition in all three segments. Due to their size and concomitant financial resources, a number of competitors may be in a position to better respond to competitive pressure. In addition, mergers and acquisitions on the markets we target may further exacerbate the competitive environment and the potentially improved cost structures at competitor companies may have negative effects on group earnings. Jenoptik counters these risks by subjecting its portfolio of products to ongoing analysis to determine which markets can be served with which products. We also review whether targeted investments in the form of corporate acquisitions can usefully complement our portfolio and generate lasting profitable growth.

Operational risks were assessed with low to medium risk indicators throughout the Group. The increasing number of complex international projects, particularly those of a technically challenging nature, place enormous operational demands on all parts of the Group. Supply chain management and production are predominantly responsible for assuring the quality of the products we supply. The use of isolated single-source suppliers increases the risk of dependency. The continuing expansion of our purchasing departments aims to ensure that suppliers are qualified around the world on an ongoing basis.

Global IT systems and processes are of significance to Jenoptik in all segments. The security and availability of the systems have top priority. Data is stored on redundant storage media and secured against data loss by means of a tiered archive and backup system. This allows for rapid data recovery in the event of a possible crisis scenario. The world is seeing a rise

in the number of IT threats, e.g. in the form of phishing or virus attacks in which corporate information is obtained by third parties by means of deception. Despite compliance with a range of technical requirements and internal training provided to relevant employees, there still remains a risk of data loss, which in turn could negatively impact on our business position.

Our employees make the most important contribution to the company's success. As a diversified company, we need dedicated and highly qualified colleagues around the world – now and in the future. There is a risk that we may not be able to secure sufficient numbers of skilled employees for open positions or that we may lose our top performers. Jenoptik counters this risk with targeted employer branding and structured HR development, which in part includes the J²LP leadership development program and attractive incentive plans.

Against the background of Jenoptik's business operations, one group-wide operating risk is compliance in terms of adherence to various legal and ethical requirements. As a company with customers and business partners in numerous countries, clients in the public sector and involvement with the US defense market, Jenoptik must grapple with many compliance requirements. Although the necessary organizational measures to minimize potential compliance violations have been implemented with a group-wide export control organization, the central Risk and Compliance Management department and corresponding processes, such violations cannot be entirely ruled out. Strict adherence to our compliance program and the continuous development of our compliance management system aim to close up any process gaps and ensure that processes comply with laws and regulations.

In 2016, **finance management risks** were downgraded from the low medium to the low risk range. The issues cited below also include the segment-specific risks. One key task of Jenoptik's finance division is the long-term coordination of financing requirements within the Group. The central Treasury Management department is primarily responsible for reducing the finance management risks. Jenoptik has good internal financing and access to alternative, external financing options. Covenants were agreed for the existing debenture loans and the syndicated loan of JENOPTIK AG and are regularly monitored and reported. Two of the ways we address the risks arising from the negative effects of potential fluctuations in the working capital, greater exchange rate differences and a potential liquidity risk is with active inventory and receivables management to manage the working capital and the use of a treasury management system. Regarding the utilization of financial

instruments we refer to the Group Notes, section 8.2 from page 171 on. In the Financial Control and Accounting departments, opportunities predominantly arise from the continuing expansion of the standardized SAP system. Thanks to the ongoing establishment and development of modern, targeted financial control instruments, we counter the risk of possibly missing business-critical information in internal reporting.

Risk and Opportunity Profiles of the Segments

The risk and opportunity profile of the Jenoptik Group was derived from the various risk profiles of the segments, which are shown separately and set out below. Finance management risks are shown as consolidated in the Group risk and opportunity profile. T44

Optics & Life Science

Strategic risks and opportunities primarily arise on the basis of demand in the semiconductor equipment industry, which is subject to cyclical developments. They may have a significant positive or negative affect on the segment's results. Moreover, the focus on major customers also poses a general risk that the loss of one customer may have a significant effect on results in selected areas of business. On the other hand, the loyalty of such customers brings the prospect of profitable revenue growth due to economies of scale. There is always an inherent threat to this growth posed by a growing number of mainly Asian competitors as well as the trend among suppliers and customers toward forward and/or backwards integration. However, it may be achieved through the continuous expansion of existing competitive advantages and internationalization. In addition, the segment addresses this risk by continuously reviewing vertical integration with the aim of supplying system solutions to its customers.

The increasing importance of healthcare, demographic developments in the industrialized nations and advances in medical technology all give rise to growing demand. Ongoing development of the product portfolio and Jenoptik's greater market centrality mean that we are better able to meet our customers' requirements. Increasing financial problems in national healthcare systems, however, are resulting in growing price pressure among suppliers. The trend toward increasing complexity and volatility in the market environment makes clear and reliable forecasts more difficult, especially in innovative areas of application.

Customers' specific requirements result in particular in **operational risks** in supply chain management and production processes. For many components manufactured in the segment, there are only a very limited number of qualified suppliers that are able to meet the necessary specifications in a timely manner. When such a supplier is lost or the customer changes specifications, this can result in corresponding problems in the development or production process. Partners are subject to ongoing qualification with the help of strategic purchasing to develop a stable base of suitable suppliers in the medium and long term. Specific customer requirements, especially regarding the quality of the products, also lead to increased demands for asset investment in the area of manufacturing, which is countered by targeted investment in expansion or replacements. Consequently, there is a risk that the quality requirements cannot be achieved by the agreed time, which may in turn lead to delays in delivery.

Mobility

In the Mobility segment, both market and political developments influence the **strategic risks and opportunities**. Achieving revenue targets is strongly dependent on the automotive market in the metrology business. The repercussions of the exhaust gas manipulations at numerous automotive manufacturers and the criminal penalties for which they may be liable as a result could lead to a freeze on investment and thus a loss of orders for Jenoptik. In addition, tighter state regulations would mean planning uncertainties for the industry, which may also represent an increased overall risk for Jenoptik.

The trend toward electric mobility is both a risk and an opportunity. The reduction in the number of mechanical components is a risk to the established business model in the Metrology business unit. On the other hand, there is the opportunity to secure further orders, since the trend to cut carbon emissions may increase investment in low-emission engines.

Presently uncertain economic and political developments on the Asia and North African markets represent a risk to the Traffic Solutions business area. As a supplier to international public-sector customers in particular, Jenoptik is exposed to both the political and economic development of the respective countries. Particularly in the event of unrest or regime change, this may result in projects being delayed or even stopped entirely. However, in contrast, increasing political stability and economic prosperity of the countries can open up opportunities to better serve the evolving demand for traffic safety technology. Through continuous optimization of the product portfolio as

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part of the corporate development, strategic opportunities will be able to compensate for these fluctuations in demand within a defined scope. Nevertheless, due to changes expected in the medium term in what are currently still stable market segments and in the face of increasing competitive pressure, it is also necessary to develop new sales opportunities. Targeted acquisitions can help here, but the resulting positive effects will only be fully felt after complete integration of the respective units.

In terms of **operational risks**, the increasing internationalization of projects and parts of the value chain is reflected in increased demands on supply chain management, manufacturing, marketing and sales as well as HR management. The rapid expansion of efficient service and sales structures is of crucial importance

to the growth targets, particularly abroad. Delays in the development of structures may lead to the loss of orders. This will be countered by the future establishment of regional competence centers – and thus improved customer and market reach.

The roll-out of the standardized SAP system in areas of the segment as part of the JOE project could give rise to risks inherent in the process, especially in the initialization/start-up phase, which could potentially also lead to delays in achieving the desired efficiency gains. With long-term use of the group-wide ERP system, however, the opportunities outweigh the risks in terms of efficiency and improved controls.

T44 Risk Profiles of the Segments 2016

	Risk assessment					
	Optics & Life Science segment		Mobility segment		Defense & Civil Systems segment	
	Current year	Prior year	Current year	Prior year	Current year	Prior year
Strategic risks						
Market development	Medium	Medium	Medium	Medium high	Medium	Medium
Product development (incl. R+D)	Medium	Medium	Medium high	Medium high	Medium	Medium
Corporate development (portfolio and structure)	Medium	Medium	Medium	Medium	Medium	Medium
Organizational setup (processes and resources)	Medium	Medium high	Medium	Medium	Medium	Medium
Operational risks						
Supply chain management	Medium	Medium	Medium	Low	Medium	Medium high
Safety and environmental protection	Medium	Low	Low	Low	Low	Low
Production (incl. quality management)	Medium	Medium	Low	Medium	Medium	Medium
Marketing and sales	Medium	Medium	Medium	Medium high	Medium	Medium
Patents and IP rights	Low	Low	Medium	Low	Low	Low
Human resources management	Medium	Medium	Medium	Medium	Medium	Medium
IT (incl. implementation of JOE)	Low	Low	Medium	Medium	Medium	Low
Compliance	Low	Low	Medium	Low	Medium	Low
Legal affairs	Low	Low	Low	Low	Low	Low
Real estate	Low	Low	Low	Low	Low	Low
Financial management risks						
Accounting	Low	Medium	Medium	Medium	Low	Low
Finance management	Low	Medium	Low	Medium	Low	Low
Controlling	Medium	Medium	Medium	Medium	Medium	Medium
Taxes	Low	Low	Low	Medium	Low	Low
Total risk	Medium	Medium	Medium	Medium	Medium	Medium

Defense & Civil Systems

Strategic risks. The defense market is strongly influenced by political decision-making, in particular by governments' budgetary positions, and by the continuing restrictive export license policy of the present German government. Due to various global political conflicts and tensions, however, defense spending in individual countries is again increasing. The planned increase in the defense budget and the associated growth in investment by the German government could result in higher order intakes for the segment. This is further bolstered by recent deliberations within the EU regarding a common armaments policy.

In terms of corporate development, the potential risk of a dependency on political decisions and government budgets is in part countered by the target expansion of the civilian and in particular international product portfolio. The processes and resources required for this must be gradually adapted within the course of strategic organizational development. Marketing and sales activities are also being stepped up continuously to fully exploit the relevant growth options.

Since a large proportion of the segment revenue is the result of project business, product developments and launches represent both the biggest risk and the biggest opportunity. Long-term development projects present great potential to generate future revenue. However, there are also inherent technological and organizational risks here that may jeopardize the timely success of the development.

Due to the segment's business model being focused on long-term customer relationships and long product life cycles, the supplier performance is an important success factor. **Operational risks** arise primarily from a strong dependency on single sources in a number of cases, which may endanger future business opportunities. Compared to the prior year, the risk was reduced thanks to active supply chain management.

Risks Across All Segments ("Other" Segment)

Part of the risk assessment of the segments is also a review by the central functions of the holding company and the Shared Service Center, so that their risks are included in the segment reporting and in the final group assessment.

General Statement by the Executive Board on the Group's Risk and Opportunity Situation

Overall, in terms of strategic, operational and financial management risks, the Jenoptik Group has a slightly reduced risk exposure compared with the prior year, and is currently at the lower end of the medium risk range.

The strategic risks that were assessed as "medium" are offset by adequate opportunities or are countered by measures that enable lastingly beneficial strategic positioning. This is particularly the case for the risks in the "product development", "corporate development" and "organizational setup" subcategories. The risks in the "market development" subcategory are largely attributable to external sources of risk that are impossible to influence and can thus only partly be forecast or minimized.

In the area of operational risk, the successful development and expansion of the sales structures is of crucial importance. The same applies to supply chain management and production, which demand special attention due to the high technological requirements in an international environment and, in some cases, associated single source procurement. Due to the increased digitization, the associated increased requirements in the field of IT and the further ongoing process of internationalization, the risk for IT (including implementation of the JOE project) is still assessed as "medium".

The Group's finance management risks have reduced marginally, as previously defined actions have in part been carried out, thereby particularly lowering the risk in Accounting and Treasury Management.

Overall, there is an acceptable relationship between risks and opportunities in the Jenoptik Group. No risks were identified that may jeopardize the continued existence of the Group.

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Framework Conditions: Future Development of the Economy as a whole and the Jenoptik Sectors

Despite a range of uncertainties and risks, the International Monetary Fund (IMF) expects in its “World Economic Outlook” the **global economy** to grow at a marginally better rate in 2017 than in the prior year. At present, growth of 3.4 percent is forecast. The outlook for industrialized nations has improved slightly, but high levels of debt in some newly industrialized and emerging economies mean that the prospects there are now assessed as less good than still in the October forecast. The IMF has cut back its growth forecasts for India, Brazil and Mexico in particular. There are significantly fewer opportunities for growth in Saudi Arabia, according to the IMF, as oil production is being scaled back and civil wars in other Middle East countries are taking a heavy toll. **T45**

Both the IMF and the OECD are concerned about signs of protectionism emanating from the **US**: although the tax cuts and infrastructure programs planned by the US government could further boost the US economy in 2017, restrictions in free trade combined with punitive tariffs imposed on Mexico or China, for example, could result in postponements in capital expenditure and weaken global trading.

The economic, political and institutional implications of the Brexit decision are not yet foreseeable. **Great Britain** intends to leave both the EU and the single market in the next two years. A new free trade agreement with the EU could complicate trade links, especially in financial services and exports. Even though Brexit, the new US administration and various

T45 Gross Domestic Product Forecast (in percent)

	2018	2017
World	3.6	3.4
USA	2.5	2.3
Euro zone	1.6	1.6
Germany	1.5	1.5
China	6.0	6.5
India	7.7	7.2
Emerging Countries	4.8	4.5

Source: International Monetary Fund, World Economic Outlook, January 2017

European elections this year make forecasts subject to uncertainties, in its Winter forecast as of February 2017 the EU Commission is anticipating for the first time economic growth throughout the single currency area in its forecasting period to 2018, albeit with considerable difference in the various EU nations. It believes that GDP in the **Euro zone** will grow 1.6 percent on the prior year in 2017, and then by 1.8 percent in 2018. Domestic demand is still seen as the greatest driver of growth. The EU Commission considers a continuing low level of investment as cause for concern.

Economic growth in **China** is expected to slow further. The government is committed to strengthening domestic consumption and the service sector. However, economists believe that these adjustments to the economic structure will lead to a further reduction in the previously very high growth rates. In addition, foreign investment is due to be made more difficult according to reports by news agencies. This is to help boost the domestic currency following a major wave of Chinese investment in the US and Europe in 2016.

In **Germany**, the economic upswing seen last year is due to continue at a slightly weaker rate: In its latest forecast for 2017, the German Government is forecasting GDP growth of 1.4 percent, again primarily bolstered by consumer spending. The BGA foreign trade association is not alone in seeing major uncertainties arising from the protectionist policies announced in the US. In view of the close ties that exist, German companies have a great deal at stake in terms of jobs and exports, said the BGA in a press release. Overall, the German Federation of Wholesale and Foreign Trade is still expecting exports to grow 2.3 percent in 2017, to a new record figure of around 1.23 trillion euros. The ifo Business Climate Index fell unexpectedly in January 2017 as reported by the ifo Institute in its monthly press release. Although companies assessed their present situation as better, the outlook for the next six months was considerably poorer.

According to Transparency Market Research, the global **photonics** market will grow annually by an average 5.8 percent to 2020 and reach a value of 766 billion US dollars. By comparison, in their “Photonics Industry Report” the Spectaris, VDMA and ZVEI industry associations still anticipate average annual growth of 6.5 percent and a market volume of 615 billion euros in 2020. They see this development as primarily driven by demand for highly-efficient electronics products and growing



See the chapter Expected Development of the Business Situation for information on how this affects the forecast for the Jenoptik Group

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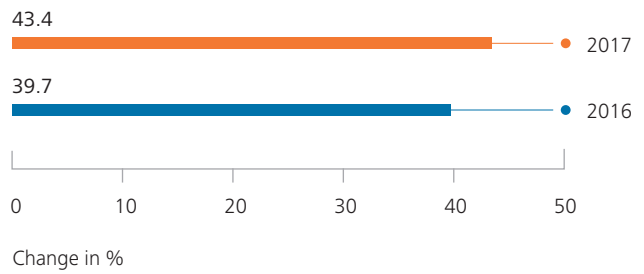
data volumes. The field of silicon photonics is becoming increasingly important to data transfer and the necessary optics design. It uses silicon as an optical medium. With a view to applications, the medical technology and healthcare segments will grow the fastest, as demand for early diagnosis and minimal invasive surgery increases. **G21**

In the **semiconductor equipment industry**, the SEMI industry association sees global revenues growing by 9.3 percent to 43.4 billion US dollars in 2017, according to its most recent forecast in a press release in December 2016. Taiwan, Korea and China will remain the biggest markets, but revenue in Europe is expected to grow at the fastest rate following a weak prior year. According to a press release IT analyst Gartner forecasts growth of 2.9 percent in 2017. **G22**

The momentum in the global **semiconductor market**, which began in mid-2016, will continue in 2017, according to industry experts. As published in a press release, the SIA association is expecting moderate revenue growth of 3.3 percent, to around 346 billion US dollars, in 2017, and 2.3 percent, to 354 billion US dollars, in 2018. Gartner expects greater growth of 7.2 percent for 2017, to 364 billion US dollars. It believes that industrial, automotive and storage applications will develop at a rapid pace, while traditional areas of business such as smartphones and PCs will grow more slowly.

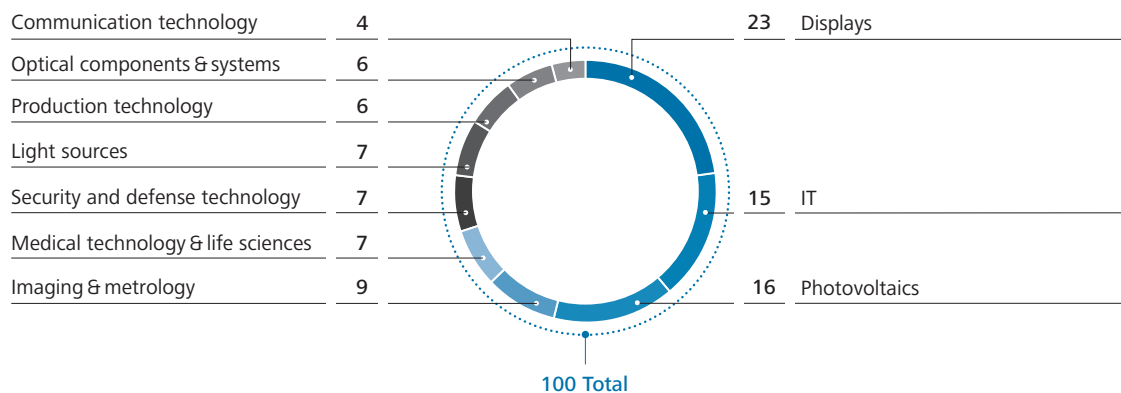
The **machinery and plant engineering** industry is facing geopolitical uncertainties such as forthcoming Brexit, the situation in the US and similar protectionist trends as the VDMA industry association reported in a press release. Exports to China could also contract as a consequence of overcapacity and high debt in the state-owned enterprise sector and the municipalities. Although the VDMA is anticipating minor growth of 1 percent in production for Germany in 2017, genuine growth momentum is not in sight. Revenue at Germany machinery engineering

G22 Semiconductor Equipment:
 Global Revenue Forecast (in billion US dollars)



Source: Semiconductor Equipment and Materials International (SEMI)

G21 Global Photonics Market in 2020: 615 billion euros (share in percent)



Source: VDMA, ZVEI, Spectaris: Photonics Industry Report 2013

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companies is due to increase from around 220 billion euros to 224 billion euros. The VDMA takes a critical view of the German government's focus on e-mobility, as alternatives such as the ongoing development of combustion engines are not being pursued with the same vigor. The machinery engineering industry has opportunities for new growth in the automation of production processes and digitization.

On an international scale, these trends are reflected in the forecast revenue growth with industrial robots of 13 percent annually to 2019, according to the International Federation of Robotics (IFR). As part of its reindustrialization strategy, the US industrial sector continues to invest heavily in [automation and robotics](#), according to the IFR in its "World Robotics Report 2016". The aim of automating production is to boost the competitiveness of American industry and both secure and repatriate production capacities. According to the ZVEI manufacturers' association, the German automation industry can look forward to a good year: growth of 3 to 6 percent is anticipated in factory automation, and up to 3 percent in process automation, as stated at a ZVEI press conference at a trade fair at the end of 2016.

For the [automotive industry](#), the VDA anticipates in its press releases that the car markets in the US and Western Europe will develop at a stable rate in 2017, while the Chinese market is expected to continue growing. On a global scale, the car market is due to grow in size by 2 percent to approximately 84 million vehicles. The global commercial vehicle market may retain or slightly exceed its prior-year level. According to the association, industry trends include digitization, networking, automated driving and alternative drive systems. The new US government's policy regarding non-American automakers is not yet foreseeable. According to an analysis of market researcher IHS, a slight decline in new registrations is expected in the US in 2017, although high sales figures will continue. In Germany, automotive associations and manufacturers have criticized the initiative taken by a number of federal states to ban combustion engines in new cars from 2030. In addition to state subsidies for electric cars made in China, China plans to introduce a production quota for electric vehicles from 2018, which will give domestic automakers a competitive advantage.

In its report „Road Safety Market by Solution, Service“ US market research company Markets and Markets believes that the global [traffic safety](#) market will grow from 2.6 billion US dollars in 2016 to 4.1 billion dollars in 2021, an average annual increase of 9.3 percent. Key factors include the growing number of traffic accidents, growing urbanity and mobility, and increasing statutory regulations for traffic safety. The red light monitoring segment is due to dominate the market, particularly in connection with smart cities. Automatic number plate recognition (ANPR) is also becoming more important as a means of traffic monitoring and prevention: in industry reports, market researchers expect the ANPR market segment to grow by an average 12.8 percent annually and be worth 1.4 billion US dollars by 2023. Interest in section control is growing in Germany: the city of Cologne, for example, plans to install section control technology in the Rheinufer Tunnel, reported local media. This is dependent on the successful completion of the pilot project in Lower Saxony.

By 2020, the market for electronic [toll payment monitoring](#) is due to expand at a double-digit growth rate to meet the demand for improved, safer infrastructure, according to a long-term analysis conducted by market researcher "Future Market Insights". The demand for faster toll payment processing and the aim to reduce congestion and journey times will be important drivers of this market, although high installation costs and a strong dependency on governments are inhibiting factors.

The global [railway industry](#) is at a crossroads: according to a study by market researchers at SCI Verkehr and McKinsey, manufacturers must develop their business models with a greater focus on service and after-sales. Global growth in new business is losing momentum and is due to amount to just 1.3 percent in the coming five years, in part due to declining demand occasioned by China's scaled-down capital expenditure planning, while service and maintenance will account for a majority of revenue in the future. In summary, the global market for railway technology is due to grow an average of 2.3 percent in the next five years according to SCI. Asia will remain the biggest regional market, while Africa and the Middle East will grow most strongly, conditional upon a stable political environment.

The American aircraft manufacturer Boeing increased its regional long-term forecast for the [aviation industry](#): China will need over 6,800 new aircraft in the next 20 years, equivalent to a value of over one trillion US dollars. In its press releases, Boeing is forecasting demand for 39,620 passenger and transport aircraft with a total value of 5.9 trillion US dollars globally. In its "Global Market Forecast" European manufacturer Airbus is anticipating 33,000 new aircraft with at least 100 seats, worth 5.2 trillion US dollars. Together with Siemens, the company plans to verify the technical feasibility of hybrid electric drive systems for aircraft by 2020. In a press release the IATA industry association forecasts, that following cyclical high profits in the international aviation industry profit will fall to 29.8 billion US dollars in 2017 (prior year 36.5 billion US dollars). This is in part due to the renewed rise in oil prices and a range of political, economic and security risks. Nevertheless, 2017 would be one of the industry's best three years if the forecast is fulfilled.

The German [Ministry of Defense](#) is due to see its budget increase significantly in the coming years. It rose by around 2.7 billion euros to 37 billion euros in 2017, and the German government plans to increase it further to 39.2 billion euros by 2020. It would, however, have to rise to over 60 billion euros to make up 2 percent of gross domestic product, as demanded by NATO and the US. As stated in an arms report by the Federal Defense Ministry, one of the biggest armaments projects could turn out far more expensive than expected: the development of the new Meads missile defense system for the Tactical Air Defense System (TLVS), for which Jenoptik is a supplier. Over the next decade, it is due to gradually replace the Patriot system, but negotiations and legislative approval could be delayed to the next legislative period. On defense policy, Germany, France, Italy and Spain intend to increase cooperation in the future as was announced by the defense ministers of the countries in a joint letter. The EU Commission intends to support this move with additional funding for defense research and more stringent tendering rules. From 2021, 500 million euros will be provided for European development projects from a European defense fund. A pilot scheme worth 90 million euros is already planned for 2017 to 2019. Aviation company Airbus has reported to the media that final assembly of the Eurofighter jet in Germany and Spain will end in 2018 if no new orders are received. Great Britain and Italy are not yet affected. Reasons include the low order backlog, an assembly process spread over four sites and complex responsibility over exports. There will, however, still be modernization and maintenance work to perform.



See the Targets and Strategy chapter for more information on the strategy and the new segment structure



For more information on the top control and information parameters, see the Control System chapter

Expected Development of the Business Situation

Planning Assumptions for the Group and Segments

The forecast for the future business development was based on the Group planning undertaken in the Autumn of 2016.

The starting point for this planning is formed by the strategic plans from the segments and operational business units which are geared towards market requirements, and are coordinated together and integrated in the group planning. Possible acquisitions were not included in the planning.

At the start of the 2017 fiscal year, the system of key performance indicators was subjected to further development at both group and segment level, and focused on the revenue, EBIT margin, EBITDA, order intake, free cash flow and capital expenditure indicators. Other indicators will also be regularly compiled in the future and are used by top management as information parameters.

Alongside the successful implementation of a standardized ERP system in the Traffic Solutions area in Germany, at the Shared Service Center and at JENOPTIK AG in the past fiscal year that started at the beginning at January 1, 2017, roll-out of the JOE project will extend to the US in 2017 and 2018, and thus outside Germany for the first time. The costs associated with this are included in the forecast. The Jenoptik Excellence Program (JEP), with a focus on Go-Lean and purchasing, will also be continued in 2017. Ongoing optimization of both procurement processes and production processes will produce savings in future that result in further improvements in the gross margin. This, too, is included in the current planning.

Strategic HR work will again focus on rolling out individual human resources topics on an international level in 2017. Group-wide harmonization of HR processes at the European locations and in Asia/Pacific and North America will take center stage here. Another focus of HR work in the current fiscal year will involve the ongoing support of organizational development in the context of new regional competence centers in the Mobility segment and the completed restructuring process in the Healthcare business unit. Beyond this, there are plans to optimize standardized personnel cost planning in the harmonized ERP system.

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The Jenoptik Group anticipates a good development of business in the **Optics & Life Science** segment in 2017. Its continuing focus on optical information and communication technologies will contribute to growth. For the semiconductor equipment market, observers are expecting positive performance in the current year. Here, the segment can also profit from its position as one of the leading suppliers of optical and micro-optical system solutions for semiconductor production. Due to a larger range of integrated system solutions, we are increasingly benefiting from a higher share of added value. Jenoptik has also securely established itself as a development and production partner for numerous international market leaders. The segment is therefore expecting revenue to rise in this market. In medical technology and life science, existing cooperation with key international customers is due to be expanded in the current fiscal year and contribute to growth. In 2017, the segment will also continue to focus on the acquisition of new major customers. On a regional level, growth is particularly expected in Asia/Pacific and the Americas. In the current fiscal year, the segment will also continue to invest in the international production locations to promote future growth, continue the process of internationalization, especially in the core regions and push on with forward integration and expansion of the systems business.

The **Mobility** segment expects a positive development in the automotive industry in 2017. The risk of the emissions scandal spreading or new regulations influencing automotive manufacturers' capital spending patterns is still present. In terms of products, the trend toward integrated production-related metrology is due to continue. This plays a particularly important role when precision parts are manufactured, such as those required by the automotive industry for efficient and environmentally friendly drive systems. In order to take into account this trend, the segment is continuing to invest in the development of tactile, pneumatic and particularly optical measurement technologies. Growth momentum is also expected in the field of laser machines. Alongside established systems for plastics processing in the automotive industry, the segment is primarily focusing on 3D processing of metal and plastic parts. Construction of the modern technology campus for metrology and laser machines for the North American automotive industry will be completed in 2017, and will give the Group a key basis from which to expand its business in the region. In the field

of traffic safety, anticipated growth will particularly be bolstered by the major orders secured in 2016. The Traffic Service Provision business model that alongside the equipment business is becoming increasingly important in established markets, including Germany, Canada and Australia, will also be further expanded. From a regional perspective, Jenoptik forecasts the greatest growth momentum in the Asia/Pacific region and North America, in particular Canada. We believe that the traffic safety market in the US will slowly recover in 2017. A slight improvement is also expected in the Middle East/Africa. At the start of 2017, a new global sales structure with regional competence centers (RCC)  was launched in the Traffic Solutions area. It aims to show a stronger presence in local markets, step up customer relations and respond faster to market trends.

Business in the **Defense & Civil Systems** segment is predominantly project-based and geared toward the long term. The defense market in the West is increasingly recovering and a significant increase in expenditure – primarily in NATO member states – is expected in the coming years, meaning that demand for defense products could rise. In the medium-term, a considerable increase in investment is planned for the German armed forces. This could also contribute to higher revenues in the years ahead. In the 2016 fiscal year, the segment secured several major orders, work on these will continue in the current year and should thus have a positive impact on revenue and earnings performance. Internationalization also remains a key topic in 2017; foreign business is due to expand steadily, particularly in North America and Asia/Pacific. Beyond this, the segment is looking to further increase the share of systems used in civil fields. This, for example, includes energy systems for railway technology, an internationally growing market and system solutions for civil aviation.



See the Segment Report for more information on the RCC

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See the Framework Conditions chapter for more information on the future development of the Jenoptik sectors

Forecast for the Earnings Situation in 2017 and Trends in 2018

Based on a good order and project pipeline, the Executive Board is anticipating organic growth in revenue and earnings for 2017. This presupposes that political and economic conditions do not worsen. These include in particular the effects of Brexit, which could not be adequately assessed at the time this report was compiled, regulations at European level, export restrictions, further developments in the US, China, the Middle East and the conflict between Russia and Ukraine.

Larger acquisitions are not included in these forecasts but have not been ruled out for the current fiscal year.

The Jenoptik Group expects organic growth to generate revenue of between 720 and 740 million euros in 2017. All three segments will contribute to this growth. For 2018, the Executive Board is forecasting growth (including smaller acquisitions) to around 800 million euros, in line with its established mid-term targets. More than 40 percent of revenue is then expected to be generated in the Americas and Asia/Pacific.

Jenoptik is currently anticipating a rise in EBIT for the 2017 fiscal year (2016: EBIT in continuing operations 66.2 million euros). Depending on the development of revenue, the operating earnings margin (EBIT margin) is expected within the range of 9.5 to 10.0 percent. The Executive Board forecasts slightly weaker growth in EBITDA (earnings before interest, taxes, depreciation and amortization including impairment losses and reversals of impairment losses) than in EBIT. The costs for the group development project are expected in the mid single-digit million euros range and are already included in the EBIT margin range referred to above. EBIT and EBITDA are also due to develop positively in 2018.

The order intake for a period is affected by major orders, particularly in the Defense & Civil Systems and Traffic Solutions areas. In the 2016 fiscal year, Jenoptik received several major multi-year orders in both areas and has thus built up a very good order base. Jenoptik expects order intake to grow slightly in the current fiscal year. Also worthy of note is that Jenoptik already had frame contracts worth 160.9 million euros at the end of 2016, which are not included in the order intake or backlog. Around 71 percent of the order backlog as at the end of December 2016 will impact on revenue in 2017. The order intake is due to increase further in 2018.

For the 2017 fiscal year, the Optics & Life Science segment anticipates revenue growth in the high single-digit percentage range. The segment's 2016 EBIT included one-off operational income of around 2.9 million euros. As a comparable sum is not currently expected, the operating earnings are due to remain stable at minimum. A rise in revenue and EBIT is forecast for 2018.

Buoyed by the major orders it has secured, the Mobility segment is anticipating revenue growth in the high single-digit percentage range in the current fiscal year. EBIT is due to show a stronger rate of growth than revenue. Further increases in revenue and earnings are expected in 2018. The accuracy of the forecast is influenced by the time at which traffic safety projects are settled.


The Defense & Civil Systems segment is again forecasting minor revenue growth in the 2017 fiscal year. In 2016, the segment managed to again improve its EBIT margin. Starting from this good earnings position, stable performance is expected in the current fiscal year. Minor revenue growth and stable earnings are also forecast for 2018.

Group Asset and Financial Position Forecast

Due to a strong scheduled increase in capital expenditure in 2017, we expect the free cash flow to be considerably below the figure at the end of 2016. Even with increasing capital expenditure and stable working capital despite growth, Jenoptik expects to be able to meet all interest, tax and dividend payments out of the free cash flow. A higher free cash flow is expected in 2018 than in 2017.

For 2017, Jenoptik anticipates an increase in capital expenditure to 35 to 40 million euros, and expects to maintain this level in 2018. The capital expenditure on property, plant and equipment will focus on the growth areas within the segments or take place within the scope of new customer projects. It aims to expand capacities, thereby ensuring future growth. At group level, further capital expenditure will be effected for the JOE Project. Capital expenditure is due to be covered by the operating cash flows or with available cash and cash equivalents.

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In 2016, Jenoptik paid out a **dividend**  for the 2015 fiscal year in the amount of 0.22 euros per share to the shareholders. In addition to financing the continued growth of the company, the future aim of the Executive Board is still to ensure a dividend policy in line with corporate success. In the view of the Executive Board, a stable provision of equity for sustainable organic growth to increase the company value as well as the exploitation of opportunities for acquisitions are also of crucial importance to the interests of the shareholders.

The actual results may differ significantly from the forecasts of anticipated development made above. This may arise, in particular, if one of the uncertainties mentioned in this report were to materialize or if the assumptions upon which the statements are based prove to be inaccurate, also in relation to the economic development.



See the Report on Post-Balance Sheet Events for more information on the dividend

T46 Targets for Group and Segments (in million euros)

	Actual 2016	2017 guidance	Trend 2018 compared with 2017 ²⁾
Revenue	684.8	Between 720 and 740 million euros	Around 800 million euros, incl. smaller acquisitions
Optics & Life Science	221.5	Growth in the high single-digit percentage range	Further growth
Mobility	247.7	Growth in the high single-digit percentage range	Further growth
Defense & Civil Systems	218.3	Slight growth	Slight growth
EBITDA (continuing operations)	94.7	Slightly weaker rise than EBIT	Positive development
EBIT/EBIT margin (continuing operations)	66.2/9.7%	Increase, EBIT margin between 9.5 and 10.0%	Further growth
Optics & Life Science	33.4	Stable at minimum (includes one-off operational income in 2016)	Further growth
Mobility	24.4	Rise stronger than revenue	Further growth
Defense & Civil Systems	19.1	Stable	Stable
Order intake	733.8	Slight increase	Increase
Free cash flow	80.4	Considerably below 2016 figure	Increase
Capital expenditure ¹⁾	27.5	35 to 40 million euros	At 2017 level

¹⁾ without capital expenditure on financial investments

²⁾ Trend forecast, not a forecast as specified in DRS 20

General statement by the Executive Board on Future Development

The Jenoptik Group will continue to push ahead with its strategic agenda in the 2017 fiscal year, with a key focus on profitable growth in all segments. In the opinion of the Executive Board, revenue growth, the resulting economies of scale, more efficient processes and higher margins from the growing systems and service business will lead to a lasting increase in earnings.

In 2017, the company will again invest a significant portion of its funds in the expansion of international sales and value creation structures, as well as the development of innovative products. The measures for internal process optimization and group development projects will also continue as scheduled, while value-adding acquisitions will be closely scrutinized.

The Jenoptik Group plans to continue on its path of organic growth in 2017. In pursuing this policy, the company can build on a strong order backlog and a high volume of frame contracts. The good asset position and a viable financing structure also give Jenoptik sufficient room for maneuver to carry out acquisitions and finance further growth. For 2017, the Executive Board expects revenue of between 720 and 740 million euros and an EBIT margin of between 9.5 and 10.0 percent. Achieving these targets is dependent on economic and political conditions.

The Executive Board expects positive corporate development within the Jenoptik Group overall during the 2017 fiscal year.

Jena, March 8, 2017

JENOPTIK AG
the Executive Board