

# 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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# 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 including strategic corporate development and innovation management as well as key tasks in control and finance, real estate, internal audit, investor relations, mergers and acquisitions, human resources, accounting, legal, compliance and risk management, taxes, treasury, corporate communications, and corporate marketing.



See Shareholdings of the Jenoptik Group, page 191 f.

The Group's operating business is geared toward growth markets 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 Shared Service Center (SSC) pools the central functions IT, human resources, purchasing, safety, occupational health and safety, environmental protection, and building management.

#### G08

In recent years, Jenoptik has continued to expand its international business and the structures associated with it. The US holding company at the Jupiter location in Florida has lead coordination of the Group's overall strategy, financial activities, and shared

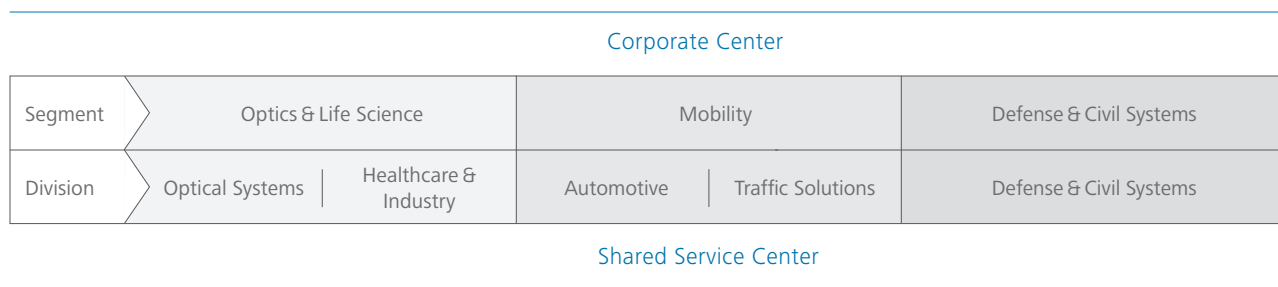
services for the American market. An Asian holding company based in Singapore pools all business in Asia to centrally support the development of business in the region. The operating business in Europe is coordinated at the main locations in Germany.

### Key Locations

Jenoptik is represented in over 80 countries worldwide, with a direct presence in 19 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. Jenoptik opened a modern technology campus in Rochester Hills, Michigan, in 2017. The Group's 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), Dresden (Optical Systems), Triptis and 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. G09

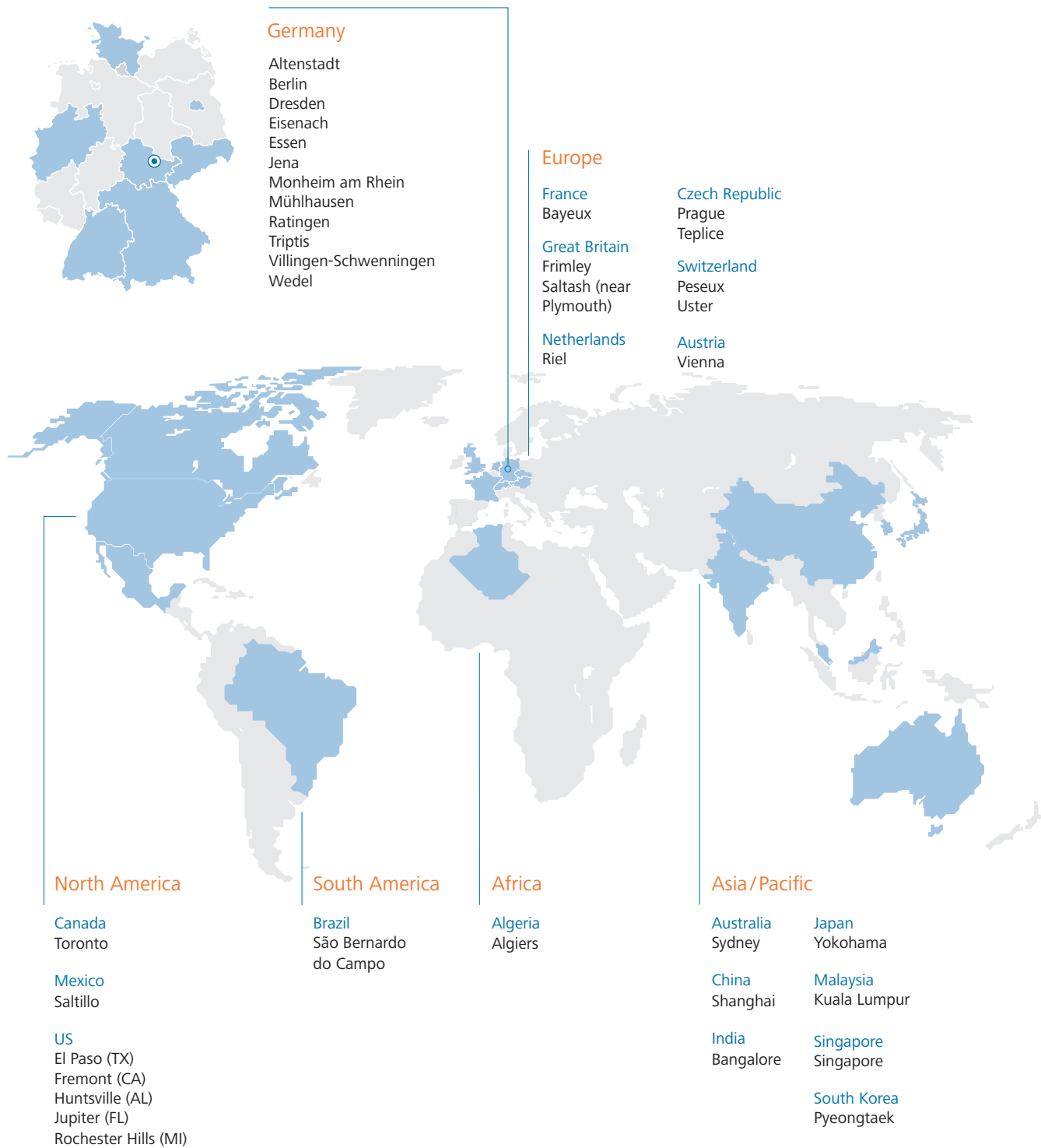
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# G09 Key Locations of the Jenoptik Group



## Business Model and Markets

Jenoptik is a globally operating technology group that provides the majority of its range of products and services 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. In the process, they 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 Jenoptik Group is primarily a partner to industrial companies. In the Mobility and Defense & Civil Systems segments, we are also a supplier to the public sector, in part indirectly through system integrators. Our range of products comprises OEM or standard components, modules and subsystems through to complex systems and production facilities for numerous sectors. It further includes total solutions and full-service operator models.

Our key markets primarily include the semiconductor equipment industry, the medical technology, automotive, machine construction, traffic, aviation, as well as security and defense technology industries.

Jenoptik's product range competes with a wide range of internationally operating companies not uncommonly specializing in only one or a few of the product areas and markets listed above. Differing service ranges are only comparable to a limited extent and thus make it difficult to provide definite market share estimates.

Research and development occupy a key position in Jenoptik's activities. Cooperations arrangements and developments on behalf of customers are often the beginning of partnerships and business relationships along the value chain. Our technology-intensive products and systems are often created in close collaboration with customers. This requires confidence on both sides as well as knowledge of partner requirements. Consequently, lasting and successful cooperation arrangements with key customers are an important factor of our success.

As mentioned, Jenoptik operates in the three segments of Optics & Life Science, Mobility, as well as Defense & Civil Systems.



Detailed information on the course of business in the segments can be found in the Segment Report and information on future developments in the Forecast Report

## Optics & Life Science

This segment pools the activities in Optical Systems and Healthcare & Industry, and is essentially a supplier of OEM solutions.

Jenoptik is a leading development and production partner for optical and micro-optical systems as well as precision components that satisfy the highest quality demands. This includes complete systems and modules, all the way to special optical components and custom solutions for wavelengths from the far infrared (IR) to the deep ultraviolet (DUV) region. The Group possesses superb expertise and thus also an excellent market position in the development and manufacture of micro-optics for beam shaping used in, among other things, the semiconductor industry. With its strengths in optical and micro-optical solutions, Jenoptik is in a position to exploit new growth potential in the area of digitization, e.g. the market for information and communication technology or production and test equipment for the manufacture of consumer electronics products. The company also targets the markets for laser material processing and security and defense technology.

In the Optics & Life Science segment, Jenoptik is further joined by customers to develop and manufacture specific systems and applications for the medical technology and the life science sector.

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 solutions and products for the life science industry. These include extremely reliable analysis and treatment systems for research, clinical applications, and patient self-diagnosis that meet international quality standards and stringent approval criteria. 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 industry, Jenoptik supplies high-power optoelectronic components and modules as well as integrated solutions that intelligently combine optics, laser technology, sensors, and digital imaging as required. In addition to complex components for head-up displays, innovative lenses for driver assistance systems, and polymer optics for machine vision or augmented reality applications, we also produce powerful and energy-efficient industrial LED lights. In the field of industrial lasers for material processing, Jenoptik covers the entire value-added chain for lasers.

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Key sales regions in the segment are in Europe and North America, and increasingly also in Asia/Pacific. The core markets – semiconductor equipment, medical technology, information and communication technology, show and entertainment, automotive, and defense and security technology – are heavily fragmented. Jenoptik serves numerous niches within them, where it occupies leading market positions. Competitors frequently only specialize in individual product groups and niches. Thanks to an increasing focus on application-oriented system solutions, the Jenoptik Group has managed to further expand its market position in the area of optics/micro-optics in the last few years.

## 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 during the production process and in the measuring 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 and produces 3D laser machines that are integrated into customer production lines as part of process optimization and automation and used to machine plastics, metal and leather with the greatest efficiency, precision, and safety. On acquiring Five Lakes Automation LLC in 2017, Jenoptik obtained broad expertise in handling workpieces and integrating separate processing systems in automated process lines. Jenoptik is thus now in a position to offer not only stand-alone laser machines but also complete solutions from a single source. The product portfolio in this area is completed by highly efficient laser perforation machines for functionally reliable predetermined breaking points in vehicle airbag covers.

In its Traffic Solutions business, Jenoptik develops, manufactures and sells components, systems, and services that make 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). On acquiring ESSA Technology, a company specializing in software for traffic monitoring and back office solutions, in particular automatic

number plate recognition applications for the police, in January 2017, Jenoptik took another step along the road to becoming an integrated solutions provider for public safety and future "smart cities". The Group also provides extensive services that cover the entire supporting process chain – from system development, construction and installation of the monitoring infrastructure, to capturing images of traffic violations and their automatic processing. Since 2016, the company has also been supporting the technical development of toll payment systems 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 business, these are the centers of the global automotive and automotive supplier industries in Europe, North America, and Asia. Companies such as Marposs, Mahr, and Mitutoyo compete with the metrology activities in the Automotive business – one of our growth markets. In the Traffic Solutions business, Jenoptik is a leading provider of photographic monitoring equipment, with more than 30,000 devices in use. Competitors here include Redflex, the Sensys Gatso Group or Vitronic. The market served by the Traffic Safety business 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 which they integrate in their systems to turnkey solutions and end 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, 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/Germany), BAE Systems (Great Britain), and the American company Raytheon; it also supplies government customers directly. 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 frequently exported worldwide by the systems companies it supplies. Many of the components and subsystems are developed specially on behalf of clients. In future, in-house developed products with short delivery times, low costs of adaptation and clear USPs will ensure growing revenues. Business is predominantly geared toward the long term and is subject to exacting security, certification and export control requirements. The platforms on which the systems are deployed often remain in use for many years and decades. This highlights the importance of the spare parts business and upgrade projects. Competition with other companies is frequently limited to individual product groups.



For further information on the development of the sectors and markets, see page 83 f.

## Targets and Strategies

### Strategic Orientation of the Group

As noted in the chapter titled “Business Model and Markets”, the Jenoptik Group provides the majority of its products and services to the photonics market. As so-called enabling technologies, the extremely precise, flexible methods and processes of photonics exert a great economic leverage effect and will thus enjoy an increasing share in industrial value creation in the future. At the same time, our solutions contribute to increased efficiency and precision as well as improved environmental compatibility.

At the beginning of 2018, the Executive Board of JENOPTIK AG presented its new Strategy 2022. In future, Jenoptik will concentrate on its core competencies of light and optics, and therefore focus more on the photonic growth markets with the target of developing into a globally focused photonics company over the next five years. The greater concentration on the core competencies should simultaneously help to optimize the use of existing capacities and thus to a more efficient allocation of resources. In addition to its focus on photonics, Jenoptik will concentrate primarily on internationalization and innovation when implementing the Strategy 2022.

Our growth strategy is based on three pillars – “More International”, “More Innovation”, and “More Focus”. To implement it, we will


- focus on our core competencies in the field of photonics,
- reorganize and simplify our corporate structure,
- actively manage our portfolio with a view to additional purchases as well as transformatory acquisitions and selective divestments,
- operate our mechatronics business under an independent brand,
- continue to work on further internationalization in conjunction with greater vertical integration and customer proximity in our growth regions,
- invest more heavily in research and development, expand our system and application expertise and step up our activities as a solutions provider,
- drive an active cultural change within the company and
- continue to steadily strengthen our financial power.

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## Focus

In the future, our activities in the market for photonic technologies will focus on the fields of information processing, intelligent production processes, sensors, metrology, and biophotonics. For us, these are markets that are not only characterized by growth, but also by technological differentiation potential. Jenoptik continues to benefit from the global trends in the digital world, health, mobility & efficiency, infrastructure as well as security, and is increasingly establishing itself as a strategic systems partner for international customers, with whom it works to design forward-looking solutions.

With a new organizational structure, which will come into effect on January 1, 2019, we will continue to improve our market and customer orientation. Business operations within our existing segments will be reorganized and the relevant parts of the operating business with a common understanding of markets and customers and equal business models will be clustered. This helps us to bring our products and solutions closer to the customer and opens up improved growth opportunities. These three newly emerging photonic divisions will build on our extensive expertise in optics, sensors, imaging, robotics, data analysis, and human-machine interfaces – all of which are common core competencies in photonics. The OEM business, including the photonics technology-based business in the Defense & Civil Systems segment (laser sensors and laser-based rangefinders), are to be consolidated under the heading “Light & Optics”, the business with industrial customers (B2B) under “Light & Production”, and the business with public sector clients (B2G) under “Light & Safety”. In the future, the mechatronics technology business in the Defense & Civil Systems segment will be managed under a new brand of its own that better reflects specific market and customer requirements. This will enable us to give this business more space to develop more effectively than previously possible under the Jenoptik brand.

However, for us, focusing also means streamlining structures and thereby making the company more agile. Therefore, the purpose of the new strategy is also to merge certain central functions of the holding company with those of the Shared Service Center (SSC). The number of legally independent companies in the Group is to be reduced, decision-making processes and responsibilities further decentralized and increasingly relocated back into the operating areas. With a simplified structure, we will be better positioned to clearly prioritize initiatives aimed at ongoing growth and successfully implement them. 

## Innovation

As an innovative high-technology company, identifying 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. Therefore, we want to increase our R+D investment, including customer-related projects, to a total of approximately 10 percent of revenue by 2022 in order to expand our position as one of the world's leading suppliers of products and solutions in the field of photonics. Group-wide standards for preparing development and technology roadmaps are therefore 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-segment synergetic expansion of our technology platforms. Our planned profitable growth will be further supported by efficiency measures and increasingly by the expansion of the systems and service businesses as well as economies of scale.

As a system partner, Jenoptik is constantly looking for new solutions together with our customers. Wherever possible, customers are already involved in the very early stages of development processes. This enables us to strengthen our customer relationships and steadily boost value creation.



Further information on the Group structure can be found in the Business Model and Markets chapter

## Internationalization

Due to the trend towards growing industrial production as well as the demographic development, Jenoptik sees particularly great potential for future growth in the regions of the Americas and Asia. In terms of internationalization, we are therefore focusing on these markets. JENOPTIK North America, Inc. controls the business, structural and organizational development in America, identifying growth opportunities and coordinating appropriate measures. Realignment of our Asian business structures is to take place in 2018. We aim to further expand value creation such as local production, product developments, and research & development. This will enable us to offer local customers products and solutions together with service manufactured on site to meet their various needs. The plan is to establish local R+D teams as well as own production on site in all major markets by 2022. In addition, at least one division of the company should be headquartered outside Germany by 2022.


In improving its market and customer orientation, Jenoptik is pursuing two approaches. On the one hand, we develop and manufacture products and solutions consistently geared toward market trends and customer needs. To do this, we will align our structures even more closely to individual market requirements and customer proximity, and will use both – our own direct sales channels as well as dealership structures – to expand the business. In the future, Jenoptik will also continue to invest in the organization of new and expansion of existing sales and service structures, particularly in our focus regions. One example of this is our new technology campus for innovative metrology, laser material processing, and highly efficient automation solutions in Rochester Hills, Michigan. In Silicon Valley, California, in December 2017, Jenoptik opened a new application center for engineering and product development in the field of high-performance optical systems to help customers implement innovation goals on site. In the future, other Jenoptik divisions will also use these locations to expand their businesses in North America. The opening of additional application centers, especially in Asia, is planned for the years ahead.

Through **active portfolio management**, we also want to continue to supplement our organic growth through acquisitions. We, therefore, examine opportunities for implementing our group and growth strategies also through M&A activities. By purchasing companies, we plan to boost our market and cus-

tomers reach – not only in Europe, but in particularly also in the focus regions of the Americas and Asia/Pacific – or complement our portfolio through forward integration and/or additional systems' expertise. Each acquisition must be strategically and culturally appropriate, offer opportunities for growth and a sound business case, thereby fulfilling the criteria for increasing corporate value and integrability. Against the backdrop of focusing on photonic core competencies we constantly consider the discontinuation of already existing business activities or the sale of parts of companies and do not rule out these for the future within the scope of active portfolio management.

In order to maintain lasting profitable growth, we must attract highly qualified and capable **employees** and ensure their long-term retention in the company. Structured HR planning is necessary to achieve this in an environment which is becoming increasingly demanding from a 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 as well as improved framework conditions and a more modern culture should further help to strengthen employees' loyalty to the company in the future. However, the active support of the corporate values is another key issue within HR work. We review our values as part of the new strategic realignment. In the future, they will form the basis for a common, modern corporate culture and help Jenoptik to grow together across various cultural and legal systems.

Our new Strategy 2022 will be accompanied by a far-reaching cultural change, which we see as the basis of future success and the attainment of our objectives.

As part of a group-wide campaign we aim to further strengthen the Jenoptik brand and promote awareness and acceptance, especially internationally. 

In the course of the new Strategy 2022, the Executive Board of JENOPTIK AG has set out the following priorities for the current 2018 fiscal year:

- establishing a new corporate structure,
- reorganizing the Asian business and
- launching a new brand for the mechatronics business.



Further information on employees and brand can be found in the Separate Combined Non-financial Report



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## Strategic Alignment of the Operating Business

The divisions of the Group that will be created as part of the new business structure, are connected with each other in many ways. In particular, the division operating under the motto “Light & Optics” (at present the Optics & Life Science segment) provides technologies and expertise for the other divisions. Infrastructures and cross-section functions are also increasingly used jointly, for example for global procurement or in the expansion of the international sales network. In the future, joint locations will enable us to faster achieve critical mass worldwide in regions which are important to the company. As a result, in the past fiscal year, Jenoptik not only invested in external growth but also in a technology campus and a new application center in America. Other Jenoptik divisions will in future also expand their US businesses from these locations. The joint use of infrastructure facilitates market entry and optimizes the cost base through the leverage of synergy. Cost benefits are realized and currency risks minimized through global sourcing and production.

Under “Light & Optics” we will consistently focus our OEM business on the “Digital World” megatrend. 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 with optical information and communication technologies. Ongoing internationalization, the expansion of the systems business, and a focus on key customers form the basis for sustainable, profitable growth, to which economies of scale and both customer and technology synergies will additionally contribute.

In the market for biophotonics, we are also focusing on the “health” megatrend. Based on beam sources that use lasers and LEDs, optical precision components, digital imaging, and innovative software solutions, we want to increasingly position ourselves as one of the leading, profitably growing partners for the development of system solutions and products for diagnostics, analysis, screening, and therapy in the healthcare and life science industries. On the other hand, we are also participating in the trend for more mobility and efficiency with innovative industrial applications. We also want to expand volume business with optoelectronic and polymer optical high-performance components and modules. In our core areas of expertise, we also pursue promising growth options in innovative applications such as driver assistance systems or technologies for autonomous movement. In these fields, too, we want to become an internationally operating supplier of application solutions.

As a supplier of integrated engineering solutions for industrial customers (B2B), in the new “Light & Production” division (currently the Automotive business as part of the Mobility segment), we will also address the trend towards greater mobility and efficiency. We will use our smart manufacturing applications to support the manufacture of efficient and sustainable products, especially in the automotive industry. Jenoptik’s use of optical production metrology enables it to focus on trends such as reducing fuel consumption and CO<sub>2</sub> emissions. The aim is to expand our position as a leading company in the area of optical metrology for modern drive systems, in particular with new innovative applications in the automotive sector. A concentration on automated plastic and metal processing will support further growth in the field of laser machines. The acquisition of the American automation specialist Five Lakes Automation will contribute to this development. Jenoptik is now able to provide complete process solutions from a single source. At regional level, we intend to grow our business primarily in Asia and North America.

In the “Light & Safety” division (currently the Traffic Solutions business within the Mobility segment), we are pursuing another future trend with the focus on infrastructure and public safety. As one of the world’s leading suppliers of speed and red light 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 opening up 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 is 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, Jenoptik plans to develop this business further in the future. The market for public safety is becoming an increasingly important part of the traffic safety sector. Based on the existing systems and software applications, the division aims to evolve into an integrated solutions provider for public safety and future smart cities. An important step in this direction was the acquisition of the British company ESSA Technology. 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.

Jenoptik's **Mechatronics business** (currently essentially the Defense & Civil Systems segment) will in the future remain positioned as a partner for systems companies and customers who need individual solutions that meet the stringent requirements of the aviation and defense technology markets. We see opportunities for further growth in global trends such as the growing need for security, mobility, and efficiency as well as the increasing electrification in military and civil sectors. For this reason, the future focus will be on such high-growth business areas as energy systems. Beyond this, the aim is to increase the share of systems used in civil fields such as railway engineering and aviation. 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. 



Further information on the segments can be found in the Segment Report and the Business Model and Markets chapter

## Strategy Development and Processes

Jenoptik's Strategy and Business Development department reports directly to the Chairman of the Executive Board and ensures the future optimum strategic alignment of our Group with its segments and foreign locations.

Comprehensive knowledge of the position and competencies of our company in the market environment is indispensable. To underpin group and individual strategies, on the one hand, the so-called "business intelligence" of the respective business units is used and evaluated – i.e. information about global target markets, trends and customer requirements, disruptive developments, opportunities and risks, as well as competitors and other framework conditions. On the other hand, it is important to bundle and expand our own technological expertise and unique selling points, including by means of suitable patents, strategic road maps, and structural adaptations – here the operational business units are also supported in terms of process and content. This ultimately secures Jenoptik's targeted market position.

Furthermore, the central Strategy and Business Development department supports the operating units in designing business models and structures and implementing them with the goal of creating profitable growth. This target can also be supported through company acquisitions. Therefore, the Strategy and Business Development department is examining acquisition projects, which enable Jenoptik to acquire external expertise, technologies, and market access in the future.

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## Control System

The corporate management 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.

As part of a rolling strategy process, the Executive Board and the Executive Management Board (EMB) control the development of the business units and monitor the implementation of defined measures. At strategy meetings to date held twice a year we define growth paths, evaluate opportunities and risks, make portfolio decisions, and determine the focuses of in-house research and development using technology roadmaps – all on the basis of global trends.

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 is carried out using the bottom up/top down method, based on the market-driven strategic planning in the segments.


Our analysis of business performance and both our reporting and planning process improved following the launch of a business intelligence environment at the beginning of the 2017 fiscal year. Monthly results meetings as part of the EMB meetings are used for operational control: 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 information aggregated by segment, 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 in part to manage the business units in 2017 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 chart below. In addition to the key performance indicators at group level, other indicators are used only within the business units, e.g. order backlog or number of employees. A rolling 3-month forecast is used to plan and control the company’s development. **G10**

## G10 Performance Indicators for Corporate Management in 2017

Key performance indicators	Growth	Revenue, order intake, capital expenditure	
	Liquidity	Free cash flow	
	Return	EBITDA margin, EBIT margin	
Information parameters	Growth	Order backlog, frame contracts	Growth
	Return	ROCE	HR management
	Liquidity	Net debt, working capital	Process Control
			Number of employees
			Training, fluctuation, sick days
			Throughput times, reject quotes, quality management
	Financial indicators		Non-financial indicators

For more information on the non-financial indicators, see the Non-financial Report from page 54 on

In the 2017 fiscal year, the control system underwent further development that resulted in a greater focus on the indicator base to better foreground the performance indicators relevant to the company control system from 2018 on. EBITDA margin and capital expenditure are new key performance indicators, whereas earnings before tax, net debt and ROCE are no longer included. In the current fiscal year, too, the Jenoptik Group is committed to the continuous improvement of its processes. One key aspect of this is the implementation of an SAP business warehouse, which will allow us to better reflect the markets' dynamic growth and thus obtain important control information both faster and more efficiently. 



For information on the planned development of key performance indicators see Forecast Report from page 122 on

## Research and Development

As a technology group, research and development (R+D) is of key importance to Jenoptik. Innovative products and services give us competitive advantages that determine our performance and thus our economic success. One of our key strategic aims is therefore to expand our ability to innovate in the photonics growth markets relevant to us. We also develop market-compliant products and platforms with unique selling points, protecting them by means of industrial property rights. Our solutions help to increase the efficiency of our customers, consequently improving their earnings capacity.

Innovation management is an important tool used by Jenoptik to systematically identify and implement promising ideas. With the networked processes, the primary intention is to generate capital from knowledge by objectively uniting market and company viewpoints. Our innovation management has a group-wide uniform structure with individual forms for the respective business model. It sets framework conditions for advancing developments in order to make a positive value contribution for the entire Group. Innovation management at Jenoptik lies within the remit of the Chairman of the Executive Board. An innovation manager from the central Strategy department manages the innovation processes across the Group and links up with various areas of the company, such as planning and reporting, investment management, or our rolling strategy process.

### Innovation Process

The first stage of the Jenoptik innovation process involves a strategic analysis of global trends and the requirements of our customers to identify opportunities for growth. On this basis, we develop innovation projects that are aligned with our core competencies, 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 road maps on the basis of corresponding milestones. This applies to product, technology and process innovations.

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To further increase our innovative power, we must not only develop technologies and products. In addition to selected photonics markets, it is above all the expansion of our applications expertise as well as new digital business models based on our existing technologies and skills that act as an enormous driver for growth and are at the center of our research and development work. The most recent example and also the winner of the Jenoptik Innovation Award 2017 was the development of a technology platform for high-performance optics in the Optics & Life Science segment. In the future, this modular platform will facilitate the quicker and more efficient development of new high-performance optical systems for our key customers in the semiconductor equipment industry. New technologies for system correction allow an automated alignment in the application and therefore even more challenging customer applications.

### Employees in Research and Development

The experience and expertise of our employees are essential to 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 specific tasks and across all segments in corresponding development projects. T12

### Key Cooperation Arrangements and Memberships in Associations

Jenoptik procures additional 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 development of specialist expertise. Jenoptik works with both universities and non-university research institutions as well as with industrial partners and key customers.

## T12 Employees in R+D

	2017	2016
Number of employees in R+D	461	426
Percentage of overall workforce in %	12.1	11.7

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. The cooperation with the advisory council, which has had a new line-up since 2016 and which corresponds in its structure to the future technological and market-related orientation of the company, was further intensified in 2017, and promising ideas and concepts transferred to cooperation projects, some of which are cross-segment. The cooperation arrangements mentioned below are some of those in which Jenoptik has been active over the past year.

In the SeNaTe Project funded by the European Union, the technological principles for the manufacture of semiconductor structures with structure widths of 7 nanometers are being developed in cooperation with 40 European partners. These even smaller structures in comparison with current technology will allow for more compact, powerful, and efficient chips, which will be used in a variety of different devices in the future, enabling topics such as the "Internet of Things" (IOT). In the SeNaTe project, Jenoptik is responsible for the development of compensation concepts for improving the performance of inspection lenses and for the development of innovative coating solutions for ensuring consistently high optical performance in the UV range. Both are compulsory prerequisites for the cost-effective production of semiconductor structures in these size ranges.

To realize a compact, modular drive concept (Komma<sup>WBG</sup>), the Defense & Civil Systems division in cooperation with Helmut-Schmidt-Universität (Hamburg) is examining wide bandgap power semiconductors with the focus on their application. In comparison with conventional semiconductors, and in addition to increased efficiency, wide bandgap power semiconductors offer advantages in terms of frequency and space, thus presenting great potential for use in current and future products.

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 Mechatronic Technologies (Spectaris) and the European Technology Platform Photonics21 are examples of this.

## Development Output

The R+D output of the Jenoptik Group, including developments on behalf of customers, increased to 66.6 million euros in 2017 (prior year: 57.4 million euros). Development costs in connection with customer orders are apportioned to the cost of sales. **T13**

The R+D output of the segments is shown in the table below. **T14**

R+D output in the **Optics & Life Science segment** includes development costs on behalf of customers worth 6.8 million euros (prior year: 7.6 million euros), as key development projects are frequently carried out together with customers. R+D expenses in 2017 totaled 13.4 million euros (prior year: 14.3 million euros).

The R+D output of the **Mobility segment** included developments on behalf of customers totaling 13.5 million euros (prior year: 4.2 million euros), which are essentially attributable to one project in the Traffic Solutions segment. The segment's R+D expenses came to 16.4 million euros (prior year: 20.3 million euros).

In 2017, developments directly on behalf of customers in the **Defense & Civil Systems segment** came to 1.8 million euros (prior year: 3.3 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 rose to 12.6 million euros (prior year: 7.4 million euros), especially due to development projects in the aviation area.

## 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, and the US. A total of 52 patents were filed by Jenoptik companies in 2017 (prior year: 36 patents). Alongside numerous registrations in the field of "optical components" and "optical modules", strong growth was seen in the patent portfolio for "surface metrology" and "traffic safety systems". In total, the Jenoptik Group currently has more than 460 active patent families.

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. **G11**

## 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 2017:

For example micro-optical system solutions were developed for the **semiconductor equipment industry** in 2017 to support future technologies and to optimize cost-of-ownership. Working with the Leibnitz Institute for Photonic Technologies in Jena, it was possible to realize an additional functionality based on integrated sensor technology and develop it to readiness for series production. The existing product portfolio of encapsulated pulse compression gratings with maximum efficiency or ultra-precise beam-shaping elements was expanded, especially for manufacturing and test equipment in the field of consumer electronics.

## T13 R+D Output (in million euros)

	2017	2016	2015	2014	2013
R+D expenses	43.1	42.3	41.8	39.4	39.8
Capitalized development costs	1.4	0.1	0.4	0.5	0.2
Developments on behalf of customers	22.2	15.0	10.9	10.5	12.2
R+D output	66.6	57.4	53.1	50.4	52.2
R+D ratio 1 (R+D output/revenue) in %	8.9	8.4	7.9	8.5	8.7
R+D ratio 2 (R+D expenses/revenue) in %	5.8	6.2	6.2	6.7	6.6

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The same applies to ultra-precise beam-shaping elements which are used in **laser material processing**. In 2017, new beam-shaping concepts were developed, in particular for the laser-cutting and processing of display glass. Together with customers we subjected them to first application tests in the target market of China. In 2017, Jenoptik was able to further expand its 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.

In January 2017, an autonomous innovation team was established in the field of optical systems to create new solutions for the **digital world**. The first product to be presented in 2018 will be a motorized beam expander, which enables a change or adjustment of the diameter of the laser beam and the focus position during the process. A compact system that makes micro material processing more efficient through machine learning and is also an important step into the digital world. The Micro Machining Tool enables this through the integration of laser material processing components in combination with imaging and a new machining process. Alignment and calibration time is no longer required during the production process.

A digital and therefore wireless micro-imaging platform for fluorescence microscopy was developed for our customers in the **medical technology and life science industry**. "SYIONS" has enabled Jenoptik to expand its comprehensive problem-solving expertise in the field of diagnostics and analytics with a customer-

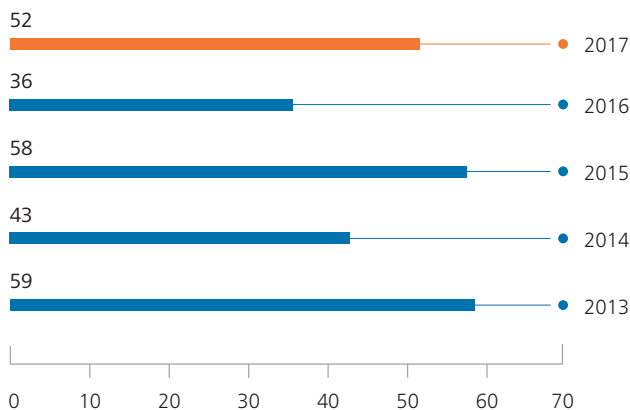
specific, configurable platform for digital image capture, processing, and analysis. The wireless, encapsulated, miniaturized fluorescence microscope was first introduced to our customers at Photonics West 2018 in San Francisco. The new solution enables all kinds of image data in in-vitro diagnostic devices to be generated quickly and efficiently for scientific and clinical use. Applications in the areas of live cell imaging, flow cytometry and molecular diagnostics can be realized quickly and inexpensively with the Jenoptik modular system. Thanks to this, taking samples for analysis is now a thing of the past, thus facilitating the customer's workflow.

In order to be able to offer powerful and innovative system solutions for imaging techniques and diagnostic applications in the healthcare market, Jenoptik has expanded its technology portfolio in the past fiscal year to include next-generation laser beam sources and image processing systems. For the growing market in aesthetic laser treatments, the Group will in the future offer more highly integrated solutions and application-specific components, which will enable more efficient treatment, instead of the current laser modules. In 2017, and using an electrically pumped VCSEL laser source, Jenoptik developed a highly integrated technology in the field of coherence tomography which has achieved a spectral range of 51 nm width – known as the sweep range. The depth resolution required for innovative ophthalmology applications paves the way for low-artefact, high-resolution 3D images of eye structures. In addition to ophthalmology, the new technology can also be used in other medical fields (cancer diagnosis and dermatology).

**T14** R+D Output per Segment (in million euros)

	2017	2016	Change in %
Group	66.6	57.4	16.1
Optics & Life Science	21.1	21.9	-3.7
Mobility	30.0	24.5	22.3
Defense & Civil Systems	14.9	10.6	40.2
Other, incl. consolidation	0.7	0.3	97.7

**G11** Number of Patent Registrations



In 2017, the Group has also developed numerous new products and initiated its first strategic projects in the field of e-mobility, e-transmissions and battery production for the [automotive industry](#). Our R+D team has also intensively examined the effects of Industry 4.0 and digitization so that these can be incorporated into the specifications for the future developments. Automation, flexibility, and shortening of measurement times to improve process efficiency for customers are already the focus of current developments.

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 have modernized the measuring machines used for the final inspections of crankshafts and camshafts, for example. The "TOLARIS" software platform designed for this purpose was further developed in 2017 and will in the future improve 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 a uniform user interface, uniform interfaces to customer QA systems, and standardized internal data formats.

In order to optimally meet the needs of its customers, Jenoptik developed modular, fully-automated "wavemove" measuring systems, which are used worldwide to measure the roughness of components in the car and truck drive train. The technology was simultaneously transferred to the USA, thereby enabling the business units there to generate local added value in this important growth market. The "waveline" roughness measuring system, which was newly developed in 2017, offers customers in the automotive industry modular systems and, in the future, even faster and more precise measuring processes.

For surface testing, for example of cylinder inner raceways, the Visionline internal test sensor was further developed in 2017 so that even smaller bore holes can be inspected in the future.

In the [Traffic Solutions](#) field, Jenoptik entered the market for truck toll monitoring systems in 2017, 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 across Germany to the top-level control system of the toll company Toll Collect, combining modern sensor technology with stereo image processing, side-view cameras and radar. This facilitates axle detection together with recording of the dimensions. The

communication between the on-board unit and the back office was as much a component of development work as the documentation in the event of a violation. The toll monitoring systems are installed on the side of federal highways, making the comprehensive installation of monitoring gantries unnecessary. This limits interference in the environment.

For the traffic monitoring market, a compact system for monitoring speeds and red lights including automatic number plate recognition was developed in 2017 and combines the well-known Vector ANPR camera with a radar sensor.

In the market for [security and defense technology](#), the Energy & Drive business unit completed the product portfolio with its new air-cooled SAM 600 A generator and focuses on modularity and family concepts. Electric generators from Jenoptik generate reliable, efficient, and on-demand electricity for the on-board networks of various military vehicles, ensuring mobility and operational readiness. The 28-V generator is characterized by a high proportion of standardized components and is optimized for a small footprint and ease of transport.

In the [aviation](#) area, 2017 saw the development of a heating system for the crew rest area on the A330, the modification of existing heating elements, and the expansion of the product portfolio. The heating system is extremely reliable and robust; It can neither overheat nor burn out and provides more comfort and safety in civil aviation. The innovative heated floor panels (Floor Panel Heated – FPH) already passed the Airbus Critical Design Review (CDR) by the end of 2017. Upon completion of the development phase, the qualification phase will begin in March 2018. New workers will be employed for the series production planned from the end of 2018, and the manufacturing structure in Wedel will be adjusted.

In the [sensor technology](#) business, a prototype for industrial applications was developed as part of an ongoing R+D program in the LiDAR future field. It was presented to the public for the first time in November 2017 at the SPS IPC Drives trade show in Nuremberg. The market launch of the industrial 3D LiDAR scanner is scheduled to take place in approximately 2 to 3 years in order to meet the demand from our established industrial automation, public safety, and rail logistics markets. However, the three-dimensional measurement technology will also be used to develop new applications such as in manual, automatic or autonomous drone control or applications in intelligent agriculture.



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## Employees

### Development of Employee Numbers

As of December 31, 2017, with 3,680 employees (incl. trainees), Jenoptik recorded growth in its workforce of 4.0 percent (31/12/2016: 3,539 employees). As a result of the acquisitions and first-time consolidations, the number of Jenoptik employees abroad increased by 17.5 percent to 802 employees (31/12/2016: 686). Consequently, the proportion of employees abroad increased to 22.6 percent (31/12/2016: 19.4 percent), thereby contributing to the internationalization strategy. **T15 T16**

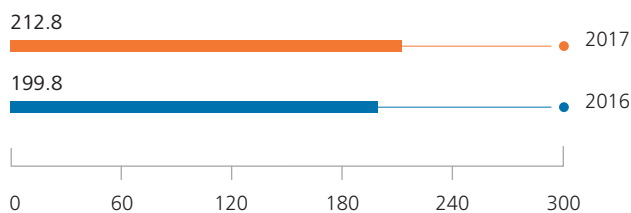
Temporary workers were also employed in the past fiscal year to cover production peaks and for major projects. They were employed predominantly in production and production-related areas. On the reporting date of December 31, 2017, 114 temporary workers were employed in the Group (31/12/2016: 64).

At 258.3 million euros, personnel expenses in 2017 (wages, salaries, social security contributions, pension expenses) were up 4.9 percent compared with the prior year's figure of 246.1 million euros. The increase was attributable both to the increased number of employees in the Group and to wage and salary increases.

Revenue per employee also developed positively due to strong revenue growth and increased by 6.5 percent to 212.8 thousand euros (prior year: 199.8 thousand euros). **G12**

As of December 31, 2017, the proportion of women in the Group (in Germany and abroad) was 26.9 percent, remaining almost unchanged (31/12/2016: 27.0 percent).

### G12 Revenue per Employee (in thousand euros)



Change  
 2017 6.5%

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. **T17**

### T17 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
13.01	26.30	22.81	25.59	11.32	0.97

### T15 Employees as of December 31 by Segment (incl. trainees and academy students)

Group	2017	2016	Change in %	Absolute change
Group	3,680	3,539	4.0	141
Optics & Life Science	1,149	1,123	2.3	26
Mobility	1,326	1,229	7.9	97
Defense & Civil Systems	897	881	1.8	16
Other	308	306	0.7	2

### T16 Employees as of December 31 by Region (incl. trainees and academy students)

	2017	2016	Change in %	Absolute change
Germany	2,878	2,853	0.9	25
Germany in %	81.0	80.3		
Abroad	802	686	16.9	116
Abroad in %	22.6	19.3		
Europe (excl. Germany)	198	174	13.8	24
Americas	346	285	21.4	61
Asia/Pacific	258	227	13.7	31

The absenteeism rate among Jenoptik employees in Germany also remained the same in 2017 at 5.4 percent (prior year: 5.4 percent). The staff fluctuation rate developed positively during the year covered by the report. This is calculated from the number of employees leaving the company in the entire month, excluding temporary workers and trainees, divided by the number of employees on the reporting date at the end of the month. The fluctuation rate in Germany fell from 4.2 percent in 2016 to 3.0 percent in 2017.

## Training

As of December 31, 2017, 109 trainees and students of the Duale Hochschule (Cooperative State University) were employed at the Group's German sites (31/12/2016: 123). Of these, 27 new apprentices and students of the Cooperative State University were recruited at the beginning of the new training year in 2017 and 34 were taken on after successfully completing their training. At the Wedel, Villingen-Schwenningen, Jena and Triptis sites, the new trainees receive job-specific training for optical, precision engineering, electronic, and commercial occupations in 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 2017, Jenoptik invested around 2.0 million euros in the professional development of its employees (prior year: 1.8 million euros). In the year covered by the report, 1,755 employees (prior year: 1,832 employees) have benefited from this. HR development requirements are reviewed once a year as part of an analysis of training needs.



Further information  
can be found in the  
Non-financial Report.

## Organizational Development

For the 2018 fiscal year, a reorganization of the HR department is planned on a global level as well as in Germany. The previous organizational structure will be converted into an HR Business Partner model. Each global division will be supported by a Global HR Business Partner, who in turn works closely with a national HR operations team and HR experts. This means that in the future, there will be three clusters in the HR department.

With the reorganization in line with the new strategy, HR will make a greater contribution to the company's success and also ensure that the Group is much better prepared for the challenges ahead, such as a new organization, culture, transformation, and the acquisition of new employees.

Important projects in the fiscal year 2018 are the supporting of the organizational and cultural change throughout the Group as well as the specific control and implementation of individual organizational development projects. In addition, optimization of operational HR processes in the sense of automation has already begun.

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# Economic Report

## Macro-economic and Sectoral Developments

In the [global economy](#), the recovery which began in mid 2016 continued on a broad basis in 2017, according to the International Monetary Fund (IMF) in its January 2018 World Economic Outlook. Europe and Asia in particular pleasantly surprised. Both the EU and the euro zone recorded the strongest economic growth for a decade, at 2.5 percent, according to the Eurostat statistics authority. In Germany, gross domestic product (GDP) rose by 2.2 percent in 2017 compared to the prior year, driven by private consumption, high corporate investment, and strong exports, which in 2017 exceeded the record level of the previous year by 6.3 percent according to statistics authority Destatis. **T18**

The Spectaris industry association delivered a positive assessment for the German [photonics](#) industry for 2017: after revenue of 30.3 billion euros in the prior year, the association calculated an increase of 8 to 9 percent based on preliminary estimates. According to Spectaris, the major portion of domestic production within the German photonics industry is being generated in the medical sector, more than in the application areas of production technology, analytical technology and metrology as well as optical components.

In the past year, revenue generated by German manufacturers of [medical technology](#) was almost 5 percent higher than in 2016 and surpassed the 30 billion euro mark for the first time, according to preliminary calculations by Spectaris, as the association informed in a press release published on the occasion of the MEDICA trade fair in November 2017. Major target regions

of the export-oriented German manufacturers included the European Union, North America and Asia, here in particular China. The demographic development in mature economies, the establishment and modernization of health care systems in many emerging countries, as well as the continuously growing importance of health drive the strong demand.

2017 was a record year for the [semiconductor industry](#): according to the Semiconductor Industry Association (SIA), at 412.2 billion US dollars, the industry worldwide generated a generous fifth more revenue than in the prior year. This development was assisted by the integration of semiconductors into everyday and consumer products as well as emerging technologies and trends such as artificial intelligence, virtual reality and the Internet of Things.

Due to the high demand, revenue generated in the [semiconductor equipment industry](#) also reached a record level in 2017: 55.9 billion dollars (prior year: 41.2 billion dollars) were generated worldwide, an increase of 35.6 percent on the prior year, according to preliminary calculations from the Semiconductor Equipment and Materials International (SEMI) trade association. On a regional basis, 2017 saw South Korea become the largest semiconductor equipment market for the first time, followed by Taiwan and China. **G13**

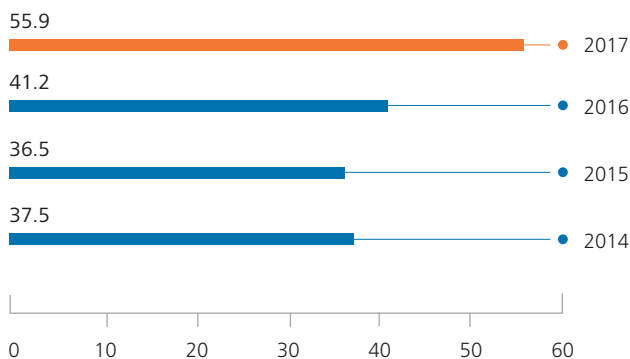
According to the German Engineering Federation (VDMA), the industry was able to benefit from the strong global economy in 2017, recording a total of 8 percent more orders. Orders

### T18 Change in Gross Domestic Product (in percent)

	2017	2016
World	3.7	3.2
USA	2.3	1.5
Euro zone	2.4	1.8
Germany	2.5	1.9
China	6.8	6.7
India	6.7	7.1
Emerging countries	4.7	4.4

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

### G13 Semiconductor Equipment: Global Revenue (in billion US dollars)



Source: Semiconductor Equipment and Materials International (SEMI)

from abroad were 10 percent higher than in the prior year, while business in Germany failed to meet expectations. Production increased significantly following five years of stagnation: according to preliminary calculations of the German Federal Statistical Office, German [machine construction](#) companies achieved a production volume of around 212 billion euros, an increase of 3.1 percent over the prior year. The revenue increased to 224 billion euros according to preliminary estimates.

The German [machine tool industry](#) also reported a successful year: according to the VDW industry association, German manufacturers recorded a total of 8 percent more orders in 2017 than in the prior year; Germany in particular saw massive investment in machine tools in the second half of the year. At 15.7 billion euros, a new record for production volume was achieved.

All major markets in the [automotive industry](#) showed positive development in 2017 according to VDA, the German industry association. Only the US recorded a slight decline in cars and light vehicles of just under 2 percent; however, the volume of new registrations was still at a high level. In Germany, the number of new registrations in 2017 rose to the highest market volume in this decade. With regard to the US market, the VDA reported that German car manufacturers and suppliers have tripled the number of US locations since the end of the 1990s.

In the [traffic safety](#) sector, the German Federal Statistical Office's preliminary accident statistics indicate that the number of road deaths in Germany in 2017 fell slightly in comparison

with the prior year. In total, 3,177 people died in road traffic in Germany throughout the year, 0.9 percent less than in the prior year. In 2017, for the second year in a row, more than 40,000 people died on the roads in the USA. This was the result of preliminary calculations by the US National Safety Council. However, the slight decline of 1 percent year-on-year is not yet indicative of a turnaround.

In the [aviation](#) industry, aircraft manufacturer Airbus increased its order intake by more than half in 2017 compared to the prior year: with 1,109 orders Airbus was ahead of its US competitor Boeing (912 orders). In terms of deliveries, Airbus set a new company record with 718 planes, but nevertheless the Group still lagged behind Boeing (763 deliveries). Airbus also received a new major order for the A380, the world's largest passenger aircraft, which secures production for years.

The German Ministry for Economic Affairs and Energy announced the 2017 armaments exports in the German Bundestag for the German [security and defense technology industry](#). In 2017, the total value of individual export licenses granted was 6.24 billion euros, a slight decrease compared with the prior two years, but historically the third highest value. A single order from Algeria accounted for a large proportion of this. In the area of missile defense, the USA announced in the summer of 2017 that it would be selling the Patriot system to Poland and Romania. In November, Sweden also announced its planned purchase of the medium-range missile defense system.

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## Legal Framework Conditions

The legal framework conditions governing business operations essentially remained constant in 2017 and therefore had no significant impact on the business development of the Jenoptik Group.

EBIT margin should lie between 9.5 and 10.0 percent, depending on the development of revenue.

## Earnings, Financial and Asset Position

### Comparison of Actual and Forecast Course of Business

Following the release of the preliminary results in January 2017, Jenoptik's Management predicted further growth in revenue and earnings in a first outlook for the current fiscal year. In March, the forecast for revenue was set at between 720 and 740 million euros. All three segments were to contribute to the revenue growth. The EBIT was also projected to rise and the

Based on the positive development of business, the Executive Board then firmed up its projection in mid-November with the nine-month report. Revenue and the EBIT margin should then come in at the upper end of the previously forecast range of 720 to 740 million euros or 9.5 to 10.0 percent, with revenue including acquisitions even slightly higher.

In the year covered by the report, the Jenoptik Group generated revenue of 747.9 million euros, which reached the predicted amount when including the acquisitions.

The EBIT margin increased to 10.4 percent, thereby exceeding the value announced in November. Profitability therefore improved significantly in comparison with the prior year (prior year: 9.7 percent).

## T19 Actual and Forecast Course of Business (in million euros/or as specified)

Indicator	Year-end 2016	Forecast 2017	Year-end 2017	Change in %
		January: Further growth March: Between 720 and 740 million euros November: At the upper end of the previously published range, including the acquisitions even slightly higher		
Revenue	684.8		747.9	9.2
Optics & Life Science	221.5	March: Growth in the high single-digit percentage range	259.4	17.1
Mobility	247.7	March: Growth in the high single-digit percentage range	270.1	9.0
Defense & Civil Systems	218.3	March: Slight growth	219.3	0.5
EBITDA <sup>1)</sup>	94.7	March: Slightly weaker rise than EBIT	106.7	12.8
		January: Further growth March: Increase, EBIT margin between 9.5 and 10.0%		
EBIT <sup>1)</sup> /EBIT margin <sup>1)</sup>	66.2	November: At top end of previously forecast range March: Stable at minimum (includes one-off operational income in 2016)	77.8	17.6
Optics & Life Science	33.4	August: Sharper rise than originally planned March: Rise stronger than revenue	50.5	51.1
Mobility	24.4	August: Considerably below expectations	18.5	-24.2
Defense & Civil Systems	19.1	March: Stable	19.2	0.3
Order intake	733.8	March: Slight increase	802.9	9.4
Free cash flow	80.4	March: Considerably below 2016 figure	72.2	-10.1
Capital expenditure <sup>2)</sup>	27.5	March: 35 to 40 million euros	37.9	38.1

<sup>1)</sup> without discontinued operations

<sup>2)</sup> without capital expenditure on financial assets

The development of revenue and EBIT for the segments is shown in the following table. **T19**

The EBITDA also saw an increase, which as predicted was below the increase in EBIT.

With an increase of 9.4 percent, the order intake rose somewhat more strongly than expected.

The free cash flow also developed better than predicted in the spring of 2017; however, at 72.2 million euros at the end of 2017, it remained as planned below the value of the prior year.

Capital expenditure was forecast to be in the amount of 35 to 40 million euros and fell within this range at 37.9 million euros.

## 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 2017 fiscal year, the Jenoptik Group generated new record **revenue** of 747.9 million euros (prior year: 684.8 million euros), growing by 9.2 percent in comparison with the prior year. At 221.1 million euros, the fourth quarter of 2017 generated the highest revenue in both the past fiscal year and the years before (prior year: 192.2 million euros). All the segments reported revenue growth in 2017. Overall good business performance was facilitated by strong demand from the semiconductor equipment industry and the traffic safety market. **T20**

On a regional basis, growth stimulus came predominantly from the Americas and the Asia/Pacific region, but also from Europe (excluding Germany). In the Americas, group revenue increased significantly in comparison to the prior year by 28.5 percent. The reasons for this include greater demand for optical systems, laser processing machines for the automotive industry and products in the Defense & Civil Systems segment. Revenue in Asia/Pacific increased by 11.1 percent to 111.3 million euros (prior year: 100.2 million euros), chiefly due to the increased demand for traffic safety products in Australia and for optical systems. The share of revenue for both growth regions of the Americas and Asia/Pacific combined came to 38.1 percent of group revenue

## T20 Revenue by Segment (in million euros)

	2017	2016	Change in %
Group	747.9	684.8	9.2
Optics & Life Science	259.4	221.5	17.1
Mobility	270.1	247.7	9.0
Defense & Civil Systems	219.3	218.3	0.5
Other	-0.8	-2.7	69.3

## T21 Revenue by Region (in million euros and as percent of total revenue)

	2017		2016	
	Revenue	% of total	Revenue	% of total
Group	747.9	100.0%	684.8	100.0%
Germany	222.6	29.8%	226.5	33.1%
Europe	212.3	28.4%	197.8	28.9%
Americas	173.6	23.2%	135.2	19.7%
Asia/Pacific	111.3	14.9%	100.2	14.6%
Middle East/Africa	28.1	3.8%	25.1	3.7%

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(prior year: 34.4 percent). At 28.1 million euros, revenue in the Middle East/Africa increased beyond that of the prior year (prior year: 25.1 million euros). At 525.3 million euros, Jenoptik generated 70.2 percent of revenue abroad in the past fiscal year (prior year: 458.3 million euros or 66.9 percent). Outside Germany, Europe remained the region with the highest revenue, accounting for a 28.4 percent share of group revenue, followed by the Americas with 23.2 percent. T21

In 2017, Jenoptik again generated its greatest share of revenue of 30.4 percent in the automotive & mechanical engineering target market. The share of revenue in the security & defense technology sector fell slightly to 20.8 percent (prior year: 21.4 percent). Revenue in the semiconductor equipment industry rose due to the industry boom, while business in the medical technology and aviation & traffic markets remained stable at

the prior year's level. In 2017, 18.3 percent of group revenue was attributable to the top 3 customers (prior year: 16.3 percent). T22

The cost of sales rose by 8.3 percent to 484.0 million euros and thus at a slightly lower rate than the revenue (prior year: 446.9 million euros), in particular due to the positive development in the Optics & Life Science segment. The cost of sales includes expenses arising from developments directly on behalf of customers, which totaled 22.2 million euros (prior year: 15.0 million euros), and offset corresponding revenues. T23

The gross profit increased accordingly to 263.9 million euros (prior year: 237.9 million euros). The gross margin rose to 35.3 percent (prior year: 34.7 percent), due to volume and product mix effects. G14

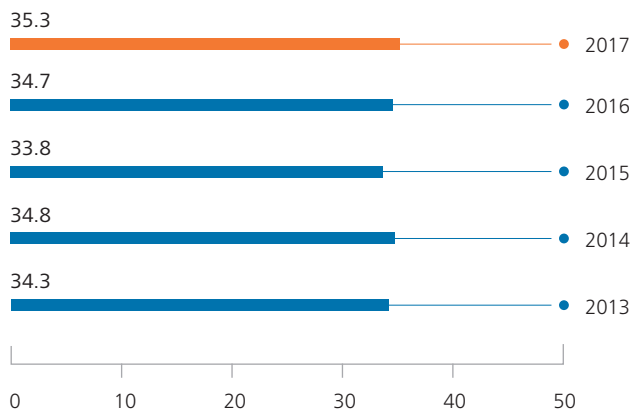
## T22 Revenue by Target Market (in million euros and as percent of total revenue)

Group	2017		2016	
	Revenue (million euros)	Share of total revenue (%)	Revenue (million euros)	Share of total revenue (%)
Automotive & mechanical engineering	227.0	30.4%	213.3	31.1%
Security & defense technology	155.8	20.8%	146.3	21.4%
Aviation & traffic	153.0	20.5%	142.3	20.8%
Semiconductor equipment industry	127.8	17.1%	91.8	13.4%
Medical technology	43.4	5.8%	42.1	6.1%
Other	41.0	5.5%	49.1	7.2%

## T23 Key Items in the Statement of Comprehensive Income (in million euros)

	2017	2016	Change in %
Cost of sales	484.0	446.9	8.3
R+D expenses	43.1	42.3	1.8
Selling expenses	80.3	73.6	9.1
Administrative expenses	55.8	57.6	-3.1
Other operating income	15.7	23.4	-32.6
Other operating expenses	22.6	21.5	4.8

## G14 Development of the Gross Margin (in percent)





More detailed information on research and development in the Jenoptik Group can be found on page 76 ff.

Key factors in the Group's future performance and competitiveness are the **research and development expenses (R+D expenses)**. These increased slightly to 43.1 million euros (prior year: 42.3 million euros). The share of R+D expenses as a proportion of revenue came to 5.8 percent, slightly lower than in the prior year (prior year: 6.2 percent).

The Jenoptik Group again pushed ahead with its internationalization strategy in the 2017 fiscal year. In the course of expanding international activities, **selling expenses** increased by 9.1 percent to 80.3 million euros in 2017, due to, among other things, the setting up of a central Services & After Sales organization in the automotive sector. The selling expenses ratio, at 10,7 percent, was unchanged compared to the prior year (prior year: 10.7 percent).

**General and administrative expenses** came to 55.8 million euros (prior year: 57.6 million euros). The costs could be reduced by active cost management, among other things. In addition, the prior year was characterized by expenses in connection with the change in the Executive Board as well as an increased valuation of share-based payments (LTI) for the Executive Board and some members of the top management, which fell significantly in 2017. At 7.5 percent, the administrative expenses ratio was therefore less than the prior year's figure of 8.4 percent.

**Other operating income** fell to 15.7 million euros (prior year: 23.4 million euros). The high level of the prior year was mainly due to above-average income arising from the reversal of impairments and the sale of an investment. In 2017, other operating income included, in particular, positive currency effects and income arising from the reversal of impairments on receivables.

**Other operating expenses**, at 22.6 million euros, were also slightly up on the level of the prior year (prior year: 21.5 million euros). They included foreign currency exchange losses, impairments on receivables, and costs arising in connection with the acquisitions.

In the 2017 fiscal year, Jenoptik also achieved a new record in its operating results over recent years. The **operating result (EBIT)** rose faster than revenue by 17.6 percent to a total of 77.8 million euros. In addition, there are earnings of 0.2 million euros originating in the sale of a former business unit (prior year: 2.3 million euros) which are disclosed as EBIT from discontinued operations. Overall, the EBIT margin improved correspondingly to 10.4 percent (prior year: 10.0 percent or 9.7 percent without income from discontinued operations) and was therefore above the target corridor for 2017. The clear rise in earnings in the Optics & Life Science segment contributed significantly to this. **T24**

The **earnings before interest, taxes, depreciation and amortization (EBITDA)** also increased overall at a faster rate than revenue by 10.3 percent to a total of 106.9 million euros (prior year: 96.9 million euros). The EBITDA for continuing operations came to 106.7 million euros in 2017 (prior year: 94.7 million euros). **T25**

Due to the increase in earnings, the **ROCE (Return on Capital Employed)** for continuing operations also improved to 18.2 percent by December 31, 2017 (prior year: 15.6 percent). Jenoptik shows this indicator inclusive of goodwill and before taxes. The calculation of the ROCE is explained in the glossary on page 204 and shown in the following table. The average tied capital is calculated as the average of the month end values in the reporting period. **T26**



Information on the segment EBIT can be found in the Segment Report from page 98 on



Detailed information on the composition of the other operating income and expenses, as well as total other comprehensive income, can be found in the Notes

## T24 EBIT (in million euros)

	2017	2016	Change in %
Optics & Life Science	50.5	33.4	51.1
Mobility	18.5	24.4	-24.2
Defense & Civil Systems	19.2	19.1	0.3
Other	-10.3	-10.8	3.8
EBIT continuing operations	77.8	66.2	17.6
EBIT discontinued operations	0.2	2.3	-91.2
EBIT	78.0	68.5	14.0

## T25 EBITDA (in million euros)

	2017	2016	Change in %
Optics & Life Science	58.7	41.7	40.7
Mobility	27.9	32.3	-13.7
Defense & Civil Systems	23.8	23.8	0.4
Other	-3.7	-3.1	-17.6
EBITDA continuing operations	106.7	94.7	12.8
EBITDA discontinued operations	0.2	2.3	-91.2
EBITDA	106.9	96.9	10.3



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The **financial result**, which had also been characterized by income from discontinued operations in the prior year, improved significantly to a total of 2.0 million euros (prior year: minus 3.7 million euros, minus 5.2 million euros without discontinued operations). It was essentially characterized by a clearly positive result from investments arising from the profit generated through the disposal of a minority holding abroad as well as other financial assets amounting to 6.3 million euros. Negative currency effects totaling minus 1.0 million euros (prior year: minus 0.4 million euros) had the opposite effect. The interest income rose in comparison with the prior year to 0.7 million euros (prior year: 0.4 million euros). Interest expenses reduced slightly to 4.4 million euros (prior year: 4.9 million euros) due to the payment of liabilities. In addition, the financial result in the fiscal year was positively influenced by the fair-value measurement of the existing put options in connection with the acquisition of the outstanding shares in the Vysionics Group in the amount of 0.3 million euros (prior year: minus 0.6 million euros).


The sharp rise in EBIT as well as the improved financial result were also reflected in the **earnings before tax**, which at a total of 80.1 million euros were 23.7 percent up on the prior year (prior year: 64.7 million euros). The earnings before tax for continuing operations amounted to 79.9 million euros (prior year: 61.0 million euros).

The current income taxes increased to 14.3 million euros (prior year: 9.1 million euros). Of these, 8.0 million euros (prior year: 5.0 million euros) were levied in Germany and 6.4 million euros (prior year: 4.2 million euros) abroad. The increase can be attributed in particular to the higher income during the reporting period. In Germany, JENOPTIK AG's tax loss carried forward had the effect of reducing the tax burden.

The Jenoptik Group's cash effective tax rate, the relationship between the current income taxes and the earnings before tax, remained at 17.9 percent (prior year: 14.1 percent) – a still comparatively low level for German companies.

Non-cash deferred tax income came to 6.9 million euros in the past fiscal year (prior year: 1.8 million euros). The change resulted in particular from the recognition of additional deferred tax assets on the domestic loss carried forward of JENOPTIK AG. 

In 2017, Jenoptik generated **earnings after tax** of 72.7 million euros, a significant improvement of 26.5 percent (prior year: 57.5 million euros). At 72.5 million euros, earnings attributable to shareholders were also well above the prior year's figure of 57.4 million euros. Earnings per share (EPS) therefore totaled 1.27 euros (prior year: 1.00 euros). The earnings after tax of continuing operations amounted to 72.5 million euros (prior year: 53.9 million euros), resulting in **earnings per share** of 1.27 euros (prior year: 0.94 euros).

In the 2017 fiscal year, the **order intake** increased by a total of 69.1 million euros to a new record high of 802.9 million euros (prior year 733.8 million euros). The major orders for the delivery of 3D laser machines to the German automotive industry as well as to equip the Patriot missile defense system and the upgrading of the Leopard 2 tanks are included in part. The order intake in 2017 was thus both above the prior-year value and above the revenue level. The increase in order intake is mainly attributable to stronger demand from the Optics & Life Science segment as well as to reclassifications from the frame contracts, particularly in the Mobility segment. Against this background, the book-to-bill ratio remained stable at 1.07 (prior year: 1.07). **T27 T30 G15** 



See the Notes for detailed information on the subject of taxes.

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

## T26 ROCE (in million euros, ROCE in percent)

	2017	2016
Long-term non-interest bearing assets	284.0	277.6
Short-term non-interest bearing assets	316.0	301.2
Non-interest bearing borrowings	-171.4	-152.3
Average tied capital	428.6	426.5
EBIT	77.8	66.2
ROCE (in percent)	18.2	15.6

## T27 Order Intake (in million euros)

	2017	2016	Change in %
Group	802.9	733.8	9.4
Optics & Life Science	295.5	236.6	24.9
Mobility	303.7	267.4	13.6
Defense & Civil Systems	206.2	231.6	-11.0
Other	-2.4	-1.8	-33.2

The **order backlog** at the end of 2017 increased to 453.5 million euros (31/12/2016: 405.2 million euros). Of this order backlog, 79 percent will still be converted to revenue in the current year. In conjunction with a well-filled order pipeline, this is a solid basis for the forecast growth in the 2018 fiscal year. **T28**

There were also **frame contracts** worth 87.6 million euros (31/12/2016: 160.9 million euros). Frame contracts are contracts or framework agreements with customers, where the exact extent and time of occurrence cannot yet be specified precisely. The decline in the frame contracts is due to a reclassification in the order intake. **T29**

## 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 Group's financial flexibility and solvency is guaranteed at all times on the basis of multi-year financial planning and monthly rolling liquidity planning.

A cash pooling system also ensures the liquidity supply to all the major companies in the euro zone and limits their liquidity risk. In the 2017 fiscal year, Jenoptik Traffic Solutions UK Ltd. was incorporated in the cash pooling system. 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 issued debenture loans, and steadily rising cash and cash equivalents, the Group's liquidity in the past fiscal year was sufficiently secured at any point.

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.

### T28 Order Backlog (in million euros)

	2017	2016	Change in %
Group	453.5	405.2	11.9
Optics & Life Science	109.1	80.7	35.2
Mobility	144.7	108.3	33.7
Defense & Civil Systems	202.6	217.8	-7.0
Other	-2.9	-1.6	-84.1

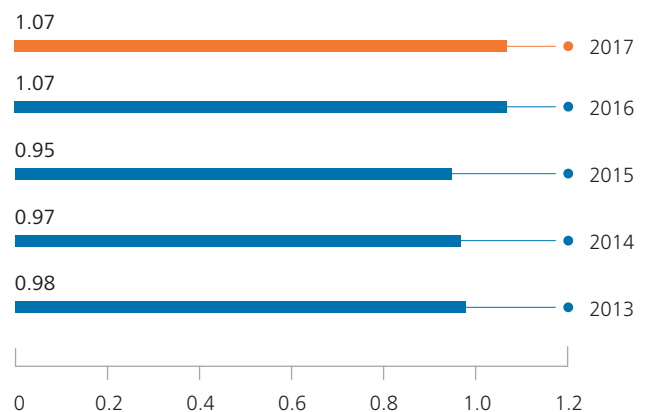
### T29 Frame Contracts (in million euros)

	2017	2016	Change in %
Group	87.6	160.9	-45.6
Optics & Life Science	11.1	14.5	-23.1
Mobility	30.1	79.1	-61.9
Defense & Civil Systems	46.3	67.4	-31.3

### T30 Book-to-bill Ratio (in percent)

	2017	2016
Group	1.07	1.07
Optics & Life Science	1.14	1.07
Mobility	1.12	1.08
Defense & Civil Systems	0.94	1.06

### G15 Development of the Book-to-bill Ratio (in percent)



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### Capital Structure and Financing Analysis

With a very good equity ratio of 59.6 percent as of December 31, 2017, the debenture loans, and the syndicated loan, the Group has a viable financing structure. This gives the company further financial latitude and the flexibility to implement its medium to long-term international growth strategy, i.e. the financing of future organic growth and of acquisitions.

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. This also acts to secure Jenoptik's medium to long-term financing structure. In addition, the company is in a position to make use of a line of credit on attractive terms thanks to the syndicated loan agreement worth 230.0 million euros that was concluded in 2015 and, as optionally extended, runs until 2022. Financial covenants have been agreed for the debenture loans and the syndicated loan, and Jenoptik is in compliance with all their conditions.

In addition to cash and cash equivalents of 132.3 million euros and current financial investments of 64.6 million euros, the Group also has unused volume from credit line agreements totaling 232.2 million euros to fall back on. This means that the company has more than 400 million euros available for corporate development measures.

In 2017, the Group's non-current financial debt fell to 108.6 million euros (31/12/2016: 120.5 million euros). The

balance sheet item comprised almost exclusively financial liabilities to banks in the amount of 107.9 million euros (31/12/2016: 120.4 million euros). The reclassification of a tranche of debenture loans to current financial debt was chiefly responsible for this downturn. At the end of 2017, non-current financial debt accounted for around 85 percent of Jenoptik's financial debt (31/12/2016: 97 percent).

Current financial debt rose to 19.3 million euros (31/12/2016: 4.1 million euros), in part due to the take-up of loans to finance the new technology campus in Rochester Hills, Michigan and the reclassification of a tranche of the debenture loans.

As the equity posted at year-end 2017 was 53.6 million euros up on the prior year but borrowed capital increased by only 22.5 million euros, the debt-to-equity ratio improved further, to 0.68 (31/12/2016: 0.71). The debt-to-equity ratio is defined as the ratio between borrowings (359.2 million euros) and equity (529.9 million euros). G16

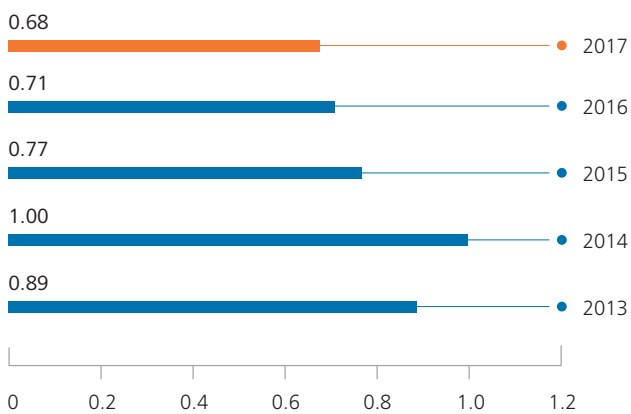
At year-end, the net cash position amounted to 177.5 million euros (31/12/2016: 138.4 million euros). It is defined as the total cash, cash equivalents, and current financial investments in the sum of 196.9 million euros (31/12/2016: 142.5 million euros), minus current financial debt of 19.3 million euros.

The Jenoptik Group remained net debt free throughout the 2017 fiscal year. Thanks to strong cash flows from operating activities, particularly in the fourth quarter, net debt came to minus 69.0 million euros as of December 31, 2017 (31/12/2016: minus 17.9 million euros). This positive development was achieved despite a higher dividend payment, which totaled 14.3 million euros (prior year 12.6 million euros), an increase in capital expenditure, and payments for the acquisition of the US company Five Lakes Automation and the British traffic safety specialist ESSA Technology. T31

### 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 individual investments are systematically reviewed with respect to sustainability or their value contribution on the basis of performance and financial indicators, and all risks and opportunities are thoroughly analyzed.

### G16 Debt-to-equity Ratio (in percent)



In 2017, capital expenditure was used to support further growth, in part with the new technology campus at the US site in Rochester Hills, Michigan, with new customer orders in the traffic monitoring sector and, in the production area, with new technical equipment and the expansion of manufacturing infrastructures at various locations in Germany and abroad, primarily in the Optics & Life Science segment. Examples include investments in optical and micro-optical precision components, in the healthcare and metrology sectors, and in automation solutions for laser systems. In total, the Group invested 37.9 million euros (prior year 27.5 million euros) in intangible assets as well as property, plant and equipment. **T32**

At 33.8 million euros, the largest share of capital expenditure was once again on **property, plant, and equipment** (prior year: 24.5 million euros).

At 4.2 million euros, **capital expenditure on intangible assets** was up on the prior-year level (prior year: 3.0 million euros). The capital expenditure was used for the IT landscape and other group projects. During the reporting period, development services arising from internal projects and worth 0.5 million euros were capitalized (prior year: 0 million euros). **T33**

Scheduled **depreciation** totaled 28.7 million euros (prior year: 27.6 million euros). Impairment losses and reversals came to minus 0.2 million euros (prior year: minus 0.9 million euros).

**Depreciation on property, plant, and equipment** was practically unchanged at 21.2 million euros (prior year: 21.0 million euros) and thus significantly lower than capital expenditure on property, plant, and equipment.

**Amortization on intangible assets** amounted to 7.4 million euros (prior year: 6.5 million euros) and, as in the prior year, mainly covered the depreciation of patents, trademarks and software, as well as the intangible assets identified in the course of company acquisitions.

### Analysis of Cash Flows

**Cash flows from operating activities** came to 96.3 million euros in the year covered by the report (prior year: 100.1 million euros), boosted by higher earnings before tax and a change in provisions. Higher payments for working capital, in particular due to the increase in inventories and receivables, had a negative impact on the operating cash flow. The change in provisions is



Further information on capital expenditure by segment can be found in the Segment Report from page 98 on, or for future investment projects in the Forecast Report from page 121 on

## T31 Net and Gross Debt (in million euros)

	2017	2016	2015	2014	2013
Non-current financial debt	108.6	120.5	113.2	156.8	115.2
Current financial debt	19.3	4.1	14.9	5.1	1.2
<b>Gross debt</b>	<b>127.9</b>	<b>124.6</b>	<b>128.1</b>	<b>161.9</b>	<b>116.4</b>
minus securities	64.6	50.5	0.4	0.3	0.7
minus cash and cash equivalents	132.3	92.0	83.8	69.5	71.6
<b>Net debt</b>	<b>-69.0</b>	<b>-17.9</b>	<b>43.9</b>	<b>92.1</b>	<b>44.1</b>

## T32 Capital Expenditure and Depreciation/Amortization (in million euros)

	2017	2016	Change in %
Capital expenditure	37.9	27.5	38.1
Intangible assets	4.2	3.0	39.2
Property, plant, and equipment	33.8	24.5	38.0
Depreciation/amortization/impairment losses and reversals	28.9	28.5	1.5
Intangible assets	7.4	6.5	12.5
Property, plant and equipment	21.4	21.8	-1.8
Investment properties	0.1	0.1	0.0

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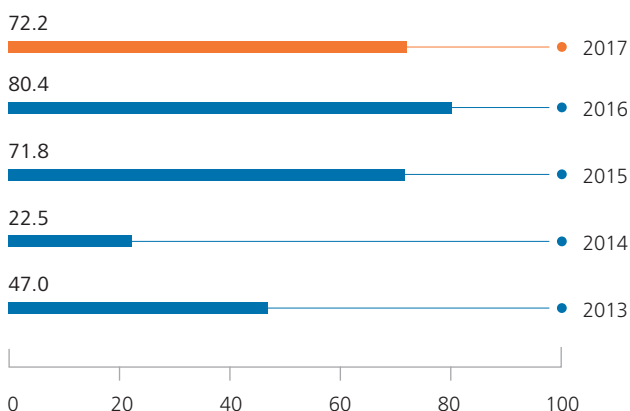
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set out in the Notes, under the item "Other provisions" from page 169 on. **T34**

Cash flows from investing activities came to 42.2 million euros in 2017 (prior year: 71.3 million euros). Increased payments for

### G17 Free Cash Flow (in million euros)



investments were primarily offset by higher proceeds from sale of financial investments in connection with the disposal of shares in a foreign minority holding in the US.

The free cash flow arises from the cash flows from operating activities before income tax payments in the amount of 105.1 million euros (prior year: 109.2 million euros), less the expenditure for operating investment activities in the amount of 32.8 million euros (prior year: 28.8 million euros). During the reporting period, the free cash flow amounting to 72.2 million euros was down on the prior-year value (prior year: 80.4 million euros), mainly due to higher expenditure for the revenue-linked increase in working capital and higher capital expenditure, but nevertheless remained at a good level. **G17**

In the 2017 fiscal year, cash flows from financing activities amounted to minus 12.9 million euros (prior year: minus 20.7 million euros), in part influenced by the payment of a higher dividend, which in total came to 14.3 million euros (prior year: 12.6 million euros), and lower repayments for bonds and loans of minus 3.6 million euros (prior year: minus 11.5 million euros).

### T33 Capital Expenditure by Segment – Intangible Assets and Property, Plant and Equipment (in million euros)

Group	2017	2016	Change in %
Optics & Life Science	37.9	27.5	38.1
Mobility	11.3	6.0	88.4
Defense & Civil Systems	17.5	13.8	26.2
Other	4.5	4.1	8.7
	4.7	3.5	34.2

### T34 Cash Flows (in million euros)

	2017	2016	2015	2014	2013
Cash flows from operating activities	96.3	100.1	85.1	46.3	60.6
Cash flows from investing activities	-42.2	-71.3	-7.2	-37.6	-16.4
Cash flows from financing activities	-12.9	-20.7	-66.5	-13.8	-19.1
Cash-effective change in cash and cash equivalents	41.3	8.0	11.4	-5.0	25.1
Non-cash change in cash and cash equivalents	-0.9	0.1	2.9	2.9	1.1
<b>Change in cash and cash equivalents</b>	<b>40.3</b>	<b>8.1</b>	<b>14.3</b>	<b>-2.1</b>	<b>26.2</b>
<b>Cash and cash equivalents at the end of the fiscal year</b>	<b>132.3</b>	<b>92.0</b>	<b>83.8</b>	<b>69.5</b>	<b>71.6</b>

## Asset Position

As of December 31, 2017 the **total assets** of the Jenoptik Group increased to 889.1 million euros compared with year-end 2016 (31/12/2016: 813.1 million euros). The increase of 76.1 million euros is mainly attributable to the increase in current financial investments and cash and cash equivalents on the assets side, as well as to the increase in liability items such as equity, current financial debt, and current trade accounts payable on the liabilities side. By contrast, financial investments and non-current financial debt, in particular, saw a fall. 

Overall, **non-current assets** increased only slightly, to 376.2 (31/12/2016: 371.9 million euros), with the greatest change here in financial investments, which fell following the disposal of shares in a foreign minority holding in the US to 4.4 million euros (31/12/2016: 19.0 million euros). By contrast, intangible assets and property, plant and equipment increased, mostly due to acquisitions and higher capital expenditure on property,

plant, and equipment. The acquisitions increased the value of the goodwill item to 101.4 million euros (31/12/2016: 94.3 million euros), which thus remained the largest item in intangible assets. Property, plant, and equipment increased to 164.7 million euros (31/12/2016: 157.9 million euros), particularly boosted by the new building in Rochester Hills, Michigan. Due to the capitalization of other deferred taxes on losses carried forward, the active deferred taxes increased to 78.9 million euros in the reporting year (prior year: 74.2 million euros). 

There were only minor changes in the remaining items under non-current assets. **T35**

**Current assets** rose by 71.7 million euros to 512.9 million euros in the past fiscal year (31/12/2016: 441.2 million euros). Inventories were built up as part of the scheduled expansion of business and to ensure delivery capability at the beginning of the new fiscal year. At year-end, they thus rose to a value of 168.6 million



More 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, points 5.1 and 5.2

## T35 Composition of Non-Current Assets (in million euros and as percent of total value of non-current assets)

	2017		2016		Change in %
	Value	%	Value	%	
Intangible assets	120.9	32.1%	111.4	29.9%	8.6
Property, plant, and equipment incl. investment property	169.1	44.9%	162.3	43.6%	4.2
Financial investments	4.4	1.2%	19.0	5.1%	-76.8
Long-term trade receivables	0	0.0%	1.9	0.5%	-100.0
Other non-current financial assets	2.3	0.6%	1.9	0.5%	20.4
Other non-current non-financial assets	0.6	0.2%	1.1	0.3%	-47.1
Deferred taxes	78.9	21.0%	74.2	20.0%	6.3
<b>Total</b>	<b>376.2</b>	<b>100.0%</b>	<b>371.9</b>	<b>100.0%</b>	<b>1.2</b>

## T36 Elements of Working Capital (in million euros)

	2017	2016	Change in %
Inventories	168.6	159.3	5.8
Trade accounts receivable from third parties and construction contracts	135.8	129.0	5.3
Liabilities arising from trade accounts payable to third parties and construction contracts	61.5	49.0	25.6
Liabilities arising from on-account payments	28.2	29.5	-4.4
<b>Total</b>	<b>214.8</b>	<b>209.9</b>	<b>2.3</b>

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euros (31/12/2016: 159.3 million euros). Also as a result of good revenue at the end of the year, trade accounts receivable rose slightly from 129.8 million euros at year-end 2016 to 136.0 million euros. The increase in short-term cash investments resulted in a boost to current financial investments, which rose from 50.5 million euros to 64.6 million euros. Cash and cash equivalents increased to 132.3 million euros (31/12/2016: 92.0 million euros), primarily due to the good operating cash flow and the payment received from the above-mentioned disposal of shares in a foreign minority holding.

Revenue growth resulted in the working capital increasing in absolute terms; it came to 214.8 million euros at the end of December (31/12/2016: 209.9 million euros), chiefly due to the build-up of inventories and receivables. Despite the absolute increase, active working capital management helped to reduce the working capital ratio, that of working capital to revenue, further, to 28.7 percent (31/12/2016: 30.7 percent). T36

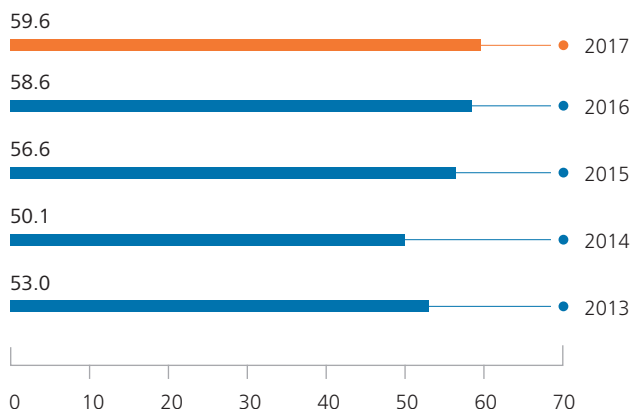
The earnings after tax posted at the end of December 2017, reduced by the dividend payment, the impacts of the first-time consolidation of Jenoptik India, the currency exchange effects from the conversion of the consolidated accounts, and the impacts of the valuation of cash flow hedges and pension provisions recognized outside of profit or loss resulted in an increase in equity, including the non-controlling interests, of

53.6 million euros to 529.9 million euros (31/12/2016: 476.4 million euros). Despite the increase in the total assets and liabilities, the equity ratio, that of equity to total assets and liabilities, also improved further to 59.6 percent (31/12/2016: 58.6 percent). G18

At the end of 2017, non-current liabilities fell to 162.1 million euros (31/12/2016: 175.4 million euros). A key reason for this was the drop of 11.9 million euros, to 108.6 million euros, in non-current financial debt, primarily due to the reclassification of a tranche of debenture loans to current financial debt (31/12/2016: 120.5 million euros). A major element of the non-current financial debt are the debenture loans totaling 103 million euros. Other non-current financial debt also fell, essentially the result of reclassifications to other current financial liabilities as liabilities became due.

Current liabilities rose to 197.1 million euros (31/12/2016: 161.3 million euros). All items saw rises, with the exception of other non-current non-financial liabilities, which fell to 47.3 million euros (31/12/2016: 53.6 million euros), in part due to a payment to a former Executive Board member on the termination of his service contract. At year-end 2017, the balance sheet item included trade accounts payable of 61.7 million euros (31/12/2016: 48.4 million euros), which were attributable in particular to higher revenue-related liabilities to third parties. The other current provisions rose to 51.2 million euros (31/12/2016: 46.2 million euros), in part due to higher personnel provisions and warranty obligations. T37 T38

## G18 Equity Ratio (in percent)




**Purchases and sales of companies:** In January, the Jenoptik Group acquired all shares in the British company ESSA Technology (Domestic and Commercial Security Limited). The company was integrated within the Mobility segment.

In August, the Jenoptik Group acquired all shares in the US company Five Lakes Automation LLC, which was also incorporated in the Mobility segment.

More information on the acquisitions of these companies can be found in the Segment Report, on page 101, and in the Notes, from page 138 on.

There were no other purchases or sales of companies in 2017.

## Assets and Liabilities Not Included on the Balance Sheet

The value of the **Jenoptik brand** is one of the main assets not included in the balance sheet. Within the highly specialized photonics market, which is characterized by a multitude of smaller companies, Jenoptik is considered a major supplier. We want to further boost awareness of our brand in the next few years, especially internationally; from 2018 on, we will be actively working to enhance our brand positioning. 

**Non-capitalized tax losses carried forward.** Tax losses carried forward arise from losses in the past that 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, active deferred taxes are not recognized for corporate income tax purposes in the amount of 105.0 million euros (prior year: 172.7 million euros) and trade tax purposes in the amount of 267.9 million euros (prior year: 330.9 million euros), as they are unlikely to be used

within a determined planning time frame. Equally, no active deferred tax assets were recognized for deductible timing differences in the amount of 6.2 million euros (prior year: 9.4 million euros).

Jenoptik does not utilize any **off-balance sheet financing instruments for its financial and asset position**, such as sales of accounts receivable or asset-backed securities. For details of operating leases, we refer to the Notes, from page 159 on.

Information on **contingent assets and liabilities** can be found in the Notes, from page 184 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). More information can be found in the Remuneration Report, from page 45 on, and in the Information on Takeover Law, from page 41 on.

## T37 Financial Debt by Due Date (in million euros)

	Up to 1 year		1 to 5 years		More than 5 years		31/12/2016	
	2017	2016	2017	2016	2017	2016	2017	2016
Liabilities to banks	19.2	4.1	107.9	44.8	0.0	75.6	127.0	124.5
Liabilities from finance leases	0.2	0.0	0.7	0.0	0.0	0.0	0.9	0.1
<b>Total</b>	<b>19.3</b>	<b>4.1</b>	<b>108.6</b>	<b>44.9</b>	<b>0.0</b>	<b>75.6</b>	<b>127.9</b>	<b>124.6</b>

## T38 Elements of Interest-bearing Liabilities (in million euros)

	2017	2016	Change in %
Current	19.3	4.1	368.3
Liabilities to banks	19.2	4.1	368.6
Non-current	108.6	120.5	-9.9
Liabilities to banks	107.9	120.4	-10.4
Liabilities from finance leases	0.7	0.0	1,427.7



For more information on the brand, see the Non-financial Report



## General Statement by the Executive Board on the Development of Business

In the 2017 fiscal year, Jenoptik continued on its successful path of growth and achieved new revenue and earnings records. All three segments contributed to the increase in revenue. This very good performance was particularly facilitated by strong demand from the semiconductor equipment industry, for traffic safety technology and, on a regional level, by strong growth in the US. Thanks to both a more profitable revenue mix and active cost management, we succeeded in achieving an above-average increase in EBIT.

We also recorded a good increase in the order intake and order backlog. As a result, we have created a solid basis for the further profitable growth of the Group.

With very good earnings capacity and thus strong cash flows, we were able to finance not only our operating business but also major investments and acquisitions to boost our external growth. Despite a significant increase in capital expenditure and higher expenditure for working capital, the free cash flow remained at a healthy level. The Group was net debt free throughout the year. Our equity ratio rose again. We were able to improve our total assets as well as other financial and balance sheet indicators.

The Executive Board was very satisfied with the development of the business.

## Segment Report

The segments' range of products and services and competitive positioning are set out in greater detail in the Group Business Model chapter, from page 68 on.

Information on the various markets can be found in the Sector Report, from page 93 on, and on future developments in the Forecast Report, from page 119 on.

### Optics & Life Science Segment

In the 2017 fiscal year, the Jenoptik Group strengthened its position 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. In the past fiscal year, for example, the range of highly efficient and innovative micro-optical solutions, in particular for laser material processing, was successfully expanded. The year also saw a

focus on the medical technology and life science, and on the information and communications 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 2017. **T39**

The Optics & Life Science segment achieved a new revenue and earnings record in the past fiscal year. **Revenue** rose by 17.1 percent to 259.4 million euros (prior year: 221.5 million euros), with the segment particularly profiting from continuing strong demand in the semiconductor equipment industry and clearly positive growth in the healthcare and industry business. In total, around 79 percent of the segment's revenue was generated abroad in 2017 (prior year: 79 percent), with Europe still enjoying the greatest share, followed by the Americas and Asia/Pacific.

The segment generated **EBIT** of 50.5 million euros (prior year: 33.4 million euros). The operating result thus improved by 51.1 percent, mostly due to the reasons mentioned above. The **EBIT margin** increased sharply to 19.5 percent (prior year: 15.1 percent). **Income from operations before depreciation/amortization (EBITDA)** also grew significantly, by 40.7 percent to 58.7 million euros (prior year: 41.7 million euros).

### T39 Optics & Life Science Segment at a Glance (in million euros)

	2017	2016	Change in %
Revenue	259.4	221.5	17.1
EBITDA	58.7	41.7	40.7
EBITDA margin in %	22.6	18.8	
EBIT	50.5	33.4	51.1
EBIT margin in %	19.5	15.1	
Capital expenditure	11.3	6.0	88.4
Free cash flow	47.5	34.6	37.3
Order intake	295.5	236.6	24.9
Order backlog	109.1	80.7	35.2
Frame contracts	11.1	14.5	-23.1
Employees	1,149	1,123	2.3


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At 295.5 million euros, the [order intake](#) exceeded the high prior-year level (prior year: 236.6 million euros) by 24.9 percent, and in the past reporting year was particularly dominated by a higher demand in the micro-optics and healthcare areas, a key determinant of the successful business performance in the segment. As the order intake grew at a greater rate than revenue, the book-to-bill ratio also rose, to 1.14 (prior year: 1.07).

The [order backlog](#) increased by 28.4 million euros at the end of the year, to 109.1 million euros (31/12/2016: 80.7 million euros), thus forming a good basis for the new fiscal year. The segment also had [frame contracts](#) worth 11.1 million euros (31/12/2016: 14.5 million euros).

With a [free cash flow](#) of 47.5 million euros (before interest and income taxes), higher capital expenditure could not prevent the segment managing to far exceed the good level of the prior year (prior year: 34.6 million euros). This was primarily due to a good earnings performance. Despite higher revenue, the segment's working capital, at 55.8 million euros, was marginally down on the prior year (prior year: 56.6 million euros).

As of December 31, 2017, the Optics & Life Science segment had a total of 1,149 [employees](#), 26 more than in the prior year. The segment had 28 people in trainee positions at the end of 2017.

R+D expenses in 2017 totaled 13.4 million euros (prior year: 14.3 million euros). Including development services on behalf of customers, the segment's [R+D output](#) came to 21.1 million euros, thus virtually unchanged on the prior year (prior year: 21.9 million euros). The share of total R+D costs in segment revenue was 8.1 percent (prior year: 9.9 percent). 

The segment's [capital expenditure](#) on property, plant, and equipment as well as intangible assets rose sharply, to 11.3 million euros (prior year: 6.0 million euros). It was offset by depreciation/amortization in the sum of 8.0 million euros (prior year: 8.2 mil-

lion euros). Key areas of investment in the 2017 fiscal year included the technological upgrade and expansion of manufacturing capacity for optical and micro-optical precision components at the Jupiter (Florida, US) and Huntsville (Alabama, US) locations, and in Jena. For healthcare and industry, investment in imaging development projects was stepped up in 2017.

[Production and organization](#). Thanks to a quality initiative focusing on internal customer and supplier relationships that was launched in 2017, development quality in the field of optics could be improved further. The development of supplier development teams, working in association with suppliers, achieved demonstrable successes in capacity and skill development. With further boosts to manufacturing expertise thanks to a workcell structure, customer-related planning processes were more closely interlinked with internal processes. The result was shorter lead times and a further drop in handling and waiting times. The new organizational concepts will continue to be rolled out in 2018.

Organizational and operational changes were initiated in the industry sector. Healthcare structures in the US were also realigned, and in particular, the sales organization was adapted to match market conditions. In Silicon Valley on the West Coast, Jenoptik opened a new application center, allowing it to support its customers to achieve their innovation objectives in the life science sector locally while also accelerating growth in the US with greater international reach.

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, focusing 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

In 2017, the Mobility segment further boosted its position as a leading supplier of high-precision automated measuring systems and solutions for laser material processing in the automotive industry. Thanks to its acquisition of Five Lakes Automation, Jenoptik is now in a position to offer not only stand-alone laser machines but also complete process solutions from a single source. A key step along the road to becoming an integrated solutions provider for public safety and future smart cities was taken with the acquisition of the British company ESSA Technology.

**Revenue** in the Mobility segment increased by 9.0 percent to 270.1 million euros in 2017 (prior year: 247.7 million euros). Both solutions for the automotive industry and traffic safety technology systems saw increased demand. As the revenue contribution made by the acquisitions – ESSA and Five Lakes Automation – was together only in the mid-single-digit million euro range, the increase was essentially generated organically. At around 72 percent, the segment again generated most of its revenue abroad in 2017 (prior year: approximately 74 percent). Revenue increased in the US, in Asia/Pacific, and in Germany.

T40

The **segment EBIT**, at 18.5 million euros, was below the prior-year level (prior year: 24.4 million euros), mainly due to one-off impacts arising on a project in the traffic safety area and the PPA impacts from the two above-mentioned acquisitions which totaled approx. 9.4 million euros. The EBIT margin was therefore 6.9 percent, considerably weaker than in the prior year (prior year: 9.9 percent). EBITDA fell by 13.7 percent to 27.9 million euros (prior year: 32.3 million euros).

The **order intake** in the segment increased by 13.6 percent to 303.7 million euros in 2017 (prior year: 267.4 million euros). This growth was generated in the traffic solutions business; on the basis of production and delivery releases, frame contracts were also transferred to order intake here. In the past fiscal year, the segment, among other things, received orders to supply 3D laser machines to leading German automotive manufacturers and supplier companies. These highly efficient, robot-based 3D laser processing machines are used, for example, for contour trimming of structural components, especially for next-generation electric cars. 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 1.12 (prior year: 1.08).

### T40 Mobility Segment at a Glance (in million euros)


	2017	2016	Change in %
Revenue	270.1	247.7	9.0
EBITDA	27.9	32.3	-13.7
EBITDA margin in %	10.3	13.0	
EBIT	18.5	24.4	-24.2
EBIT margin in %	6.9	9.9	
Capital expenditure	17.5	13.8	26.2
Free cash flow	10.1	14.5	-30.3
Order intake	303.7	267.4	13.6
Order backlog	144.7	108.3	33.7
Frame contracts	30.1	79.1	-61.9
Employees	1,326	1,229	7.9

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The **order backlog** increased by 33.7 percent, to 144.7 million euros at the end of the year (31/12/2016: 108.3 million euros). Due to the above-mentioned transfers to the order intake, the value of **frame contracts** fell sharply to 30.1 million euros (31/12/2016: 79.1 million euros).

The **free cash flow** (before interest and income taxes) in the segment fell to 10.1 million euros (prior year: 14.5 million euros), chiefly due to the investments made and the reduction in earnings. The segment's working capital rose to 68.9 million euros (prior year: 64.7 million euros), mostly due to inventory increases made in preparation for revenues in the new fiscal year.

As a result of the acquisitions, the Mobility segment had 1,326 **employees** as of December 31, 2017, an increase on the prior year (31/12/2016: 1,229 employees). As of the reporting date, 22 people were in trainee positions (31/12/2016: 25 trainees).

The segment's **R+D output** increased to 30.0 million euros (prior year: 24.5 million euros). This included developments on behalf of customers in the amount of 13.5 million euros (prior year: 4.2 million euros). The increase was particularly the result of a project in the traffic solutions business. The segment's R+D expenses came to 16.4 million euros (prior year: 20.3 million euros). In 2017, the share of R+D output in total revenue in the Mobility segment was 11.1 percent (prior year: 9.9 percent). 

The segment's **capital expenditure** in property, plant, and equipment and intangible assets increased to a total of 17.5 million euros (prior year: 13.8 million euros). The 26.2-percent increase came about both due to internally manufactured equipment operated by Jenoptik as part of a Canadian traffic safety project and the company's investment in a new technology campus at

the US site in Rochester Hills, Michigan. Completion of and move-in to the new company building went ahead as scheduled in the second quarter of 2017. Capital expenditure was offset by depreciation/amortization and impairment losses in the sum of 9.3 million euros (prior year: 7.9 million euros).

In January 2017, Jenoptik boosted its public safety business through the acquisition ESSA Technology. The company, based in the English town of Saltash, is a specialist in software for traffic monitoring and the associated back-office services, in particular for automatic number plate recognition operated by 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.

In August of this year, Jenoptik completed its acquisition of the US company Five Lakes Automation, securing key expertise in process automation for metal and plastics processing. Jenoptik thus no longer only supplies individual machines for laser processing but, drawing on the expertise of Five Lakes Automation, will in the future be able to offer automated production lines from a single source. The aim is to merge the activities in the field of automated production processes in the automotive industry with Jenoptik's laser machines business. This combination will allow Jenoptik to exploit new potential for growth in the US market.

**Production and organization.** Within the automotive business, 2017 saw the restructuring of the service organization and its establishment as an independent business unit. Production of optical shaft metrology in China also got underway. In order to better support the global traffic solutions business, the regional structures and thus also responsibilities were further enhanced.



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

## Defense & Civil Systems Segment

In 2017, the Defense & Civil Systems segment 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 boost technology and knowledge transfer to civil fields.

At 219.3 million euros, **revenue** was almost unchanged on the prior year (prior year: 218.3 million euros), although 2016 had seen particularly strong revenues as major orders were fulfilled. At around 57 percent, the share of revenue generated abroad rose sharply (prior year: 47 percent), but was still lower than in the other two segments. The segment achieved significant growth in the Americas, in particular due to the orders for the Patriot missile defense system. In Germany, by contrast, revenue of 93.8 million euros was down on the prior year as a consequence of the projects handled (prior year: 116.5 million euros). Nevertheless, the majority of products are still sold to German buyers, whose end customers, however, are largely active on

the international sales market. Further growth is mainly due to be generated by expanding the direct foreign share. **T41**

The **segment EBIT**, at 19.2 million euros, was also at the same level as in the prior year (prior year: 19.1 million euros). Despite increased expenditure for research and development, the margin was thus maintained. Accordingly, the segment EBIT margin also remained virtually unchanged, at 8.7 percent (prior year: 8.8 percent). As in the prior year, EBITDA came to 23.8 million euros.

In the cumulative reporting period, the Defense & Civil System segment reported a number of major international projects that were recognized in the order intake or in the frame contracts. As one example, Jenoptik received a follow-up order as part of the Polish program to upgrade Leopard 2 tanks. This in part includes the delivery of auxiliary power units worth around 11 million euros. In the reporting year, Rheinmetall placed an order for NYXUS BIRD thermal imagers worth around 5 million euros. Jenoptik will also be involved in modernizing the Leopard 2 tank for the German armed forces, with segment supplying digital electrical turret/weapon stabilization systems worth a total of over 12 million euros.

### T41 Defense & Civil Systems Segment at a Glance (in million euros)

	2017	2016	Change in %
Revenue	219.3	218.3	0.5
EBITDA	23.8	23.8	0.4
EBITDA margin in %	10.9	10.9	
EBIT	19.2	19.1	0.3
EBIT margin in %	8.7	8.8	
Capital expenditure	4.5	4.1	8.7
Free cash flow	22.3	33.5	-33.6
Order intake	206.2	231.6	-11.0
Order backlog	202.6	217.8	-7.0
Frame contracts	46.3	67.4	-31.3
Employees	897	881	1.8

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In 2017, the segment's **order intake**, worth 206.2 million euros, was, however, still 11.0 percent lower than the high level achieved due to several major projects in the prior year (prior year: 231.6 million euros). The **book-to-bill ratio** in the segment consequently saw a sharp fall, as expected, to 0.94 (prior year: 1.06).

As of December 31, 2017, the **order backlog** was worth 202.6 million euros (31/12/2016: 217.8 million euros). The segment also has **frame contracts** with a value of 46.3 million euros (31/12/2016: 67.4 million euros).

With a total of 897 **employees**, the number of people employed in the Defense & Civil Systems segment at the end of December saw a slight increase (31/12/2016: 881 employees). At the end of December, the segment had a total of 59 people in trainee positions (31/12/2016: 60 trainees).

The segment's **R+D output** grew to 14.9 million euros in 2017 (prior year: 10.6 million euros). Higher expenditure was particularly due to projects to develop new products in the aviation and the energy & drive businesses. Developments directly on behalf of customers fell to 1.8 million euros (prior year: 3.3 million euros). These are primarily joint development projects with systems companies. At 12.6 million euros, the segment's R+D expenses were significantly up on the prior year (prior year: 7.4 million euros). 

The segment invested 4.5 million euros in property, plant, and equipment and intangible assets (prior year: 4.1 million euros). As a result, the **level of capital expenditure** was 8.7 percent higher than in the prior year. One key project involved the modernization of machinery at the Wedel location. Capital expenditure was offset by depreciation/amortization and impairment losses amounting to 4.7 million euros (prior year: 4.7 million euros).

The **free cash flow** (before interest and income taxes) fell from 33.5 million euros in the prior year to 22.3 million euros in the 2017 fiscal year. This was mainly due to a revenue-linked increase in working capital resulting from higher trade accounts receivable at the end of the year. As of December 31, the working capital amounted to 96.2 million euros, up on the prior year's 93.5 million euros.

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

Depending on different target markets and international reach, the Jenoptik Group's three operating segments generally developed well in 2017. The Optics & Life Science segment achieved new records in key indicators. The Mobility segment also managed to increase revenues, while the Defense & Civil Systems segment saw stable development. In all three segments, the majority of revenue was generated abroad.

Strong demand from individual markets as well as one-off expenditure in the traffic safety business influenced the operating businesses' EBIT over the course of the year. In the past fiscal year, the EBIT margin in the Optics & Life Science segment was once again well above the Group margin target corridor. In the Mobility segment, the EBIT margin was negatively affected by the above-mentioned one-off effects. The Defense & Civil Systems segment reported stable earnings performance.

Due to very good earnings, the Optics & Life Science segment was the only one to report an increase in free cash flow. Higher capital expenditure and the build-up of working capital negatively impacted on cash generation in the two other segments. Over the course of the past fiscal year, Jenoptik again invested in expanding international sales structures, in efficient processes, and the development of profitable cutting-edge products.

In 2017, we also managed to expand our position in international growth markets, establish a broader range of systems, and secure both major international projects and new customers. This is corroborated by the higher order intake in the Optics & Life Science and Mobility segments. The Defense & Civil Systems segment's business is geared toward the long term and characterized by major projects; this is also reflected in the fluctuations in order intake.



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

# 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. The operating activities of JENOPTIK AG primarily cover the subleasing of commercial premises and the provision of services for subsidiary companies.

The Annual Financial Statements of JENOPTIK AG are prepared in accordance with German commercial law (HGB). The Consolidated Financial Statements are prepared in accordance with 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

Due to lower rechargeable services, revenue was down 3.8 million euros on the prior year, at 23.6 million euros. This is also reflected in the cost of sales, which fell to 20.4 million euros (prior year: 22.0 million euros).

Administrative expenses fell slightly, by 1.0 million euros, on the prior year, which had seen higher costs due to the forthcoming change on the Executive Board in 2017. Increased personnel costs and additional expenses in connection with strategic and business-related special projects caused a rise in administrative expenses over the past fiscal year.

JENOPTIK AG posted research and development expenses amounting to 0.2 million euros (prior year: 0.3 million euros), primarily covering expenditure for innovation management and the coordination of R+D work in the Jenoptik Group.

Selling expenses of 0.5 million euros (prior year: 0.9 million euros) covered costs for communications, marketing, advertising and sponsorship.

The other operating result included other operating income of 6.0 million euros, which was offset by 7.2 million euros of other operating expenses.

Other operating income in the sum of 6.0 million euros (prior year: 11.4 million euros) primarily included intra-group cost allocations worth 2.4 million euros (prior year: 3.0 million euros), currency gains of 1.6 million euros (prior year: 2.9 million euros), and income arising from the reversal of provisions in the sum of 1.0 million euros (prior year: 3.5 million euros). Therefore, the reduction in other operating income was mainly attributable to the reversal of provisions, that were 2.5 million euros lower, and foreign currency exchange gains that were 1.2 million euros lower. In addition, a write up of the shares in FIRMICUS Verwaltungsgesellschaft mbH + Co. Vermietungs KG, Jena, of 1.0 million euros, was recorded in the prior year.

### T42 Abbreviated Income Statement of JENOPTIK AG (in thousand euros)

	1/1 to 31/12/2017	1/1 to 31/12/2016
Revenue	23,646	27,407
Cost of sales	20,387	22,014
Gross profit	3,259	5,393
Selling expenses	516	861
General administrative expenses	14,456	15,409
Research and development expenses	172	304
Other operating result	-1,239	4,034
Income and expenses from profit and loss transfer agreements and income from investments	92,710	53,505
Financial result	-1,508	-2,287
Income taxes	7,674	4,682
Earnings after tax	70,404	39,388
Other taxes	0	1
Net profit	70,404	39,388
Retained profits from prior year	59,498	34,420
Accumulated profit	129,902	73,808



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Other operating expenses of 7.2 million euros (prior year: 7.4 million euros) chiefly included foreign currency exchange losses worth 4.1 million euros (prior year: 2.7 million euros), expenses for intra-group cost allocations of 2.3 million euros (prior year: 3.0 million euros), and 0.8 million euros for additions to provisions. The prior year also included a one-off impact arising from unscheduled amortization on intangible assets in the amount of 1.5 million euros.

The financial result of minus 1.5 million euros (prior year: minus 2.3 million euros), consisting of earnings from securities and loans, depreciation on loans, and the interest result, improved by 0.8 million euros on the prior year. The prior year's financial result was dominated by high depreciation on financial assets of 2.9 million euros and compensatory one-off interest income of 1.5 million euros, which resulted from a final agreement on matters relating to the purchase price for the sale of M+W Zander Holding AG in the 2005 fiscal year.

The increase of 3.0 million euros in income taxes, to 7.7 million euros (prior year: 4.7 million euros) was primarily due to a rise in income at the subsidiaries. The comparatively low overall income taxes are attributable to the use of tax losses carried forward.

JENOPTIK AG's net profit increased by 31.0 million euros, or 78.7 percent, to 70.4 million euros (prior year: 39.4 million euros). The company's earnings position was mainly influenced by the subsidiaries' earnings, which are paid to JENOPTIK AG on the basis of existing control and profit and loss transfer agreements, and by the dividend payments at the foreign subsidiaries. The net earnings contribution of the subsidiaries increased on the prior year, by 30.2 million euros to 85.6 million euros. Dividends worth a total of 7.1 million euros were also paid out.

### Asset and Financial Position

At 718.8 million euros, JENOPTIK AG's total assets were 9.2 percent up on the figure for the prior year (prior year: 658.2 million euros)

The assets side of the statement of financial position reflects JENOPTIK AG's status as a holding company. Alongside a capitalization ratio of 61.1 percent, of which 51.7 percent was attributable to financial assets and 9.4 percent to property,

plant, and equipment, total assets are also dominated by a high level of cash and cash equivalents (26.1 percent) and receivables from unconsolidated associates (12.4 percent).

Receivables from unconsolidated associates worth 89.3 million euros (prior year: 77.3 million euros) were primarily due to the issue or settlement of liquidity to and with group companies, and chiefly affected the settlement accounts for cash pool holdings.

The increase in cash and cash equivalents of 55.1 million euros, to 187.4 million euros, was also the result of reduced settlement accounts and the subsidiaries' positive contributions to earnings.

## T43 JENOPTIK AG Statement of Financial Position (in thousand euros)

	31/12/2017	31/12/2016
<b>Assets</b>		
<b>Non-current assets</b>	<b>439,349</b>	<b>443,991</b>
Inventories, trade receivables, securities, and other assets	89,597	78,557
Cash and cash equivalents	187,356	132,257
<b>Current assets</b>	<b>276,953</b>	<b>210,814</b>
Expenses and deferred charges	2,490	3,432
	<b>718,792</b>	<b>658,237</b>
<b>Liabilities</b>		
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	129,902	73,808
<b>Equity</b>	<b>533,887</b>	<b>477,793</b>
Pension provisions	2,935	2,921
Other provisions	16,966	18,042
<b>Provisions</b>	<b>19,901</b>	<b>20,963</b>
Liabilities to banks	114,000	114,002
Trade accounts payable	2,164	1,125
Other liabilities	48,841	43,228
<b>Liabilities</b>	<b>165,005</b>	<b>159,481</b>
	<b>718,792</b>	<b>658,237</b>

Expenses and deferred charges were predominantly due to deferred costs in connection with the expansion and extension of financial liabilities, which are 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 was of particular note. Equity came to 533.9 million euros, liabilities to banks 114.0 million euros (15.9 percent of the total assets and liabilities).

Thanks to the positive annual result in the sum of 70.4 million euros, equity improved by 31.0 million euros. This was countered by the payment of dividends worth a total of 14.3 million euros for the 2016 fiscal year. The equity ratio rose from 72.6 percent to 74.3 percent.

Tax provisions within the companies consolidated for tax purpose increased by 5.4 million euros; personnel provisions fell 6.1 million euros due to the payment of bonuses and management bonuses in connection with the change on the Executive Board. Other provisions remained at the same level as in the prior year.

Other liabilities included 46.0 million euros of cash pool holdings and 1.7 million euros of tax liabilities.

Over the reporting year, JENOPTIK AG's debt-to-equity ratio improved due to the increase in equity, from 37.8 percent to 34.6 percent.

As of December 31, 2017, JENOPTIK AG had 121 employees, of which 7 were temporary workers (prior year: 121 employees, of which 12 temporary workers).

## 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 participated in the risks of investments holdings and subsidiaries in line with its equity interests. The risks and opportunities of the Group and the segments are set out in the Risk and Opportunity Report from page 113 on.

## Forecast Report

The annual result of JENOPTIK AG is largely dependent on the development of contributions to earnings at the subsidiaries. Based on the development of business set out in the Group Forecast Report, JENOPTIK AG is expecting a declining result in fiscal year 2018 taking into account the positive effects in the investment result in 2017.

Both, rental income and income from holding company cost allocations are anticipated to see a slight decline on the basis of billable costs in fiscal year 2018.

For detailed information on the expected future development of the Jenoptik Group and its segments, we refer to the Forecast Report from page 121 on.

A target of the new strategy is also to merge certain central functions of the holding company with those of the Shared Service Center (SSC). The number of legally independent companies in the Group is to be reduced, decision-making processes and responsibilities further decentralized and increasingly relocated back into the operating areas. With a simplified structure, we will be better positioned to clearly prioritize initiatives aimed at ongoing growth that ultimately guide us to success.

## Events after the Balance Sheet Date

The JENOPTIK AG Executive Board approved the forwarding of the present Consolidated Financial Statements to the Supervisory Board on March 8, 2018. The Supervisory Board is responsible for reviewing and approving the Consolidated Financial Statements at its March 21, 2018 meeting.

**Dividends.** According to the Stock Corporation Act, the amount available for a dividend payment to the shareholders is based on the accumulated profit of the parent company JENOPTIK AG, as determined by the regulations of the HGB. For the 2017 fiscal year, the accumulated profit of JENOPTIK AG totaled 129,901,622.70 euros, comprising net profit for the 2017 fiscal year in the amount of 70,403,527.32 euros plus retained profits of 59,498,095.38 euros.

On the basis of the good annual result, the Executive Board recommends that the Supervisory Board proposes to the 2018 Annual General Meeting a 20 percent higher dividend of 0.30 euros per qualifying no-par value share (prior year: 0.25 euros). This means that an amount of 17,171,434.50 euros will be distributed. From the remaining accumulated profit of JENOPTIK AG for fiscal year 2017, an amount of 72,730,188.20 euros is to be allocated to revenue reserves, and an amount of 40,000,000.00 euros to be carried forward.

No further events of significance occurred after December 31, 2017.

# Risk and Opportunity Report

## Principles of Risk and Opportunity Management at Jenoptik

For Jenoptik, the responsible evaluation of risks and opportunities within the corporate environment is one of the principles of responsible corporate governance. To be able to ensure implementation of our strategy, it is necessary to identify risks and opportunities at an early stage, to evaluate them appropriately, and control them efficiently. This is done by promoting an open risk culture and regularly examining the established risk management system. Jenoptik works to continuously refine its risk and opportunity management. Reporting processes employ centrally available software.

**Risks** are defined as potential developments and events that may result in a negative divergence from company objectives and forecasts and involve uncertainty regarding the occurrence of an event. Operating risks are potential future developments or events that, with regard to business operations, may result in a negative divergence from operating targets in the company. Correspondingly, **opportunities** are events that may result in a positive divergence from our expected targets.

Jenoptik's risks and opportunities are assessed with the help of the probability of occurrence and extent of damage factors using a key metric. On the basis of a standardized rating scale from 1 to 5, this produces a risk indicator of 1 to 25 for each event. The risks and opportunities described here are the result of aggregating locally identified risks and opportunities that were each allocated to defined categories. **G19**

### Organizational Integration of the Risk and Opportunity Management

Overall responsibility for the risk and opportunity management system in the Jenoptik Group lies with the Executive Board. The group-wide approach is set out in a risk manual.

The corporate Compliance & Management department organizes and manages the system, working closely with the corporate departments and the risk officers in the divisions, who in turn are responsible for implementing the risk and opportunity management system in the risk reporting units. The risk reporting units are defined reporting units that are employed to accurately identify and allocate risks and can represent both business units and individual subsidiaries.


## G19 Risk Assessment

Metrics	Probability of occurrence	Consequences resp. extent of damage		
		Qualitative		Quantitative EBIT deviation
5 = High	up to 50%	The goal of the Group or the risk reporting unit is jeopardized	or	> 20%
4 = Medium-high	up to 40%	The goal of the Group or the risk reporting unit has to be adapted immediately	or	> 15 to 20%
3 = Medium	up to 30%	The goal of the Group or the risk reporting unit 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 risk reporting unit	or	> 5 to 10%
1 = Very low	up to 10%	Minor consequences	or	> 0 to 5%

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Internal Audit monitors the effectiveness of the risk management system, 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 Committee, all aggregated reporting results are consolidated to form a top-level evaluation of the Group’s risk position. The Risk Committee is made up of the members of the Executive Board and the heads of corporate Compliance & Risk Management, Legal, and Internal Audit. **G20**

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

### Structure and Processes of the Risk and Opportunity Management System

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

The definition and ongoing development of the system takes place with the close cooperation of corporate Compliance & Risk Management and the Audit Committee of the Supervisory Board. Its responsibility and approval lies with the Executive Board. Corporate Compliance & Risk Management communicates the requirements of the risk management system, advises on their efficient implementation, and monitors the measures and results of the risk management processes.

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 evaluation 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. While operational and



For further information see Notes from page 136 on

## G20 Process of Risk Reporting

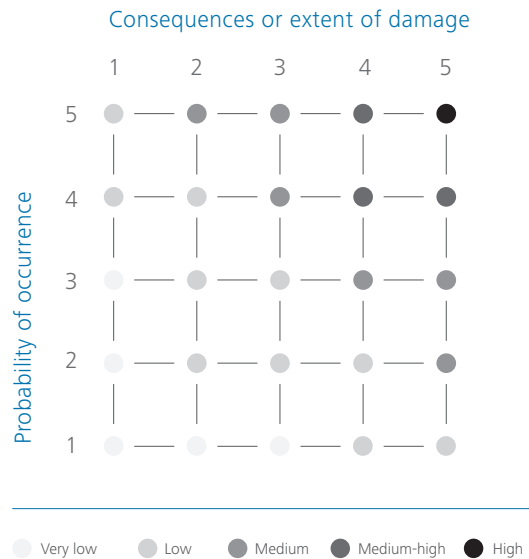
✓	Risk Officers in the Divisions and Central Departments	Assessment of single risks
	Central Functions	Review of aggregated risks
✓	Corporate Compliance & Risk Management Department	Review and analysis of group risks
	Risk Committee	Analysis of group risks
✓	Executive Board	Final assessment of group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

financial targets are analyzed over a time frame of up to two years, strategic topics are considered for periods of up to four years.

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 consequences or extent of damage or the qualitative extent of damage. The opportunities are evaluated in the same way. **G21**

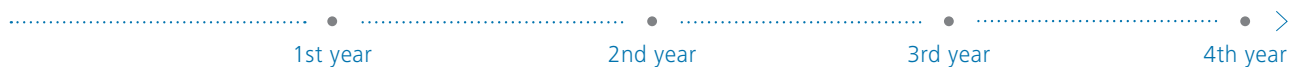
There is a scale of 1 to 5 for both assessment factors mentioned (probability of occurrence and consequences or extent of damage), with 1 being the smallest and 25 the greatest possible risk indicator. **G22**

## G22 Calculation of Risk Scores



## G21 Risk and Opportunity Categories

Operational Risks/Opportunities	Strategic Risks/Opportunities
Supply Chain Management/Safety and Environmental Protection/ Production (incl. quality management)/ Marketing & Sales/Patents & IP rights/ Human Resources Management/IT/Compliance/ Legal Affairs/Real Estate	Market Development/Product Development (incl. R+D)/ Corporate Development (Portfolio and Structure)/ Organizational Setup (Processes and Resources)
Financial Management Risks/Opportunities	
Accounting/Finance Management (Treasury)/ Controlling/Taxes	



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Every six months, the results of the risk assessments are requested by the corporate Compliance & Risk Management department via the Chief Compliance & Risk Officer at the risk reporting units and aggregated to the Group Risk Report. The findings of the risk reporting units are then validated by the departments of the Corporate Center and Shared Service Center before being discussed on the Risk Committee and subjected to a general assessment by the Executive Board, potentially also involving the adoption of further actions. Once the Executive Board has approved the Group Risk Report, it is presented and discussed on 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 Compliance & Risk Officer and the Executive Board. Following joint analysis with the responsible 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 as part of a range of assessments 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, the EMB, and at strategy meetings. 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. Especially the "Transactions with particular characteristics" guideline is used for risk prevention. If a contract 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 (e.g. a high order value, special financing conditions, regulations on knowledge transfer or strategic

aspects), a special approval process is started. This involves the relevant central group departments and the Chief Compliance & Risk 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 antitrust law, as well as data protection issues or insider trading. 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 high-risk 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 ensuring clear divisions of responsibility and function, in adherence to the four-eye principle. In particular, its intention is to ensure the security and efficiency of operations as well as the reliability of financial reporting, and it is regularly reviewed by Internal Audit. 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 evaluation of the completed questionnaires is carried out by corporate Compliance & Risk

Management, Accounting, Controlling, and Internal Audit. Reported deficits are analyzed and appropriate countermeasures are defined to ensure they are lastingly eliminated.

**Internal Audit** 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 to the Chief Financial Officer. Internal Auditing carried out independent audits. 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 Audit 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 2017, three Jenaudits, one follow-up audit and three ad hoc audits were conducted. Five units received support for implementation of the measures identified in the course of auditing.

Jenoptik has a centralized financial management system. The central Treasury department coordinates the financing needs of the Group, ensures liquidity, and monitors the currency, interest, and liquidity risks on the basis of a group-wide guideline and relevant process descriptions. These regulations 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.

### Key Features of the Internal Control and Risk Management System with regard to the Consolidated Accounting Process (§ 289 (4) and § 315 (4) 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 LucaNet consolidation tool. The transferred data from the statements and financial statements of consolidated companies is verified by manual and 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 group accounting process that complies with both the IFRS and statutory requirements. The group auditor audits JENOPTIK AG’s Consolidated Financial Statements in accordance with the IFRS regulations as adopted by the EU.

The [Corporate Governance Report](#) can be found in the Annual Report on pages 36 ff. The [Corporate Governance Statement](#) in accordance with §§ 289 f, 315 d of the German Commercial Code can be viewed on our website at [www.jenoptik.com](http://www.jenoptik.com) by going to Investors/Corporate Governance. In accordance with § 317 (2) sent. 6 of the German Commercial Code, the information required under §§ 289 f, 315 d is not considered by the auditor.



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## The Group's Risk and Opportunity Profile

Based on the year 2017, the Group's risk profile for the subsequent years was determined with the aid of the various risk and opportunity assessments from the segments. 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. Our risk and opportunity management enables a direct comparison of the individual risk subcategories and the associated risk symptoms. T44

Overall, the risks to which the Group is exposed are still at the lower end of the medium risk range.

Once again, *strategic risks and opportunities* for the Group were assessed as the most important, compared to operational and financial management risks, in 2017. Jenoptik operates on very different, in part very volatile markets, such as the semiconductor equipment and automotive markets, so that their development can represent both a continuous risk and opportunity.

The at times uncertain general direction of economic development in Jenoptik's growth markets, e.g. China, the potential negative effects that still exist with regard to Great Britain's withdrawal from the European Union, the difficulty in assessing the trade and foreign policy positions of the current US administration, and political conflicts caused by existing and emerging trade barriers all present potential risks to the Group's current

### T44 Risk Profile of the Jenoptik Group 2017

	Group risk assessment	
	Current year	Prior year
<b>Strategic risks</b>		
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
<b>Operational risks</b>		
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	Medium	Medium
Compliance	Medium	Low
Legal affairs	Low	Low
Real estate	Low	Low
<b>Financial management risks</b>		
Accounting	Low	Low
Finance management	Low	Low
Controlling	Medium	Medium
Taxes	Low	Low
<b>Total risk</b>	Medium	Medium

and future business. Continuing high levels of public debt in parts of Europe and associated budgetary consolidation are inhibiting investment by both public sector clients and consumers.

Jenoptik is exposed to intense competition in all three segments. Due to their size and concomitant good 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 potentially improved cost structures at competitor companies, and the related higher pricing pressure may have negative effects on group earnings. Jenoptik counters these risks by subjecting its portfolio of products to ongoing analysis to determine which products to serve which markets with. We also review whether targeted investments in the form of corporate acquisitions can usefully complement our portfolio and generate lasting profitable growth. The ongoing pace of technological change presents opportunities not only for our product portfolio, but also for our competitors. Throughout the Group, there is a risk of losing market share due to delays in our product development.

**Operational risks and opportunities** were assessed with low to medium risk indicators for the whole Group. The increasing number of complex international projects, particularly those of a technically challenging nature, place very high 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 individual single-source suppliers increases the risk of dependency. The continuing expansion of our purchasing structures 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 these systems have top priority. Data is stored on redundant storage media and secured against data loss by means of a partially multi-stage 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 other virus attacks in which corporate information is obtained by third parties by means of deception. Despite compliance with a range of technical requirements, established processes and training provided to relevant employees, there remains a risk of data loss or restricted use of the IT infrastructure, which in turn could negatively impact on our business position. Jenoptik plans to counter this group-wide risk by taking out cyber risk insurance.

Our employees make the most important contribution to the company's success. As an international technology 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.

In view of Jenoptik's international business operations, one group-wide operational risk is non-compliance with legal, ethical and contractual requirements. In part due to stricter compliance requirements throughout the Group, the risk was assessed higher than in the prior year and is now in the medium risk range. As a company with customers and business partners in numerous countries, clients in the public sector and involvement in the US defense market, Jenoptik must grapple with many, partly evolving, compliance requirements in a wide range of different markets. Although the necessary organizational measures to minimize potential compliance violations have been implemented with a group-wide export control organization, the corporate Compliance and Risk Management department, and corresponding processes, such violations cannot be entirely ruled out. Strict adherence to the compliance program and the continuous development of the compliance management system aim to close up any process gaps and ensure that processes comply with laws and regulations.

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Once again, [financial management risks](#) were assessed as low throughout the Group in 2017. The issues cited below also include the segment-specific risks. One key task of Jenoptik's Finance department is the long-term coordination of financing requirements within the Group. Jenoptik has good internal financing and access to alternative, external financing options. Financial covenants that are regularly monitored and reported on have been agreed for the existing JENOPTIK AG debenture loans and the syndicated loan. 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 a 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 interest rate swap, existing as of the balance sheet date, was concluded in connection with variable-interest debenture loans that have since been repaid, the 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.

With regard to the use of financial instruments, we refer to the Note 8.2 from page 177 on. In the Controlling and Accounting departments, opportunities predominantly arise from the continuing expansion and optimization of the standardized SAP system. Thanks to the ongoing establishment and development of modern, targeted Controlling instruments, we counter the risk of possibly missing to 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. Financial management risks are aggregated and shown in the Group risk and opportunity profile. [T45](#)

### 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 effect on the segment's results. Moreover, the dependence on just a few major customers also poses a general risk that negative business developments of the customers may have a tangible effect on revenue and earnings in the entire segment. On the other hand, the loyalty of such customers enables profitable revenue growth due to economies of scale. Although there is always an inherent threat posed by the growing number of mainly Asian competitors and the trend among suppliers and customers toward forward and/or backward integration, it may still 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 more 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 orientation mean that we are able to better 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 in the market environment makes clear and reliable forecasts more difficult, especially in innovative areas of application.

Customers' specific requirements result in particular [operational risks and opportunities](#) 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 have 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 on existing machines in the area of manufacturing, which must be met through targeted expansion or replacement investment. 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

Both, market and political developments influence the [strategic risks and opportunities](#) in the Mobility segment. Within the metrology business, achieving revenue targets is strongly dependent on the automotive market. As our business develops, we regularly evaluate market and economic analyses and assess changes to legal regulations (e.g. with regard to fuel consumption and emissions standards) together with their impacts on the automotive industry. Tighter government regulation would mean planning uncertainties for the industry, which may also represent an increased overall risk for Jenoptik.

## T45 Risk Profiles of the Segments 2017

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

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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 model in our automotive business. On the other hand, there is the opportunity to generate further orders, as the trend to cut carbon emissions may increase investment in low-emission engines.

Presently uncertain economic and political developments on the Asian and North African markets represent a risk to our traffic safety business. 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. By contrast, increasing political stability in certain sales markets and the economic prosperity of the countries opens up opportunities to better serve the evolving demand for traffic safety technology. At the same time, increased demand for safety technology, in particular among public sector clients, increases the segment's opportunities. Continuous optimization of the product portfolio as part of the corporate development may produce strategic advantages over the competition. The risks set out here may bring about changes to the organizational and process structures in the various businesses.

In terms of **operational risks and opportunities**, the increasing internationalization of projects and parts of the value chain is reflected in increased demands on supply chain management, manufacturing, marketing, sales, and HR management. The systematic expansion of efficient service and sales structures is of crucial importance to achieving growth targets, particularly abroad.

Upgrades of the implemented ERP system have been made to improve it in the long run. These, however, currently still may result in delays in fully realizing 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.

## Defense & Civil Systems

**Strategic risks and opportunities.** The defense market is strongly influenced by political decision-making, in particular by governments' budgetary positions, and by the restrictive export license policy of the German government. Due to various global political conflicts and tensions, however, defense spending in individual countries is increasing. Looking ahead, the market environment is likely to be stimulated by the demand that NATO members spend two percent of gross domestic product on defense and military and the consideration by the European Union's member states to establish a common armaments policy. The planned increase in the defense budget and the associated growth in investment by the German government may result in higher order intakes for the segment.

In terms of corporate development, the potential risk of a dependency on political decisions and government budgets is in part countered by the targeted expansion of the civil 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 greatest 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, supplier performance is an important success factor. **Operational risks and opportunities** 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 arise in the field of civil applications due to the high performance requirements for the manufactured systems and, in part, low quantities, which may result in delays in time to market or premature handover to the customer. This, in turn, may give rise to quality issues.

## 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's exposure to risk is largely unchanged on the prior year, and currently remains at the lower end of the medium risk range.

The strategic risks that were assessed as "medium" are offset by adequate opportunities or were 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 risks, 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 increased digitization, the associated increased requirements in the field of IT, the further ongoing process of internationalization, and the increased risk of external attacks, the IT risk is still assessed as "medium".

In view of the Group's diversification and constantly growing legislative – and, in particular, customer – requirements around the world, the compliance risk assessment has now been raised from "low" to "medium". As set out above, the Group counters this higher risk by means of appropriate preventive action within the organization and processes, and by working to continually evolve its compliance management system.

Overall, the financial management risks for the Group have not changed in any significant way from the prior year.

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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## Forecast Report

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

In its most recent “World Economic Outlook” of January 2018, the International Monetary Fund (IMF) expects the [global economy](#) to keep growing, by a robust 3.9 percent in each of the next two years. It believes that the lively demand seen in the recent past will in particular be bolstered by capital expenditure thanks to favorable global financing conditions. This, according to the IMF, will have a noticeable effect on growth in export-oriented countries. Tax reforms in the US are also likely to have a stimulating effect that could boost demand in neighboring countries. The IMF sees risks in protectionist trends and trade barriers, e.g. in connection with Brexit, and in ongoing geopolitical tensions, primarily in East Asia and the Middle East.

T46

According to the analysts at Markets and Markets, the global [photonics](#) market will grow to a value of 795 billion US dollars by 2022, chiefly driven by strong demand from applications such as displays, information and communication technology, medical technology and life sciences, measurement, lighting, and production technology. On a regional scale, Asia/Pacific will see the highest average rate of growth. 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.

#### T46 Gross Domestic Product Forecast (in percent)

	2019*	2018
World	3.9	3.9
US	2.7	2.5
Euro zone	2.2	2.0
Germany	2.3	2.0
China	6.6	6.4
India	7.4	7.8
Emerging countries	4.9	5.0

Source: International Monetary Fund, World Economic Outlook, January 2018  
\* Forecast

The field of silicon photonics is becoming increasingly important to data transfer and the necessary optics design. It uses silicon as an optical medium. French market research company Yolé Développement is anticipating considerable expansion in this field: it believes the global market for optical components enabling rapid and high-volume transfer will be worth 4 billion US dollars by 2025, not least due to steadily increasing data traffic on the internet resulting from social media, video, and game applications.

Photonic technologies are a key element of many diagnostic and treatment methods in [medical technology](#), e.g. in-vitro diagnostics, endoscopy and in so-called point-of-care solutions. The Spectaris trade association is expecting revenue growth of 5 percent to approximately 32 billion euros for German manufacturers of medical technology in 2018. Digitization will have the strongest impact on the development of the industry, e.g. in medical care and production processes. According to Spectaris, the business model of the manufacturers is also undergoing changes: from the classical supplier of equipment in the past decade to a solution provider in the current decade through to a provider of digital and integrated healthcare solutions in the next decade. The Evaluate-MedTech market research company, who is quoted by Spectaris, is expecting the global market for medical technology to grow by an average of about 5 percent per year to approximately 530 billion US dollars by 2022.

According to industry experts, the robust momentum seen in the global [semiconductor market](#) in the prior year is set to continue in 2018, albeit at a slightly weaker pace. As stated in a press release, IT market research company Gartner is forecasting revenue growth of 7.5 percent in 2018, to 451 billion US dollars; following a double-digit increase in 2017, the industry will return to a single-digit growth rate and is then expected to see a marginal fall in revenue in 2019. The SIA association’s forecast, published in a press release, also projects only moderate revenue growth for 2018.

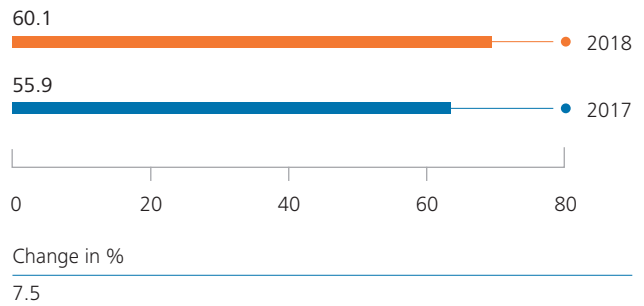
In the [semiconductor equipment industry](#), the SEMI industry association sees global revenues growing 7.5 percent to a new record of 60.1 billion US dollars in 2018, according to its most recent forecast issued in a December 2017 press release. South Korea, China, and Taiwan will remain the biggest markets. G24

The VDMA is warning of new trade barriers and protectionist policies: Germany's export-oriented **machinery and plant engineering industry** will face additional export and import costs running into the nine figures following Great Britain's withdrawal from the EU, according to the association's calculations. German **machine tool manufacturers** are expecting production to grow again in 2018, by 5 percent to reach a value of over 16 billion euros for the first time, according to the industry association VDW. It sees the move toward electromobility as a challenge to the industry, but a downturn in demand for traditional machining methods could be more than compensated for by a global increase in new car registrations and investment in the change to hybrid drive systems or all-electric vehicles.

The International Federation of Robotics (IFR) is forecasting growing robot sales to meet rising levels of **automation** in the automotive industry. In the US alone, revenue generated with industrial robots is due to rise by an average of at least 15 percent annually in the years from 2017 through 2020. In its "World Robotics Report", the IFR estimates global demand for industrial robots to grow to over 3 million units by 2020. This compares with a figure of around 1.8 million units in 2016. In addition, both small and medium-sized manufacturers are increasingly turning to automation, creating demand for flexible and simple robotics solutions.

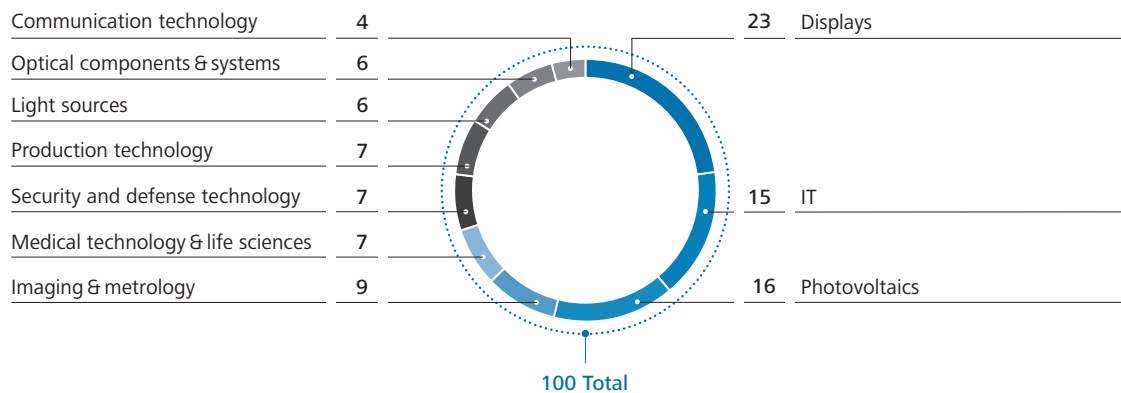
According to a study conducted by consulting firm McKinsey, the changes affecting the **automotive industry** will produce significant growth in revenue: by 2030, it sees a potential revenue increase from 3.4 trillion to 6.6 trillion euros, chiefly driven by new automotive mobility services, autonomous driving, and alternative drive systems. According to the forecast, the latter will account for around a quarter of total revenue by 2030, from a current level of less than 1 percent. For 2018, the German

### G24 Semiconductor Equipment: Global Revenue Forecast (in billion US dollars)



Source: Semiconductor Equipment and Materials International (SEMI)

### G23 Global Photonics Market in 2020: 615 billion euros (share in percent)



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



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Association of the Automotive Industry (VDA) is projecting weak growth in the global car market, to 86 million vehicles.

Within the field of [traffic and public safety](#), there is strong demand for automatic number plate recognition systems (ANPR). According to the market researchers at Research and Markets, the market will grow by an average 12 percent annually through 2025. This development will be driven by applications for safety and traffic management, including monitoring, and toll solutions. With a view to a European toll system, the EU Commission has fleshed out its plans for a toll based on actual distance traveled and no longer on the purchase of a vignette for a specific period. In Germany, section control is due to be launched on an initial stretch of road in Lower Saxony in the spring of 2018. The federal state has been preparing to introduce this speed monitoring technology to Germany in the last few years. Jenoptik technology has been deployed on the pilot project.


In the global [rail industry](#), established structures are being shaken by the planned merger of Siemens and French manufacturer Alstom that aims to counter the competition in the industry, primarily from China. As reported by market research company SCI Verkehr, the German rail industry will grow by an average 3.4 percent annually up to 2021 and thus more strongly than the global market. Digitization and the demands of more environmentally-friendly solutions are becoming increasingly important, according to the SCI market survey of September 2017.

In the [aviation](#) market, aircraft manufacturers Airbus and Boeing are hoping for a boost with the help of new models in the MOM segment ("Middle of the Markets") but, according to a study by Alix Partners at the Paris Air Show in June 2017, are coming under increasing pressure from smaller competitors in Canada, Brazil, China, Japan, and Russia. Both manufacturers raised their long-term forecasts for the aviation industry: as stated in a press release, Airbus anticipates that the airlines will buy a total of around 34,900 new passenger jets and cargo planes worth 5.3 trillion US dollars by 2036. Boeing forecasts a demand for 41,030 aircraft worth 6.1 trillion US dollars. A potential halt in production of the Airbus A380 aircraft was averted in January 2018: the Airbus Group received a major order allowing production to continue until at least 2025.


In the area of [security and defense technology](#), the EU nations laid the foundations for the "Pesco" defense pact in June 2017: at the heart of their plans is the future joint procurement of defense equipment and coordination of defense projects, supported by a European defense funds for research projects. Germany and France, in particular, are planning closer cooperation on defense policy. As such, the aim is for plans to be drawn up by mid-2018 for the joint development of a fighter that is intended to replace the Eurofighter and Rafale models in the future. The German armed forces plan to increase tank numbers to just under 330 by 2023 through purchase or modernization. In the US, military spending is due to increase by three to five percent in the years from 2019 through 2023.


## 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 fall of 2017 and the "Strategy 2022" published at the beginning of 2018. 

The starting point is formed by the new Jenoptik "Strategy 2022" and the plans from the segments and operational business units, which are harmonized and integrated in the group planning. Possible acquisitions and exchange rate fluctuations are not included in the planning process.

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, EBITDA margin, EBIT margin, 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 for informational purposes. 

In 2018 we will begin rolling out our new strategy, which is focused on photonic technologies. In the process, we are concentrating on three issues – focusing, innovation, and internationalization. Over the 2018 fiscal year, a new corporate structure is due to be established and will become the basis for reporting from January 1, 2019. 



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

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See the Control System chapter for more information on the key performance indicators



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

The Jenoptik Group anticipates a good development of business in the [Optics & Life Science segment](#) also in 2018. It intends to boost its leading position in the photonics market by expanding its technological expertise and offering a larger range of integrated system solutions with a higher share of added value. Jenoptik is securely established as a development and production partner for numerous international market leaders. For the semiconductor equipment market, observers are expecting strong demand to continue in the current year. Here, the segment can profit from its position as one of the leading suppliers of optical and micro-optical system solutions for semiconductor production. A further priority supporting this positive development remains the focus on optical information and communication technologies. In medical technology and life science, existing cooperation arrangements with key international customers are due to be expanded in the current fiscal year and contribute to growth. In 2018, 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 and sales to promote future growth and continue the process of internationalization, especially in the core regions.

The [Mobility segment](#) also expects good growth in 2018. In the automotive sector, we assume that the trend toward integrated production-related metrology will 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 respond to this trend, the segment is continuing to invest in the development of innovative and high-performance technologies and systems. Key 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 material processing. In 2017, the segment secured key expertise in process automation for material processing with its acquisition of the US company Five Lakes Automation, and now offers automated production lines from a single source. This has allowed Jenoptik to exploit new potential for growth in the US market. In the field of traffic safety, scheduled growth will mainly be supported by the major orders secured in prior years, which will contribute to the increase in revenue in 2018. This also includes the delivery of toll monitoring systems. The Traffic Service Provision business model will also be rolled

out further. The civil security business is another area that is growing in significance. From a regional perspective, Jenoptik forecasts the greatest growth momentum for the Mobility segment in the Asia/Pacific region and North America. We believe that the traffic safety market in the US will continue to stabilize in 2018.

For 2018, we expect stable development in the [Defense & Civil Systems segment](#). Its business is predominantly project-based and geared toward the long term. The defense market in the West is continuing to grow and an increase in expenditure – primarily in NATO member states – is expected in the coming years, meaning that demand for defense products could rise. At the same time, a potentially more restrictive export policy under a new coalition government in Germany could impact on or delay projects. In the medium term, a significant increase in investment for the German armed forces has political support, but we do not expect this to have any effect on our business in the short term, as political decision-making processes are generally highly protracted. In the years ahead, however, it may contribute to higher revenues. Internationalization also remains a key topic in 2018; 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. These include, for example, system solutions for civil aviation.

## 2018 Earnings Position Forecast

In view of the sustained high level of demand in our markets and on the basis of a good order and project pipeline, the Executive Board is forecasting growth in revenue and earnings for 2018. Currently identifiable risks, such as bottlenecks in the supply chain or exchange rate developments, in particular the euro to the US dollar, are subject to ongoing monitoring. Our scheduled growth also presupposes that political and economic conditions do not worsen. These primarily include the effects of Brexit, regulations at European level, export restrictions, further developments in the US, China and the Middle East, and the conflict between Russia and Ukraine.

The Jenoptik Group anticipates [revenue](#) of between 790 and 810 million euros for 2018 (prior year: 747.9 million euros). The Optics & Life Science and Mobility segments are due to make the greatest contribution to revenue growth.



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

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At present, Jenoptik is expecting **EBITDA** (earnings before interest, taxes and depreciation/amortization, incl. impairment losses and reversals) to grow in the 2018 fiscal year (2017 EBITDA of continuing operations 106.7 million euros); the EBITDA margin is due to come in at between 14.5 and 15.0 percent. The Executive Board is also forecasting a rise in EBIT (2017: EBIT of continuing operations 77.8 million euros). The operating earnings margin (**EBIT margin**) is expected within the range of 10.5 to 11.0 percent.

The **order intake** for a period is affected by major orders, particularly in the Defense & Civil Systems and Traffic Solutions divisions. In the past fiscal year, Jenoptik received new orders worth 802.9 million euros and had thus built up a very good order base at year-end 2017. For the current fiscal year, Jenoptik is expecting the order intake to remain stable, as the fiscal year included an operational one-off impact. Also worthy of note is that Jenoptik had frame contracts worth 87.6 million euros at the end of 2017, which are not included in the order intake or backlog. Around 79 percent of the order backlog as of the end of December 2017 will impact on revenue in 2018.

Following very positive business performance in 2017, the **Optics & Life Science segment** anticipates revenue growth in the mid single-digit percentage range in 2018. EBITDA is due to remain stable at the high level seen in 2017.

Buoyed by the major orders it has secured, the **Mobility segment** is anticipating revenue growth in the lower double-digit percentage range in the current fiscal year. EBITDA is expected to grow significantly. The accuracy of the forecast is influenced by the time at which traffic safety projects are settled.

In the 2018 fiscal year, the **Defense & Civil Systems segment** is due to bolster our corporate success with stable revenue and EBITDA contributions.

### Group Asset and Financial Position Forecast

For the 2018 fiscal year, Jenoptik is forecasting an increase in **capital expenditure** to over 40 million euros. 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.

We are expecting **free cash flow** in 2018 to slightly exceed the 2017 figure. Even considering the rise in capital expenditure, this will allow all interest, tax, and dividend payments to be covered by the free cash flow.

In 2017, Jenoptik paid out a **dividend** for the 2016 fiscal year in the amount of 0.25 euros per share. In addition to financing

## T47 Summary of Targets for Group and Segments (in million euros)

	Actual 2017	2018 guidance
Revenue	747.9	Between 790 and 810 million euros
Optics & Life Science	259.4	Growth in the middle single-digit percentage range
Mobility	270.1	Growth in the lower double-digit percentage range
Defense & Civil Systems	219.3	Stable
EBITDA/EBITDA margin	106.7/14.3%	EBITDA margin between 14.5 and 15.0 percent
Optics & Life Science	58.7	Stable at high level
Mobility	27.9	Marked rise
Defense & Civil Systems	23.8	Stable
EBIT/EBIT margin	77.8/10.4%	EBIT margin between 10.5 and 11.0 percent
Order intake	802.9	Stable (2017 includes operational one-off effect)
Free cash flow	72.2	Slightly above 2017 figure
Capital expenditure <sup>1)</sup>	37.9	Over 40 million euros

<sup>1)</sup> Without capital expenditure on financial investments



See the Events after  
the Balance Sheet  
Date for more  
information on the  
dividend

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.

**Important note.** The actual results may differ significantly from the forecasts of anticipated development made above and summarized below. 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 in relation to the economic development.

## General Statement by the Executive Board on Future Development

In the current 2018 fiscal year, the Jenoptik Group will begin rolling out its “Strategy 2022”, concentrating on photonic technologies. In terms of economic development, our key focus remains on profitable growth. We believe that revenue growth, resulting economies of scale, more efficient and faster processes, and higher margins result in higher, stable earnings.

Building on strong demand in our markets and a solid order backlog, Jenoptik plans to grow successfully again in 2018. The good asset position and a viable financing structure also give sufficient room for maneuver to carry out acquisitions and finance further growth. In 2018, the Executive Board is forecasting revenue of between 790 and 810 million euros and an EBIT margin of between 10.5 and 11.0 percent. The EBITDA margin is due to come in at between 14.5 and 15.0 percent. Achieving these targets is dependent on economic and political conditions.

In 2018, we will again invest a significant portion of our funds in the expansion of international sales and value creation structures, as well as in the development of innovative products. As part of our active portfolio management, potential acquisitions are closely scrutinized; divestments are not ruled out.

Overall, the Executive Board expects positive corporate development within the Jenoptik Group during the 2018 fiscal year.

Jena, March 8, 2018

JENOPTIK AG  
the Executive Board