Combined Management Report

» in short «

In the fiscal year Jenoptik invested

42.5 million euros

in its future –
in particular in the expansion and modernization
of its locations around the world.

The Remuneration Report as well as the Information and Notes relating to Takeover Law
(see Corporate Governance Chapter)
are part of the Combined Management Report.

General Group Information

Group Structure

Legal and organizational structure

As the 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 controlling and finance, real estate, investor relations, mergers and acquisitions, human resources, accounting, legal, auditing, compliance & risk management, treasury, taxes, corporate communications, and corporate marketing. It further pools the central functions of IT, purchasing, safety, occupational health and safety, environmental protection, and real estate management.

For more information on the new Group structure see the "Strategy and targets" chapter from page 75 on

Jenoptik's operating business is geared toward growth markets and has been organized within three photonics divisions, Light & Optics (OEM business), Light & Production (industrial customer business), and Light & Safety (business with public sector clients), since January 1, 2019. These three divisions build on common core competencies in the field of photonics that cover a range of expertise relating to optics, sensors, imaging, robotics, data analysis, and human-machine interfaces. The activities of the former Defense & Civil Systems segment, which is based on mechatronic technologies, will be managed under a new, independent brand in the fourth-division, VINCORION. In future, these divisions will also corresponds to the segments in accordance with IFRS 8. G09

Within the streamlined group structure established in early 2019, Jenoptik has combined the former Optical Systems and Healthcare & Industry divisions, together with its photonics activities in the former Defense & Civil System division, in the new Light & Optics division. The Light & Production division corresponds to the former Automotive division, the Light & Safety division to the Traffic Solutions division. Structures are also to be simplified within the divisions and in the Corporate Center; among other things, two internal projects were launched for this purpose in 2018. The legal merger of the GmbHs in the Light & Optics division will take place step by step in 2019. The legal merger of JENOPTIK AG and JENOPTIK SSC GmbH is also planned for the current fiscal year.

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 is responsible for steering the overall strategy and coordinating financial activities for the American market. In June 2018, Jenoptik approved a new organizational structure for Asia, which helps to simplify complex corporate structures and more clearly define responsibilities. The administrative functions for Asia as a whole were relocated from Singapore, previously the region's Asia headquarters, to the Shanghai site last year. The operating business in Europe is coordinated at the main locations in Germany.

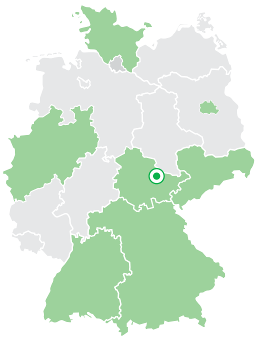
Key locations

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. The

G09 Structure of the Jenoptik Group

Photonics			Mechatronics
Light & Optics OEM business	Light & Production B2B business	Light & Safety B2G business	VINCORION
Optical products and key technologies for the markets of the digital world and healthcare	System solutions for more efficiency of products and production processes	Systems and services for safer roads and cities around the world	Mechatronic products and solutions for more security in the civil and military area

G10 Key locations of the Jenoptik Group



Germany

Altenstadt
Berlin
Dresden
Eisenach
Essen
Jena
Monheim am Rhein
Mühlhausen
Ratingen
Triptis
Villingen-Schwenningen
Wedel

Europe

France
Bayeux

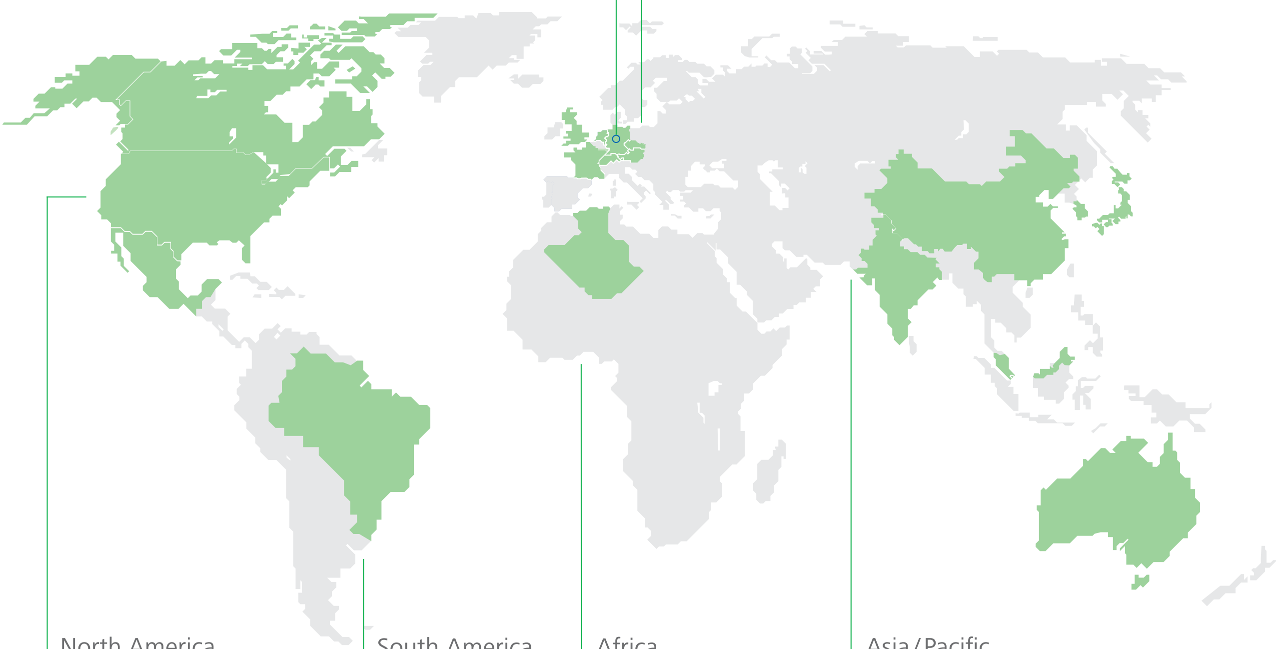
Great Britain
Camberley

Netherlands
Riel

Czech Republic
Teplice

Switzerland
Peseux
Uster

Austria
Vienna



North America

Canada
Barrie
Toronto

Mexico
Saltillo

US
El Paso (TX)
Fremont (CA)
Huntsville (AL)
Jupiter (FL)
Rochester Hills (MI)

South America

Brazil
São Bernardo do Campo

Africa

Algeria
Algiers

Asia / Pacific

Australia
Sydney

China
Shanghai

India
Bangalore

Japan
Yokohama

Malaysia
Kuala Lumpur

Singapore
Singapore

South Korea
Pyeongtaek

Last updated: December 2018

acquisition of the Canadian company Prodomax Automation Ltd. (Prodomax) has added a new location in Barrie, Ontario, Canada. The Group's Jena headquarters is primarily home to the photonic activities carried out in the Light & Optics as well as Light & Production divisions. Other major German sites are at Wedel near Hamburg, Essen and Altenstadt (VINCORION), Monheim near Düsseldorf (Light & Safety), Villingen-Schwenningen (Light & Production), Dresden, Berlin, and Triptis (Light & Optics).

See shareholdings of the Jenoptik Group, page 205 f.

Outside Germany, Jenoptik maintains sites in the US, France, Great Britain, China, Canada, 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. G10

Business Model and Markets

Jenoptik is a globally operating photonics group that devotes the majority of its work to the photonics market. Photonics is 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. Under the VINCORION brand name, the Group also offers customers mechatronic solutions.

As a supplier of premium, innovative capital goods, Jenoptik is primarily a partner to industrial companies. 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. Alongside industrial customers, the Light & Safety and the VINCORION divisions primarily serve public sector clients, in part indirectly through system integrators.

Our key markets primarily include the semiconductor equipment industry, the medical technology, automotive, mechanical engineering, traffic, aviation, and 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.

The Jenoptik Divisions

Light & Optics

The Light & Optics division is a global OEM supplier of solutions and products based on photonic technologies. Jenoptik offers a wide range of products and services in the field, combining comprehensive expertise in optics, laser technology, digital imaging, optoelectronics, and sensor technology. Our systems, modules, and components help customers to tackle the challenges they face using photonic technologies. Customers include leading machine and equipment manufacturers, equipment manufacturers in areas such as semiconductor equipment, laser material processing, medical technology and life science, industrial automation, automotive and mobility, and security, as well as research institutions. Thanks to its strong market position as a high-tech photonics company, Jenoptik can assist its customers as an OEM partner offering a broad technology portfolio covering everything from development to volume production.

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 (FIR) 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, for example, in the semiconductor equipment industry. With its strengths in optical and micro-optical solutions, Jenoptik is also in a position to exploit further potential for growth in the field of digitization, for example in the market for information and communications technology. The company also targets the markets for laser material processing and security and defense technology.

In the field of biophotonics, the division is set to focus on applications for bio-imaging and laser-based therapy. 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 medical technology / life science industry. The technology platform for digital image processing and analysis that can be configured to customer needs is a new, innovative product concept for the diagnostics and analytics areas. It combines proven Jenoptik modules into a micro-imaging solution which offers the user highest quality of image data and can easily be integrated in the system architecture of medical and laboratory devices.

Jenoptik also holds a leading position in the field of diode and solid-state lasers for use in ophthalmology, dermatology, and surgery, and supplies both national and international medical technology companies. Jenoptik also develops and produces optical and optoelectronic systems, as well as microscope cameras, offering a broad range of applications for its customers.

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. The company focuses on applications in the fields of industrial automation and automotive and mobility. 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 laser value chain. Sensor products cover infrared camera systems and laser rangefinders, which are used in automation technology, security technology, and military reconnaissance.

Key sales regions in the division are in Europe and North America, and increasingly also in Asia / Pacific. The core markets are semiconductor equipment, medical technology / life science, information and communications technology, show and entertainment, automotive, and defense and security technology. Here Jenoptik serves several markets segments, where it occupies leading positions. Competitors frequently only specialize in individual product groups and niches. Thanks to an increasing focus on application-driven optical / micro-optical system solutions, the Jenoptik Group has managed to further expand its market position in the last few years. Competitors in the Light & Optics division include MKS / Newport, Qioptiq, Excelitas, and Berliner Glas.

For detailed information on the course of business in the segments see the Segment Report; see the Forecast Report for information on future developments of the divisions.

Light & Production

The Light & Production division supports industrial customers in making their production processes more effective and efficient through the use of optical and photonic technologies. In this context, Jenoptik is a leading manufacturer of measurement technology and laser systems for production processes in the automotive industry.

The company's portfolio includes high-precision contact and non-contact production metrology for pneumatic, tactile, and optical inspection of roughness, contour, shape, and the determination of dimensions at every stage of the production process and in the inspection room. A wide range of services such as advice, training, service, and long-term maintenance agreements are also all provided. The acquisition of OTTO Vision Technology GmbH and OVITEC GmbH in September 2018 allowed the Jenoptik Group to boost its range of services for innovative metrology solutions and further expand its market position as a systems supplier for production metrology and industrial imaging applications.

In addition to this, Jenoptik develops 3D laser machines that are integrated into customer production lines as part of process optimization and automation. They are used to machine plastics, metals, and leather with maximum efficiency, precision, and safety. Jenoptik acquired the Canadian company Prodomax in the summer of 2018. In a similar way to Five Lakes Automation (FLA), which was acquired in 2017, Prodomax plans and designs automated production lines and integrates them in customer production environments. Services and products related to process engineering and implementation include plant layouts, simulation, machine control and software design, robot handling systems, and transport devices. However, while FLA focuses on small and medium-sized orders, Prodomax has the capacity and customer base to handle also larger orders. This acquisition has allowed Jenoptik to boost its position as a turnkey supplier of automated production solutions; the company can now offer not only stand-alone laser machines but also complete process solutions from a single source. The product portfolio is complemented by energy efficient and environmentally friendly waste gas cleaning systems for laser and other industrial machining processes.

The Light & Production division is active around the world and also operates production facilities in the US, Canada, France, and China, in addition to Germany. Its regional areas of focus are primarily determined by market requirements. These are the centers of the global automotive and automotive supplier industries in Europe, North America, and Asia. Companies such as Marposs, Mahr, and Vici Vision compete with Jenoptik`s metrology operations, Trumpf, Prima Power, and others with our laser machine business, and firms such as Legacy Automation and Centerline Automation with our automation business.

Light & Safety

In the Light & Safety division, Jenoptik develops, produces, and sells various components, systems, and services used to make the world's roads safer to public sector customers.

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), including applications for the police. Jenoptik thus supplies integrated solutions for public safety and future "smart cities".

Jenoptik's traffic monitoring services cover the entire supporting process chain – from system development, construction, and installation of the monitoring structure, to capturing images of traffic violations and their automatic processing.

Jenoptik has contributed to the further technical development of toll monitoring systems in Germany. For these applications, the Group markets innovative toll monitoring pillars that combine various digital sensor technologies such as stereo image processing and axle number detection in a single system.

The Light & Safety division's regional areas of focus are also primarily determined by customers. Jenoptik is a leading provider of photographic monitoring equipment, with more than 30,000 devices in use around the world. Competitors here include Redflex, the Sensys Gatso Group, Safran, and 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.

VINCORION

VINCORION develops, produces, and sells mechatronic products for civil and military markets, in particular for security and defense technology, aviation, and the rail and transport industries. Its portfolio ranges from individual assemblies for customers to integrate in their systems, through to turnkey solutions and final products. The division specializes in energy systems, drive and stabilization systems, aviation systems, 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. Products include diesel-electric generating units, electrical machinery such as generators, electric motors, and converters, power electronics, heating and lift systems, rescue hoists, and radomes. They are used in drive, stabilization, and energy systems for military and civilian vehicle, rail, and aircraft equipment.

The division supplies equipment to major systems companies such as Krauss-Maffei Wegmann and Rheinmetall in Germany, Airbus (France/Germany), BAE Systems (Great Britain), and Raytheon (US); it also supplies governments directly. In the area of defense and security technology as well as aviation and rail equipment, VINCORION 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 the future, however, new in-house products with short delivery times, low customization costs, and clear unique selling points will also ensure growth. 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, increasing the importance of spare parts business and modernization projects. Competition with other companies is frequently limited to individual product groups. The division's competitors include Moog, UTC Aerospace Systems, and Meggitt.

Targets and Strategies

Strategic orientation of the Group

As explained in the chapter titled "Business Model and Markets", the Jenoptik Group offers the majority of its products for 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 of our customers' products as well as to improved environmental compatibility.

The Executive Board of JENOPTIK AG presented the new "Strategy 2022" at the beginning of 2018. In future, Jenoptik will concentrate on its core areas of expertise – light and optics. With a greater focus on photonics growth markets, we want to develop into a focused and globally positioned photonics company over the coming years. In addition to its increased focus on photonics, Jenoptik will concentrate primarily on internationalization and innovation when implementing the Strategy 2022. G11

In order to implement the growth strategy, we are

- focusing on our core competencies in the field of photonics,
- reorganizing and simplifying our corporate structure,
- actively managing our portfolio with a view to additional purchases as well as transformatory acquisitions and selective divestments,
- continuing to work on further internationalization in conjunction with greater vertical integration and customer proximity in our priority regions,
- investing more heavily in research and development, expanding our system and application expertise and stepping up our activities as a solutions provider,
- driving an active cultural change within the company and
- continuing to steadily strengthen our financial resources.

Focus

Our activities in the market for photonic technologies focus on the fields of information processing, intelligent production processes, sensor technology, 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 of the digital world, health, mobility & efficiency, infrastructure as well as security, and is increasingly establishing itself as a strategic systems part-

For further information on the development of the sectors and markets see the Group Management Report on page 72

ner for international customers, with whom it works to design forward-looking solutions.

With the new organizational structure that came into force in January 2019, we have further improved our market and customer orientation. Business operations within our previous segments were reorganized, and the relevant parts of the operating business have been clustered according to a common understanding of markets and customers based on the same business models. This helps us to bring our products and solutions closer to the customer and opens up improved growth opportunities. The three newly created photonics divisions Light & Optics, Light & Production and Light & Safety build on extensive expertise in optics, sensors, imaging, robotics, data analysis, and human-machine interfaces. In 2018, Jenoptik introduced an independent brand for its mechatronics business from the former Defense & Civil Systems segment. Under the VINCORION brand, customers from the aviation and defense industries can now be addressed in a much more focused manner than before on the basis of mechatronic products and solutions.

For us, focusing does not just mean emphasis on our core areas of expertise, but also simplifying structures and making the company more agile. For example, in 2019, the holding company and the Shared Service Center (SSC) will be organizationally merged. We have initiated all the measures required to reduce the number of legally independent companies in the Group. Decision-making processes and responsibilities have been further decentralized and increasingly relocated into the operating areas. This will enable us to prioritize initiatives for future growth more clearly, leading them to success.

For further information on the Group structure see "Business Model and Markets" chapter

Innovation

As an innovative high-tech company, identifying customer needs and trends early on and aligning them with our strategic actions and business activities to determine appropriate technology and product developments is of critical importance to Jenoptik. That is why we want to increase our R + D investment, including customer-related projects to a total of approximately 10 percent of revenue by 2022 (2018: ~ 8.3 percent), in order to expand our position as one of the world's leading suppliers of photonics products and solutions. In addition, we will push ahead with the cross-segment expansion of our technology platforms in order to better utilize synergies. 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, the 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.

For further information see "Research and Development" section, starting on page 81 ff

Internationalization

Due to the trend towards growing industrial production as well as demographic development, Jenoptik sees particularly great potential for future growth in the regions of the Americas and Asia/Pacific. In terms of internationalization, we are therefore focusing on these markets. In 2018, we began to realign our Asian business activities and have begun to reorganize our structures there. A new leadership team has been recruited for

G11 Strategy 2022 of the Jenoptik Group

<table>
<tr><th colspan="4">Group strategy 2022</th></tr>
<tr><td>Strategic building blocks</td><td>More Focus</td><td>More Innovation</td><td>More International</td></tr>
<tr><td>Strategic targets</td><td colspan="2">Quantitative long-term targets:
Growth | Profitability | R + D ratio
Strengthening financial power</td><td>Qualitative long-term targets:
Cultural change | Employee satisfaction | Headquarters of the divisions | International value creation</td></tr>
</table>

Asia, which is now managing the business and structural development of the Group locally. Establishing a new trading company should also enable Jenoptik to benefit from the special conditions applicable to free trade zones in China in the future. In the 2019 fiscal year, the measures implemented will continue to play an important role in our strategic development. We aim to further expand value creation such as production, product developments, and research & development in this region. In this way, we will be able to offer local customers products and solutions together with service developed on site to meet their various needs. The plan is to establish local R+D teams as well as in-house production in all major growth markets by 2022. In this way, we can support our customers in their local markets in achieving their innovation goals. In addition, at least one division of the company should be headquartered outside Germany by 2022.

To further improve our market orientation and customer proximity, we are adapting our structures and developing products and solutions that are consistently geared to the trends and needs of our customers. In the future, Jenoptik will also continue to invest in the establishment of new and expansion of existing sales and service structures. We rely both on our own direct distribution channels and on existing dealer structures. The opening of new application centers, especially in Asia, is planned for the years ahead.

Through active portfolio management, we also want to continue to expand our organic growth in the future through acquisitions, and we are continuously investigating opportunities. By purchasing companies, we plan to expand our market and customer reach – not only in Europe, but particularly also in the regions of the Americas and Asia/Pacific – or complement our portfolio through forward integration and/or additional systems' expertise. Examples of this were the acquisitions of the Canadian Prodomax and the German OTTO Group, which were successfully completed in 2018. Each acquisition must fit strategically and culturally, offer opportunities for growth and a sound business case, thereby fulfilling the criteria for increasing corporate value as well as integrability. The discontinuation of already existing business activities or the sale of shares in companies is also continuously reviewed against the backdrop of the intended focus on photonic core competencies and is not ruled out 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 the demographic aspect. Now and in the future, Jenoptik is positioning itself as an attractive employer by utilizing targeted HR marketing activities. Personnel development measures as well as improved framework conditions and a modern, open corporate culture should further help to strengthen employees' loyalty to the company in the future. The new values introduced at the beginning of 2019 – open, driving and confident – form the basis for our corporate culture and help to boost Jenoptik's growth across different cultural and legal systems. As part of our personnel work, the active support of corporate values is therefore a further focal point in the realization of our strategic objectives.

The "Jenoptik" brand is also to be strengthened as part of the group-wide "More Light" campaign launched in 2018, and awareness and acceptance, especially internationally, are to be further increased.

For further information on employees and the brand see chapter "Non-financial Report"

As part of the Strategy 2022, the Executive Board of JENOPTIK AG had set out the following priorities for the past fiscal year:

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

The Executive Board and employees of Jenoptik worked intensively on the realization and implementation of these defined strategic milestones in 2018. The past fiscal year was also dominated by the development of the individual division strategies which are based on the objectives of the group strategy. Implementation of the newly defined division strategies will begin this year.

For 2019, the management of the Jenoptik Group has defined new priorities as part of the implementation of Strategy 2022:

- Growth in Asia
- Operative excellence in our production processes
- Promotion of innovation

69 Combined Management Report 132

Strategic orientation of the operating business

The divisions of the Group created as a result of the new business structure are connected with each other in many ways. In particular, technologies and expertise can be transferred between the divisions. Infrastructures and cross-section functions are used jointly more and more, for example for global procurement or in the expansion of the international sales network. Joint locations and the shared use of infrastructure facilitate market entry, enable the company to achieve critical mass more quickly in key regions around the world, and help to optimize the cost base through the leverage of synergies. Cost benefits are realized and currency risks minimized through global sourcing and production.

In the Light & Optics division, we are continuing to focus our OEM business with optical systems 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 such as advanced manufacturing or industrial solutions in addition to the semiconductor equipment sector. Jenoptik is already positioning itself in the market for optical information and communication technology. Ongoing internationalization, the expansion of the systems business, and a focus on key customers form the basis for sustainable profitable growth, to which the use of 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 platform technologies, 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. However, we are also participating in the trend for more mobility and efficiency with innovative industrial applications. One business focus is on expanding volume business with optoelectronic and polymer optical high-performance components and modules. In addition, we are continuing to pursue promising growth options for innovative applications centered on our core areas of expertise, such as driver assistance systems or technologies for autonomous driving (LiDAR). In these fields, too, we want to become an internationally operating supplier.

As a reliable supplier of products, systems, engineering solutions and services for industrial customers (B2B), we are primarily addressing the trend towards greater stability and efficiency in production processes in the new Light & Production division. We will use our high-performance smart manufacturing applications to support the manufacture of efficient and sustainable products in various sectors such as the automotive industry. Jenoptik's use of optical inspection and production metrology enables it to focus on trends such as reducing fuel consumption and CO_2 emissions. The aim of this is to expand our position as a leading company in the area of optical 2D and 3D metrology for modern drive systems and in electronic production. A concentration on automated plastic and metal processing will support further growth in the field of laser machines. The acquisition of Prodomax and the OTTO Group has also contributed to this development. Jenoptik is now able to offer everything from a single source for efficient production environments, from its own products and systems to automated system concepts and complete process solutions. At the same time, we also intend to expand our business into other markets beyond the automotive industry. At regional level, we intend to grow our business primarily in Asia and North America.

In the Light & Safety division, we are pursuing two further future trends with a 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 – primarily public-sector customers (B2G) – in achieving their targets to improve traffic safety with complete solutions. With the global trends toward increasing mobility, urbanization and security, particularly in newly industrialized countries, Jenoptik is also tapping into new sales regions. A trend can be seen toward major projects in the global traffic safety technology market with a combination of the equipment business and services, known as Traffic Service Provision. That 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. Alongside the traffic safety sector, the market for public safety is also gaining in importance. 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. Our growing reach into international markets, select 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 was consolidated under the VINCORION brand in the division of the same name and will continue to position itself as a partner for systems companies and customers who have a need for individual solutions that meet the stringent requirements of heavily regulated markets such as those of aviation and defense technology. 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 civilian 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 civilian fields such as railway engineering and aviation. Customer relations with OEMs and end customers will be stepped up around the world. The division is also seeking to expand its service business and international sales and service structures, especially in North America and Asia.

For further information on the segments see the Segment Report and the "Business Model and Markets" chapter

Strategy development and processes

Jenoptik's Corporate Development department reports directly to the President & CEO and ensures the future optimum strategic alignment of our Group with its segments and foreign locations.

Comprehensive knowledge of the position and skills of our company in the market environment is indispensable. To underpin the group and individual strategies, on the one hand, there is close cooperation between Corporate Development and the divisions in the area of market intelligence – this concerns 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.

The central Corporate Development department also supports the operating units in planning and implementing their strategic projects and in designing business models and structures – all with the target of securing sustained profitable growth within the Group. This target can also be supported through company acquisitions.

Control System

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

As part of a strategy process, the Executive Board and the Executive Management Committee (EMC) steer the development of the business units and monitor the implementation of defined measures. On the basis of global trends, growth paths are defined, opportunities and risks are evaluated, portfolio decisions are made, and the focuses of in-house research and development are determined using technology roadmaps at annual strategy meetings. Strategy and planning meetings provide a basis in terms of market and competition for the group planning for the following year and the medium term.

A planning forecast for the coming year and a five-year period is created annually on the basis of the long-term corporate strategy, In the course of a fiscal year, the planning for that year is updated in several forecast cycles. Planning is carried out using the "counter flow method" (bottom up – top down), based on the market-driven strategic planning in the divisions.

The business intelligence environment launched in 2017 also enabled further improvements in the analysis of business performance, reporting, and planning processes in 2018. Monthly results meetings as part of the EMC meetings are used for operational control: the division heads/regional managers 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 division, which is used as a basis to manage the Group on a global level, allocate resources in a targeted manner, and pass resolutions on the Executive Board. In the 2018 fiscal year, the indicators were identified and communicated on the basis of the prior segment structure.

The indicator system used in internal reports and to manage the business units in 2018 comprises high-priority performance indicators ("key performance indicators") and other financial

G12 Performance indicators for corporate management

	Financial indicators		Non-financial indicators	
Key performance indicators	Growth	Revenue, order intake, capital expenditure		
	Liquidity	Free cash flow		
	Return	EBITDA margin		
		EBIT margin (information parameter since 1/1/2019)		
Information parameters	Growth	Order backlog, frame contracts	Growth	Number of employees
	Return	ROCE	HR management	Training, fluctuation, sick days
	Liquidity	Net debt, working capital	Process control	Throughput times, reject quotas, and indicators for quality management

and non-financial information parameters. All the indicators chiefly focus on shareholder value, the requirements of the capital market, and the strategy of the company. The key indicators are shown in the chart on page 80. In addition to the key performance indicators at group level, there are also indicators used only within the business units, e.g. order backlog or number of employees. In addition to the forecasts, a rolling three-month forecast for revenue and order intake is used to manage the company's development. G12

The control system underwent further development and the indicator base was adjusted at the beginning of the 2018 fiscal year in order to better foreground the performance indicators relevant to the company control system. Newly added top control parameters were the EBITDA margin and capital expenditure, while earnings before tax, net debt, and ROCE were removed. Since the beginning of the 2019 fiscal year the EBIT margin has no longer been classified as a key performance indicator but is now an information parameter. In the current fiscal year, too, the Jenoptik Group is committed to the continuous improvement of its processes. One key aspect of this remains 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.

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, especially in the photonics growth markets. We also develop market-conforming products and platforms with unique selling points, protecting them, if possible, by means of industrial property rights. Our solutions help to increase the efficiency of our customers, consequently improving their earnings capacity.

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

For information on planned development of the key performance indicators, see the Forecast chapter, page 130

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 uniform group-wide structure that is individually adapted to 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 President & CEO. The innovation managers from the central Strategy department manage all research and development projects group-wide. They therefore link up closely with various areas of the company, such as controlling and investment management, and are intensively involved in the rolling strategy and planning processes.

Innovation process

Innovation is also one of the three building blocks of the Strategy 2022. Developments directly on behalf of customers continue to play an important role in our innovations. In the future, however, it will be necessary to focus even more on our own developments and spend more resources on pure research activities. 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. These are the basis for innovation projects aligned with our core areas of expertise which are often realized 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 and monitored on the basis of corresponding milestones. This applies to product, technology and process innovations. In addition to selected photonics markets, above all the expansion of our applications expertise as well as new digital business models based on our existing technologies and skills act as an enormous driver for growth and are at the center of our research and development work.

To further increase our innovative power, we must not only develop technologies and products. At the Innovation Days 2018, for example, the focus was on Jenoptik's new "Design Thinking" concept which consistently places the customer and their needs at the center of the innovation process. The overall winner of the Jenoptik Innovation Awards 2018 was the Jenoptik Traffic Solutions UK team for the introduction of deep learning methods. Thanks to so-called artificial intelligence or computer-based algorithms, the recognition rate for car license plates using ANPR cameras (Automated Number Plate Recognition) can be significantly increased to up to 98 percent. Four more out of a total of nine projects submitted also received an Innovation Award.

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. T18

T18 Employees in R+D

	2018	2017
Number of employees in R+D area	506	461
Percentage of overall workforce in %	12.5	12.7

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. 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 corresponds in its structure to the future technological and market-related orientation of the company, was further intensified and promising ideas and concepts transferred to cooperation projects, some of which are cross-segment. The cooperation arrangements named below are just some of those in which Jenoptik has been active over the past year:

Compared with traditional optics, freeform optics offer fundamental advantages such as miniaturization, simplification and stability, but their manufacture is much more costly. This is why, in cooperation with nine partners from industry and science, Jenoptik is working in the "Wachstumskern+ fo+" project to develop a technology platform for the volume production of freeform optical systems for the spectral broadband UV-VIS-IR range. The results of the project will then be converted into specific new products, enabling a large number of existing products and solutions to be significantly improved.

The consortium from the preceding project "Wachstumskern fo+", in which Jenoptik was also actively involved, was awarded the "Forschung im Verbund" science prize by the Stifterverband für die Deutsche Wissenschaft on May 15, 2018. Among the factors which the jury honored with the award were the economic implications as well as the novelty of the scientific-methodological approach and the advancement of knowledge.

The "Vision Zero" initiative aims to significantly reduce the number of people seriously injured and killed on the roads at both national and international level. A particular focus here is the protection of pedestrians and cyclists as so-called "weak road users". At present, for example, there are still around 2,000 fatal accidents involving cyclists each year within the EU, many of them at crossroads. In the XCYCLE project carried out by Jenoptik in cooperation with nine European partners, sensor safety solutions for the detection of cyclists and pedestrians were developed, among other things, in order to significantly reduce these accident figures. Project results are currently being tested at the research intersection in Braunschweig, which is managed by the German Aerospace Center, and these will subsequently be converted into actual products.

Jenoptik is also active in numerous industry and technology-oriented associations. Examples of this are the Optonet Photonics Network at regional level, the German Hightech Industry Association (SPECTARIS) at national level, and the European Photonics Industry Consortium (EPIC) at European level. Here, the Group is committed to creating an innovation-friendly environment and promoting the image of photonic technologies.

Development output

The R+D output of the Jenoptik Group, including developments on behalf of customers, increased to 69.2 million euros in 2018 (prior year: 66.6 million euros). The reason for this, despite the lower costs for developments on behalf of customers, were the increased expenses for in-house development activities. The costs for developments on behalf of customers fell to 20.2 million euros in 2018 and are apportioned to the cost of sales. In the prior year, significantly higher expenses were incurred here, primarily due to the toll project (prior year: 22.2 million euros). T19

As shown in the table, R+D costs are distributed among the segments. T20

R+D output in the Optics & Life Science segment includes expenses arising from developments on behalf of customers in the amount of 7.5 million euros (prior year: 6.8 million euros). R+D costs in 2018 totaled 15.7 million euros (prior year: 13.4 million euros).

The R+D output of the Mobility segment included developments on behalf of customers of 9.2 million euros (prior year: 13.5 million euros). The high figure for the prior year is mainly attributable to the toll project in the area of traffic solutions. The segment's R+D costs came to 17.5 million euros (prior year: 16.4 million euros).

In 2018, developments directly on behalf of customers in the Defense & Civil Systems segment came to 3.5 million euros (prior year: 1.8 million euros). The segment is also a long-term partner for large systems companies and develops platform technologies in conjunction with its customers. The R+D costs rose to 14.2 million euros (prior year: 12.6 million euros), especially due to development projects in the aviation segment.

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. In 2018, a total of 44 patents

T20 R+D output per segment (in million euros)

	2018	2017	Change in %
Group	69.2	66.6	3.7
Optics & Life Science	23.8	21.1	12.7
Mobility	26.8	30.0	−10.7
Defense & Civil Systems	18.6	14.9	24.6
Other, incl. consolidation	0.0	0.7	−97.9

T19 R+D output (in million euros)

	2018	2017	2016	2015	2014
R+D expenses	47.4	43.1	42.3	41.8	39.4
Capitalized development costs including patents	1.5	1.4	0.1	0.4	0.5
Developments on behalf of customers	20.2	22.2	15.0	10.9	10.5
R+D output	69.2	66.6	57.4	53.1	50.4
R+D ratio 1 (R+D output/revenue) in %	8.3	8.9	8.4	7.9	8.5
R+D ratio 2 (R+D expenses/revenue) in %	5.7	5.8	6.2	6.2	6.7

were filed by Jenoptik subsidiary companies (prior year: 52 patents), more than half of which were in the field of Optical Components and Optical Modules. As part of our Strategy 2022, patent applications were increasingly filed by foreign companies (UK and USA) last year as a result of the intensification of our international R+D activities.

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. G13

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 2018:

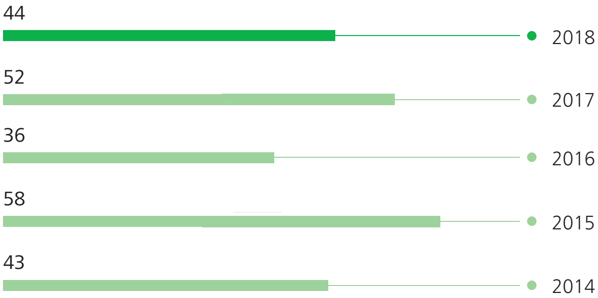
For example, the development of a new generation of high-precision micro-optical sensors for the semiconductor equipment market was begun to support future technologies and to optimize costs. Innovative materials are being combined with extremely efficient production technologies for microstructuring. In the course of increasing requirements in semiconductor production, we have also begun to optimize existing sensor generations. The ability to continuously develop and adapt existing manufacturing technologies to meet production requirements that increase in ever shorter cycles is a decisive success factor here. The existing product portfolio of encapsulated transmission gratings of the highest efficiency, which are used in ultrashort pulse lasers and for beam combination, was also completed in the short wavelength range during the fiscal year. The quality and performance of these gratings have now become world leading.

The market for information and communication technology (ICT) experienced several developments and the corresponding product portfolio was further expanded. One such development was the successful testing of a novel approach for parallel electrical and optical testing of photonic integrated circuits (PIC) at wafer level within the framework of a functional model development. These PICs are particularly used in optoelectronic transceivers, millions of which are used today in data centers for conversion between electrical and optical signals and for which significant growth is expected in the next few years. So-called TOSA microlenses for use in 100Gb/s and 400Gb/s transceivers have also been further developed and standardized.

In the area of ultra-precise beam-shaping elements, which are used in laser material processing, systems for maskless lithography in display manufacture were transferred into series production in 2018 and preparations were made for the manufacture of large quantities. They facilitate the high-resolution structuring of displays with the greatest possible flexibility. As part of the technology road map, a new process for system correction was developed, which is now being implemented throughout the entire supply chain. In 2018, Jenoptik was also able to expand its catalog range of F-Theta lenses and beam expander optics. Our developments in the field of high-performance laser applications for micro material processing are characterized by unique precision and thermal stability. These products are targeted, for example, at the growth markets of automotive and mechanical engineering as well as medical technology.

For our customers in the medical technology and life science industry, the focus was on the further development of the digital micro-imaging platform "SYIONS", for fluorescence microscopy among other things. A novel imaging method for low-contrast living cells was implemented in 2018 and put into practice in the first projects with OEM customers. With "SYIONS", Jenoptik expanded its comprehensive problem-solving expertise in the field of diagnostics and analytics with a customer-specific, configurable platform for digital image acquisition, processing, and analysis. 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 help of the modular system. Thanks to this, taking samples for analysis is now a thing of the past, thus facilitating the customer's work flow.

G13 Number of patent registrations



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 the 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 be able to offer integrated solutions and application-specific components, which will enable more efficient treatment. The depth resolution required for innovative ophthalmology applications paves the way for low-artifact, 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).

The Group also developed numerous new products for the automotive industry in 2018 and initiated the first strategic projects in the field of electric mobility. 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.

The product family of laser perforation machines was further developed in order to be able to offer processing of particularly sensitive materials such as leather and thin films. This enables our customers to use new materials, e.g. in the design of vehicle interiors. Thanks to a specially developed image processing system, our automated cutting solutions for processing hydroformed tubes for e-mobility applications will contribute to increased process flexibility and quality in the future.

As a leading supplier of photonic solutions, Jenoptik is active in the future-oriented LiDAR field (light detection and ranging). We have a great deal of expertise and many years of experience in all the basic technologies required for high-performance LiDAR systems. These include precision optical components, micro-optics and diffractive optical elements (DOE), optoelectronic systems made from glass and polymer, laser diodes as well as laser modules for distance measurement with light. Our customers use these products, for example, in the automotive, mobility and automation technology sectors.

2018 saw further development of a shaft measuring system from the Opticline series for efficient process automation: the efficient Opticline C305 shaft measuring system was combined with a new handling robot with workpiece storage. The combination of optical shaft measuring technology and automated robot loading enables numerous test characteristics to be inspected in a matter of seconds. This also relieves important employee resources and possible negative effects by the workforce are avoided. As a result, the customer can focus more strongly on quality and process control. By increasing the inspection intervals, one hundred percent inspection can be carried out and product safety in manufacture can be significantly increased. Process costs are optimized and reliability as a qualified supplier is therefore noticeably increased.

In order to meet the customer requirements for flexible, fast and precise measuring processes, Jenoptik has further developed the new generation of roughness and contour measurement instruments in the Waveline product range. The measuring stations have a modular design and can be expanded at any time. The W800 model series is particularly suitable for the many different measuring tasks in the measuring room with typically manual or semi-automated measuring processes. The new Visionline IPS B5 surface inspection system now also makes it possible to inspect small bores (from 5 mm diameter). Thanks to innovative camera and lighting technology, adaptive dynamic masking and a high resolution, automated inspection of plane surfaces is possible within the specified cycle time. The measuring system facilitates rapid inspection of entire interior bore surfaces, the inspection and measurement of inner contours as well as the evaluation of defect sites. The 360° optics of the sensors create an image of the entire bore surface. The fast and robust sensor thus fulfills all requirements for a 100 percent inspection of the product quality in a production line.

The traffic solutions unit restructured the development department in 2018. A team of developers in the UK and Germany is now working together across different sites. In 2018, for example, Jenoptik strengthened its expertise in the field of artificial intelligence. In addition, the introduction of Deep Learning in the area of automatic number plate recognition has significantly increased the recognition rate using ANPR cameras.

In the market for truck toll monitoring systems, Jenoptik successfully delivered 600 systems it had developed for the recording and classification of trucks on federal highways over the past fiscal year. The new systems were connected across Germany to the top-level control system of the toll company Toll Collect and have modern sensor technology with stereo image processing, side camera, and radar. This facilitates axle detection of the trucks combined with recording of the dimensions. The communication between the on-board unit and the back office was as much a component of the development work as the documentation in the event of a violation. The toll monitoring systems are installed on the side of federal highways and, thanks to their innovative technology, they eliminate the need for nationwide installation of monitoring gantries, considerably reducing the impact on the environment.

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, focusing in doing so on an innovative and modular platform concept. 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 high degree of efficiency. A battery management system has also been developed that reliably detects the charge status of new and already used vehicle batteries in a cellular network within a short period of time.

In the aviation segment, a heating system for the door areas on the Airbus A330 was developed, existing heating elements modified and the product portfolio expanded. 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 first delivery of the innovative heated floor panels is scheduled for the first half of 2019 for the A330 and the end of 2019 for the A350. The development team also worked on the new “SkyHoist 800” electric helicopter rescue hoist, which, thanks to its innovative product features, exceeds the standard market parameters with a dead weight of less than 50 kg, tensile loads of up to 350 kg and a lifting speed of up to 2 m per second. Its modular concept also reduces maintenance-related downtime and thus operating costs.

Employees

Development of employee numbers

As of December 31, 2018, with 4,043 employees (incl. trainees), Jenoptik recorded growth in its workforce of 9.9 percent (31/12/2017: 3,680 employees). As a result of the acquisitions and first-time consolidations, the number of Jenoptik employees abroad increased by 22.3 percent to 981 employees (31/12/2017: 802). Consequently, the proportion of employees abroad increased to a total of 24.3 percent (31/12/2017: 21.8 percent), thereby contributing to the internationalization strategy. T21 T22

T21 Employees as of December 31 by segment (incl. trainees and academy students)

	2018	2017	Change in %	Absolute change
Group	4,043	3,680	9.9	363
Optics & Life Science	1,241	1,149	8.0	92
Mobility	1,527	1,326	15.2	201
Defense & Civil Systems	912	897	1.7	15
Other	363	308	17.9	55

T22 Employees as of December 31 by region (incl. trainees and academy students)

	2018	2017	Change in %	Absolute change
Germany	3,062	2,878	6.4	184
Germany in %	75.7	78,2		
Abroad	981	802	22.3	179
Abroad in %	24.3	21.8		
Europe (excl. Germany)	220	198	11.1	22
Americas	568	346	64.2	222
Asia / Pacific	193	258	−25.2	−65

Temporary workers were also employed in the past fiscal year to cover production peaks and for major projects. They were employed mainly in the operating areas and the number fluctuated during the year. On the reporting date of December 31, 2018, 107 temporary workers were employed in the Group (31/12/2017: 114).

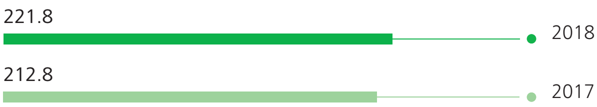
At 278.3 million euros, personnel expenses in 2018 (wages, salaries, social security deductions, costs for retirement provision) were up 7.7 percent compared with the prior year's figure of 258.3 million euros. The growth is attributable both to the increased number of employees in the Group and to wage and salary increases.

The revenue per employee also developed positively due to strong revenue growth and increased by 4.2 percent to 221.8 thousand euros (prior year: 212.8 thousand euros). G14

The employee age distribution, as can be seen in the table below, is balanced. The figures are largely unchanged compared with the prior year. T23

As of December 31, 2018, the proportion of women in the Group (in Germany and abroad) was 26.3 percent, therefore remaining almost unchanged (31/12/2017: 26.9 percent).

G14 Revenue per employee (in thousand euros)



Change 2018 4.2 %

At 5.3 percent, the absenteeism rate among Jenoptik employees in Germany in 2018 also remained at almost the level of the prior year (prior year: 5.5 percent). The employee turnover rate was calculated group-wide for the first time in 2018 and was 4.5 percent. It 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 employee turnover rate in Germany rose slightly, from 3.0 percent in 2017 to 3.7 percent in 2018.

Training & HR development

As of December 31, 2018, 117 trainees and students of the Cooperative State University were employed by the Group (31/12/2017: 109). Of these, 38 were new employees. At the same time, 26 trainees and academy students of the Cooperative State University successfully completed their training in the year covered by the report, and took up positions within the Group.

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.

In the 2018 fiscal year, we combined the costs for training and HR development for the first time. The total amount is therefore correspondingly higher, since it includes both the expenses for trainees and students at the Cooperative State Universities as well as the costs for the further training for our employees. In 2018, Jenoptik invested around 2.5 million euros in the professional development of its employees (prior year: 2.0 million euros). In the year covered by the report, 1,866 employees (prior year: 1,755 employees) benefited from further training measures. The development needs are assessed in regular staff appraisals and implemented through appropriate measures.

For further information on this see the Non-financial Report from page 56

T23 Employee age distribution (in percent)

	Under 30	30–39	40–49	50–59	60–65	More than 65
2018	14.75	25.87	22.78	25.29	10.26	1.05
2017	13.01	26.30	22.81	25.29	11.32	0.97

69 Combined Management Report 132

Economic Report

Macro-economic and Sectoral Developments

According to the International Monetary Fund (IMF), growth in the global economy slowed significantly more in 2018 than was predicted at the beginning of the year. In its World Economic Outlook of January 2019, the IMF predicted growth of just 3.5 percent in 2018 compared with the previous year. The global economy was burdened not only by slower growth in China, but also by increasing trade conflicts and geopolitical uncertainties, for example in Argentina, Saudi Arabia, and Turkey. The probably forthcoming Brexit also dampened the investment climate, not least in Europe.

According to Eurostat, growth in the euro zone slowed from 2.4 percent in 2017 to 1.8 percent in 2018. In Italy, the economy was burdened by the debt crisis, in France by the protests of the so-called Yellow Vest movement in the final quarter of the year. At the beginning of July, the EU concluded a new free trade agreement (JEFTA) with Japan, which comes into force in 2019, while in North America a new trade agreement was concluded between Canada, the USA, and Mexico.

Economic growth in the US was boosted by, among other things, strong private consumption, government spending, exports and the tax reform. According to the US Department of Commerce US gross domestic product rose by 2.9 percent in 2018 compared with the prior year.

In China, economic growth fell to a historic low in 2018: The gross domestic product grew by only 6.6 percent compared with the prior year. However, exports increased by 10 percent and imports by almost 16 percent. The trade dispute with the USA led Chinese direct investment in Europe and North America to fall by almost three quarters.

T24 Change in Gross Domestic Product (in percent)

	2018	2017
World	3.1	3.7
USA	1.6	2.3
Euro zone	1.7	2.4
Germany	1.7	2.5
China	6.7	6.8
India	6.6	6.7
Emerging countries	4.1	4.7

Source: International Monetary Fund, World Economic Outlook, January 2018

The economic momentum also weakened in Germany in the second half of the year, due among other things to the introduction of a new exhaust gas test procedure and the associated production cutbacks in the automotive industry, as well as low foreign demand. At 1.5 percent, overall economic growth was lower than at any time in five years. After a decline in the third quarter, there was a slight recovery in the final quarter, enabling a recession to be avoided. International crises and the economic downturn had a noticeable impact on exports. Although exports rose for the fifth year in succession by 3.0 percent to more than 1.3 trillion euros, growth slowed significantly, according to the German Federal Statistical Office. Investments in equipment, structures, and other installations rose, as did private consumer and government spending. T24

The Spectaris industry association delivered a positive assessment for the German photonics industry at the beginning of 2019: After revenue of 34.8 billion euros the prior year, the association calculated an increase of 6 to 8 percent to 38.0 billion euros for 2018 based on preliminary estimates. The driving force behind this good performance is foreign business, as almost 70 percent is exported. Around 47 percent of exports are to Member States of the European Union, almost 25 percent to Asia, and around 13 percent to North America. This background makes the industry concerned about the increasing trend towards more protectionism.

According to provisional calculations by SPECTARIS, in the previous year, the German medical technology manufacturers exceeded the 30 billion euro mark in revenue for the first time, having achieved 29.9 billion euros in 2017. This was reported by the association at the beginning of 2019. More than half of the exports were to European countries, otherwise mainly to the USA and China.

The international laser market once again exceeded the record year of 2017: according to the annual report for the laser industry, published in the magazine "Laser Focus World", global revenue increased by 5.3 percent to 13.7 billion US dollars in 2018. Once again, lasers for material processing and lithography made up the largest segment, followed by lasers for communications and optical storage technology. The market continued to show signs of consolidation, for example in the

DNA sequencing segment or the VCSEL expertise required for 3D sensor technology in smartphones.

After two extraordinarily strong years,it was feared that 2018 would see a slump in the semiconductor industry, but this did not materialize. According to IT market research company Gartner, global revenue rose by 13.4 percent to 476.7 billion US dollars, which is significantly more than predicted by market observers in spring 2018. The Semiconductor Industry Association (SIA) also reported record revenue for the industry of 468.8 billion US dollars, 13.7 percent up on 2017. Nevertheless, the uncertainty remained: in view of the lower demand in all branches of industry, chip prices fell globally, especially for memory chips. Smartphone business stagnated in 2018 and the trade conflict between the USA and China had a negative impact on the investment climate.

After 2018 began with, to some extent, above-average results in the semiconductor equipment industry, there were signs of a slight downturn from the third quarter onwards, when revenue fell 5 percent below the prior year's level according to the Semiconductor Equipment and Materials International (SEMI) trade association. Nevertheless, the industry achieved another record revenue in 2018: globally 62.1 billion dollars were generated (prior year: 56.6 billion US dollars), 9.7 percent more than in the prior year, according to preliminary calculations by SEMI. On a regional basis, 2017 saw South Korea become the largest semiconductor equipment market, followed for the first time by China.

In the first half-year of 2018, the German machinery and plant engineering industry remained on course for growth. Germany's export-oriented machinery engineering industry suffered a setback from the third quarter onwards, when protectionist tendencies became noticeable in the USA and China. According to the German Engineering Federation (VDMA), the end of the year in particular was worse than expected: order intake was lower than in the prior year, while production was weaker due to capacity bottlenecks, material shortages and a lack of skilled workers. For the year as a whole, the order intake rose by 5 percent compared with the prior year. In contrast, production expanded by only 2 percent: as a result, the industry fell short of its production target of 5 percent. According to provisional data, revenue totaled 228 billion euros.

The VDMA trade association calculated revenue growth of 9 percent to 15.8 billion euros for the robotics and automation in Germany in 2018. The global trend toward digitization and automation in production is creating growth momentum, primarily in the automotive and automotive supplier industries. More and more factories and production lines are becoming automated, which also benefits machinery manufacturers from Germany, according to the VDMA Electrical Automation trade association. For the year as a whole, the trade association anticipates revenue growth of 6 percent. The International Federation of Robots (IFR) attributes a key role for progress in the manufacturing industry to industrial robots. Worldwide sales of industrial robots doubled between 2013 and 2017, according to the IFR in October 2018.

The German Association of the Automotive Industry (VDA) delivered a robust annual balance sheet for the major automotive markets: while Europe, the USA and Japan stagnated, the markets in Russia, Brazil and India recovered. In contrast, car sales in China fell for the first time in two decades, due not only to the trade conflict but also to domestic factors such as high levels of debt and driving restrictions in major cities. The British trade association also sounded the alarm: car production declined by 9 percent in 2018 and investment by almost 50 percent. In total, the VDA expects the global car market to reach 85 million vehicles in 2018; this corresponds to the prior year's level.

Particularly from the third quarter, car manufacturers and suppliers in Europe reported significant burdens on their balance sheets and operating businesses, in part due to the effects of the diesel scandal, retrofit and warranty claims, and the trade conflict between the US and China. This resulted in several profit warnings. Almost the entire industry criticized the introduction of the new fuel consumption and emissions test, known as WLTP, in summer 2017. Approvals under the new standard have slowed, producing increased competitive pressure in the industry and causing some manufacturers to scale back their production. Due to high levels of nitrogen oxide pollution, several German cities, among them Hamburg and Berlin, have introduced driving bans on certain streets. According to the German government, there are 14 particularly polluted cities that required action to be taken.

In the traffic safety sector, the German Federal Statistical Office's preliminary accident statistics indicate that the number of road deaths in Germany in 2018 rose in comparison with the prior year, by 2.7 percent to 3,265 people. According to the US National Safety Council, more than 40,000 people died on the roads in 2018 for the third time in succession in the US, one percent less than in the prior year.

In Germany, the truck toll system was expanded to cover the 39,000 kilometers of federal highways on July 1, 2018. The toll monitoring system uses pillars manufactured by Jenoptik. With a Jenoptik system for section control, the first so-called section radar was put into operation in Germany at the beginning of 2019. The system monitors the average speed on a certain section of the B6 federal highway south of Hanover. This "Section Control" method has already proven itself in other European countries. In Germany, additional data protection requirements have been set in place for implementation.

In the German rail industry, the "Zukunftsbündnis Schiene" (Future Rail Alliance) was launched in the fall of 2018. This expert commission focuses, among other things, on strengthening competitiveness, electromobility, digitization, automation, and innovation in the rail sector. Siemens and the French manufacturer Alstom wanted to merge as a means of responding to the competition in the rail industry, primarily from China. The merger was blocked by the EU Commission in February 2019 because of competition concerns.

Within the aviation industry, the major aircraft manufacturers Airbus and Boeing boosted their duopoly in 2018. Airbus has taken over the C-Series airliner program made by Canadian company Bombardier, while Boeing has established a joint venture for passenger airplanes with Brazilian manufacturer Embraer. Their respective alliances give Airbus and Boeing access to new markets for regional aircraft with around 100 seats, which in the past were primarily manufactured by Bombardier and Embraer. In February 2019, Airbus announced that it would discontinue production of the A380 as of 2021. In terms of balance sheets, Boeing was once again ahead of Airbus in terms of orders and deliveries, although the latter set a new record for deliveries of its own at the beginning of the year despite significant supplier problems.

The German Ministry for Economic Affairs and Energy announced the 2018 armaments exports in the German Bundestag for the German security and defense technology industry. At 4.82 billion euros, the total value of the individual export licenses was down almost a quarter on the prior year's figure of 6.24 billion euros. This also includes exports to Saudi Arabia and Turkey. Following the death of a Saudi Arabian journalist, the German government has imposed a ban on the export of armaments to Saudi Arabia. Originally limited to two months, the ban was extended until March 2019 and also applies to exports which have already been approved. In the area of missile defense, a deal was finalized in March 2018 to install the Patriot system in Poland: Delivery is scheduled from 2022. In January 2019, the United States introduced a new defense strategy that makes provisions for new missile defense systems. At the beginning of 2019, the US and Russia both announced their intention to withdraw from the so-called INF Treaty banning intermediate-range nuclear missiles.

Legal Framework Conditions

The legal framework conditions governing business operations essentially remained constant in 2018 and therefore had no significant impact on the business development of the Jenoptik Group.

Earnings, Financial and Asset Position

Comparison of actual and forecast course of business

Following the release of the preliminary results in February 2018, Jenoptik's management predicted revenue between 790 and 810 million euros and an EBIT margin between 10.5 and 11.0 percent. In March, with publication of the 2017 annual financial statements, this outlook was confirmed with a projected EBITDA margin of 14.5 to 15.0 percent.

With the announcement of the purchase of Canadian company Prodomax and due to the continued good demand in the Jenoptik business, the Executive Board raised its revenue forecast range to 805 though 820 million euros in July 2018. This expected revenue was confirmed with the publication of the results of the first half-year 2018 at the beginning of August. As the profitability of the current business had also developed better than expected, primarily due to a more positive product mix, the Executive Board raised its earnings targets for 2018. The EBITDA margin was expected to be around 15 percent and the EBIT margin at approximately 11 percent.

As a result of the continuing good business performance as well as the positive development of Prodomax and the OTTO Group, the Executive Board raised its revenue forecast once again at the beginning of November, on publication of the nine-months figures, to a new range of 820 to 830 million euros. Despite significant effects from purchase price allocation in connection with the acquisitions and the acquisition costs, the margins for the 2018 fiscal year are to remain unchanged at the values raised in the summer of around 15 percent (EBITDA) and approximately 11 percent (EBIT).

In the year covered by the report, the Jenoptik Group generated revenue of 834.6 million euros, which slightly exceeded the predicted amount when including the acquisitions.

At 15.3 percent, the EBITDA margin exceeded the predicted 15 percent. The EBIT margin increased to 11.4 percent, thereby also exceeding the value announced in August. Profitability therefore improved significantly in comparison with the prior year (prior year: 14.3 percent EBITDA or 10.4 percent EBIT).

The development of revenue and EBITDA for the segments is shown in the following table.

The order intake grew by 8.8 percent. At the beginning of 2018, management had assumed a stable development here, as 2017 included positive one-off operational impacts in order intake.

The free cash flow also developed better than predicted in the spring of 2018; at 108.3 million euros it did not just slightly exceed the previous year's figure, as originally expected, but did so very significantly.

Capital expenditure was forecast to be more than 40 million euros and fell within the expected range at 42.5 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 2018 fiscal year, the Jenoptik Group generated new record revenue of 834.6 million euros (prior year: 747.9 million euros), which exceeded the prior year's value by 11.6 percent. At 241.2 million euros, the fourth quarter of 2018 generated the most revenue in both the past fiscal year and the years before (prior year: 221.1 million euros). The growth in 2018 came from

T25 Actual and forecast course of business (in million euros / or as specified)

Indicator	Year-end 2017	Forecast 2018		Year-end 2018	Change in %
Revenue	747.9	February: July: November:	Between 790 and 810 million euros Between 805 and 820 million euros Between 820 and 830 million euros	834.6	11.6
Optics & Life Science	259.4	March:	Growth in the mid double-digit percentage range	290.0	11.8
Mobility	270.1	March:	Growth in the low double-digit percentage range	327.8	21.4
Defense & Civil Systems	219.3	March:	Stable	218.6	−0.3
EBIT/EBITDA margin	106.9 / 14.3 %	March August:	Between 14.5 and 15.0% Around 15%	127.5 / 15.3 %	19.3
Optics & Life Science	58.7	March:	Stable at high level	69.9	19.1
Mobility	27.9	March:	Marked rise	40.5	45.4
Defense & Civil Systems	23.8	March:	Stable	24.4	2.2
EBIT/EBIT margin	78.0 / 10.4 %	February: August:	Between 10.5 and 11.0% Approx. 11%	94.9 / 11.4 %	21.6
Order intake	802.9	March:	Stable (2017 includes operational one-off effect)	873.7	8.8
Free cash flow	72.2	March:	Slightly above 2017 figure	108.3	49.9
Capital expenditure [1]	37.9	March:	Over 40 million euros	42.5	12.2

[1] without capital expenditure on financial investments

the two segments Mobility and Optics & Life Science. Overall good business performance was facilitated by strong demand from the semiconductor equipment industry, and also the traffic solutions business provided considerable support for the growth. In addition, the acquisitions in the Automotive area, in particular that of Prodomax Automation Ltd., made a key contribution to revenue in the amount of 37.0 million euros. T26

For more information on the development of revenue in the segments see the Segment Report

On a regional level, growth stimulus came from Germany and abroad. Outside Germany, Europe remained the region with the highest revenue, followed by the Americas. Revenue in Germany increased to 240.5 million euros, in particular due to deliveries of toll monitoring systems in the Mobility segment. In Europe, the share of group revenue was expanded to 29.3 percent as a result of the good demand from the semiconductor equipment industry (prior year: 28.4 percent). Revenue in the Americas also rose significantly by 19.7 percent in comparison with the prior year due to the acquisition but also to greater demand for optical systems and laser processing machines for the automotive industry. Revenue in the Asia/Pacific region fell to 100.8 million euros (prior year: 111.3 million euros). This reduction was due mainly to the termination of a traffic safety project in Australia. In the Middle East/Africa, revenue increased to 40.8 million euros, well above the prior year's level (prior year: 28.1 million euros). At 594.1 million euros, Jenoptik generated 71.2 percent of revenue abroad in the past fiscal year (prior year: 525.3 million euros or 70.2 percent). T27

In 2018, Jenoptik again generated its greatest share of revenue of 33.7 percent in the automotive/mechanical engineering target market (prior year: 30.4 percent). The share of revenue in the security and defense technology sector fell slightly to 18.9 percent (prior year: 20.8 percent). Revenue generated by the semiconductor equipment industry increased due to the industry boom, business in the aviation & traffic market as well as the medical technology market. In 2018, 18.0 percent of the group revenue was attributable to the top 3 customers (prior year: 18.3 percent). T29

The cost of sales rose by 11.9 percent to 541.5 million euros and thus at a slightly stronger rate than the revenue (prior year: 484.0 million euros). The main cause for this was increased

T26 Revenue by segment (in million euros)

	2018	2017	Change in %
Group	834.6	747.9	11.6
Optics & Life Science	290.0	259.4	11.8
Mobility	327.8	270.1	21.4
Defense & Civil Systems	218.6	219.3	−0.3
Other	−1.8	−0.8	−114.5

T27 Revenue by region (in million euros and as percent of total revenue)

	2018	2017	Change in %
Group	834.6	747.9	11.6
Germany	240.5	222.6	8.0
Europe	244.7	212.3	15.3
Americas	207.7	173.6	19.7
Asia/Pacific	100.8	111.3	−9.4
Middle East/Africa	40.8	28.1	45.2

material and personnel costs. The cost of sales includes expenses arising from developments on behalf of customers, which totaled 20.2 million euros (prior year: 22.2 million euros), which were offset by corresponding revenues. T28

The gross profit increased to 291.3 million euros (prior year: 263.9 million euros). At 35.1 percent, the gross margin was slightly below that of the prior year (prior year: 35.3 percent), due to a changed product mix, which in part requires a higher use of materials, as is the case with Prodomax, as well as impacts arising from the purchase price allocation.

Key factors in the Group's future performance and competitiveness are research and development. As part of Strategy 2022, we intend to invest more in the expansion of our system and application expertise in the future. Research and development expenses increased to 47.4 million euros in 2018 (prior year: 43.1 million euros). The share of R+D expenses as a proportion of revenue was 5.7 percent, the same level as the prior year (prior year: 5.8 percent).

Internationalization in conjunction with greater vertical integration and customer proximity in our priority regions are also key components of Strategy 2022. In the course of expanding international activities, the selling expenses increased by 8.4 percent to 87.0 million euros in 2018, due in part to depreciation/amortization in connection with the Prodomax acquisition. The selling expenses ratio at 10.4 percent was slightly down on the prior year (prior year: 10.7 percent).

In spite of first time consolidations, administrative expenses remained almost stable, at 56.1 million euros, compared with the prior year (prior year: 55.8 million euros). The prior year was characterized, among other things, by an increased valuation of share-based payments for the Executive Board and some members of the top management. At 6.7 percent, the administrative expenses ratio was less than the prior year's figure of 7.5 percent.

Other operating income increased to 20.9 million euros (prior year: 15.7 million), in particular due to positive currency effects totaling 9.7 million euros (prior year: 8.2 million euros) and income arising from the reversal of impairments on receivables.

Other operating expenses came to 28.4 million euros (prior year: 22.6 million euros). They included expenses for group projects such as preparations for the latest cloud-based business warehouse technology and additional process optimizations as well as costs relating to the acquisitions. Currency losses of 8.8 million euros were lower than in the prior year (prior year: 11.8 million euros), while impairment losses and depreciation/amortization arising from the purchase price allocation recorded an increase.

For more detailed information on research and development in the Jenoptik Group see from page 81

For detailed information on the composition of the other operating income and expenses, as well as total other comprehensive income, see the Notes

T28 Key items in the Statement of Comprehensive Income (in million euros)

	2018	2017	Change in %
Cost of sales	541.5	484.0	11.9
R+D expenses	47.4	43.1	10.1
Selling expenses	87.0	80.3	8.4
Administrative expenses	56.1	55.8	0.6
Other operating income	20.9	15.7	32.5
Other operating expenses	28.4	22.6	25.9

T29 Revenue by target market (in million euros and as percent of total revenue)

	2018		2017	
Automotive & mechanical engineering	281.3	33.7%	227.0	30.4%
Security & defense technology	157.7	18.9%	155.8	20.8%
Aviation & traffic	162.5	19.5%	153.0	20.5%
Semiconductor equipment industry	150.0	18.0%	127.8	17.1%
Medical technology	44.6	5.3%	43.4	5.8%
Other	38.7	4.6%	41.0	5.5%
Total	**834.6**	**100%**	**747.9**	**100%**

Strong revenue growth and a relatively low increase in functional costs led to a significant improvement in the operating result by 21.6 percent (prior year: 78.0 million euros). With a total of 94.9 million euros, Jenoptik thus achieved a new record in operating result (EBIT). Group EBIT includes the operating result of the acquired companies in the amount of minus 0.5 million euros including effects arising from the purchase price allocation of minus 10.5 million euros. The acquisitions costs amounted to 1.9 million euros. Despite the above-mentioned negative impacts, the Group's EBIT margin climbed to 11.4 percent (prior year: 10.4 percent), thereby exceeding the target of around 11 per cent set for 2018. The clear rise in earnings in the Optics & Life Science and Mobility segments has contributed significantly to this. T32

For information on the segment EBIT see the Segment Report from page 103 on

The earnings before interest, taxes, depreciation and amortization (EBITDA) including impairment losses and reversals followed this positive development and also increased overall at a faster rate than revenue, by 19.3 percent to a total of 127.5 million euros (prior year: 106.9 million euros). The EBITDA margin accordingly increased to 15.3 percent (prior year: 14.3 percent). Included in the EBITDA are impacts of minus 7.0 million euros arising from the purchase price allocation and acquisition costs of 1.9 million euros. T31

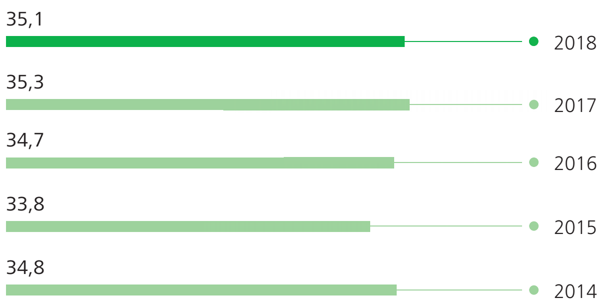
As of December 31, 2018, due to the increase in earnings, the Group's ROCE (Return on Capital Employed) also improved to 20.2 percent (prior year: 18.2 percent). Jenoptik shows this indicator inclusive of goodwill and before taxes. The calculation of the ROCE is explained in the glossary on page 220 and shown in the following table. The average tied capital is calculated as the average of the month end values in the reporting period. T30

The financial result fell to a total of minus 3.5 million euros (prior year: 2.0 million euros). One of the main reasons for this was significantly lower investment result, as profit generated from the disposal of a minority holding abroad had a strongly positive impact in 2017. Earnings were boosted by positive currency effects totaling 1.0 million euros (prior year: minus 1.0 million euros), while lower interest income in the amount of 0.3 million euros (prior year: 0.7 million euros) as well as increased interest expenses of minus 4.9 million euros (prior year: minus 4.4 million euros) had a negative effect on earnings.

T30 ROCE (in million euros)

	2018	2017
Long-term non-interest bearing assets	327.6	284.0
Short-term non-interest bearing assets	332.7	316.0
Non-interest bearing borrowings	−190.7	−171.4
Average tied capital	469.6	428.6
EBIT	94.9	78.0
ROCE (in percent)	20.2	18.2

G15 Development of the gross margin (in percent)



T31 EBITDA (in million euros)

	2018	2017	Change in %
Group	127.5	106.9	19.3
Optics & Life Science	69.9	58.7	19.1
Mobility	40.5	27.9	45.4
Defense & Civil Systems	24.4	23.8	2.2
Other	−7.3	−3.5	−109.5

T32 EBIT (in million euros)

	2018	2017	Change in %
Group	94.9	78.0	21.6
Optics & Life Science	62.3	50.5	23.4
Mobility	27.7	18.5	49.4
Defense & Civil Systems	20.1	19.2	4.9
Other	−15.2	−10.1	−50.0

Despite a drop in the financial result, the sharp rise in the EBIT was also reflected in the earnings before tax, which at a total of 91.4 million euros were 14.2 percent up on the prior year (prior year: 80.1 million euros).

The current income taxes reduced to 11.0 million euros (prior year: 14.3 million euros). Of these, 11.2 million euros (prior year: 8.0 million euros) were levied in Germany and minus 0.2 million euros (prior year: 6.4 million euros) abroad. The increase in Germany can be attributed in particular to the higher income during the reporting period. The negative taxes abroad result among other things from a refund in connection with the US tax reform, the setting off of tax assets, and a deviating taxation of profit in connection with the acquisition of Prodomax. In Germany, JENOPTIK AG's losses 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 12.0 percent (prior year: 17.9 percent) at a comparatively low level for German companies due to the high domestic earnings and the usable losses carried forward.

Non-cash deferred tax income amounted to 7.0 million euros in the past fiscal year (prior year: 6.9 million euros). Therefore, the group tax rate came to 4.38 percent (prior year 9.27 percent). We expect a higher tax rate for the current fiscal year.

See the Notes for detailed information on the subject of taxes

In 2018, due not least to the deferred tax income, Jenoptik generated earnings after tax of 87.4 million euros, a significant improvement of 20.4 percent (prior year: 72.7 million euros). At 87.6 million euros, earnings attributable to shareholders were well above the prior year's figure of 72.5 million euros, and the earnings per share of 1.53 euros also significantly exceeded the prior year's value of 1.27 euros.

A new record figure of 873.7 million euros was also achieved in the 2018 fiscal year, when the order intake rose by a total of 70.8 million euros (prior year: 802.9 million euros). This increase is the result of stronger demand from the Optics & Life Science segments. The major orders for the supply of traffic safety technology to the Middle East are already included in this figure. The order intake in 2018 was thus both above the prior-year value and above the revenue level. The book-to-bill-ratio remained stable against this background at 1.05 (prior year: 1.07). T33 T36 G16

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

T33 Order intake (in million euros)

	2018	2017	Change in %
Group	873.7	802.9	8.8
Optics & Life Science	350.8	295.5	18.7
Mobility	319.3	303.7	5.2
Defense & Civil Systems	203.5	206.2	−1.3
Other	0.1	−2.4	103.5

T34 Order backlog (in million euros)

	2018	2017	Change in %
Group	521.5	453.5	15.0
Optics & Life Science	165.0	109.1	51.2
Mobility	182.0	144.7	25.8
Defense & Civil Systems	175.4	202.6	−13.4
Other	−0.9	−2.9	67.8

T35 Frame contracts (in million euros)

	2018	2017	Change in %
Group	62.5	87.6	−28.7
Optics & Life Science	11.8	11.1	6.5
Mobility	19.2	30.1	−36.3
Defense & Civil Systems	31.4	46.3	−32.2

T36 Book-to-bill ratio (in percent)

	2018	2017
Group	1.05	1.07
Optics & Life Science	1.21	1.14
Mobility	0.97	1.12
Defense & Civil Systems	0.93	0.94

The order backlog at the end of 2018 increased considerably to 521.5 million euros (31/12/2017: 453.5 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 2019 fiscal year. T34

There were also frame contracts worth 62.5 million euros (31/12/2017: 87.6 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 as well as to reduction of contract volume by the customer, among other things. T35

For more information see the Notes.

Financial position

Principles and targets of finance management

The central Treasury department plans for requirements and controls the 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 North America. Starting in 2018, amounts in USD have been automatically transferred back and forth between JENOPTIK North America, Inc. in the US and JENOPTIK AG in Germany on a daily basis.

As a result of the above measures, the existing syndicated loan, the issued debenture loans, and a high level of cash and cash equivalents, the Group’s liquidity in the past fiscal year was sufficiently secured at all times.

Primarily using forward exchange transactions, Jenoptik hedges orders in foreign currencies, thereby reducing the consequences of exchange rate fluctuations on earnings and cash flow. Derivative financial instruments are used exclusively to hedge the operating business and necessary financial transactions, e.g. internal loans or acquisition financing in foreign currencies. We recently increased the hedging of our internal loans in GBP with regard to Brexit.

There were thus no changes to our financing principles in the 2018 fiscal year.

Capital structure and financing analysis

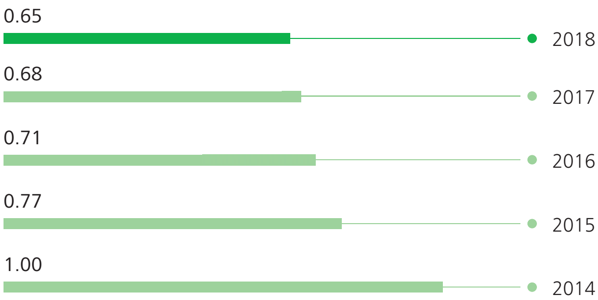
With an excellent equity ratio of 60.6 percent as of December 31, 2018, the debenture loans, and the syndicated loan, the Group has a viable financing structure. This gives Jenoptik the flexibility and financial latitude to finance future organic growth and acquisitions, and thus to implement our international growth strategy.

The debenture loans issued 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 secures Jenoptik’s medium-term financing structure. In addition, the Group is in a position to make use of a credit line 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 syndicated loan, and Jenoptik is in compliance with all their conditions.

In addition to cash and cash equivalents of 89.3 million euros and current financial investments of 59.5 million euros, the

G16 Development of the book-to-bill ratio (in percent)

G17 Debt-to-equity ratio (in percent)



Group also has unused volume from framework credit agreements totaling 220.2 million euros to fall back on. This means that Jenoptik has more than 350 million euros available for corporate development projects.

In 2018, the Group's non-current financial debt increased slightly to 111.4 million euros (31/12/2017: 108.6 million euros). The balance sheet item comprised almost exclusively financial liabilities to banks in the amount of 108.2 million euros (31/12/2017: 107.9 million euros). At the end of 2018, non-current financial debt accounted for around 92 percent of Jenoptik's financial debt (31/12/2017: 85 percent).

The current financial debt fell to 10.1 million euros (31/12/2017: 19.3 million euros), in part due to repayment of a tranche of the debenture loans.

As the equity posted at year-end 2018 was 68.0 million euros up on the prior year but borrowed capital increased by only 28.8 million euros, the debt-to-equity ratio improved further, to 0.65 (31/12/2017: 0.68). The debt-to-equity ratio is defined as the ratio between borrowings (388.0 million euros) and equity (598.0 million euros). G17

At year-end of 2018, the net cash position, defined as the total cash and cash equivalents and current financial investments minus current financial debt, amounted to 138.6 million euros (31/12/2017: 177.5 million euros). Cash and cash equivalents including current financial investments fell compared to the prior year, primarily due to the acquisitions of Prodomax and the OTTO Group, to 148.7 million euros (31/12/2017: 196.9 million euros), while current financial debt fell to 10.1 million euros (prior year: 19.3 million euros).

After reporting a low level of net debt at the end of the third quarter, primarily due to the company acquisitions, Jenoptik remained free of net debt at the end of the fiscal year as a result of good cash flows from operating activities. As of December 31, 2018, net debt came to minus 27.2 million euros (31/12/2017: minus 69.0 million euros). This positive development was achieved despite the above-mentioned acquisitions, a higher dividend payment of 17.2 million euros (prior year: 14.3 million euros), and increased capital expenditure. T37

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.

In 2018, the Group invested 42.5 million euros (prior year: 37.9 million euros) on intangible assets, property, plant, and equipment, and investment property. Investments were primarily made to create the conditions for growth and new customer orders, for example by increasing manufacturing capacity at various locations in Germany and abroad, e.g. in Bayeux and Berlin. 2018 saw the start of a project to build a new company building featuring cutting-edge development, production, and office spaces for industrial metrology at the Villingen-Schwenningen location. T38 T39

At 37.9 million euros, once again the largest share of capital expenditure was on property, plant, and equipment (prior year: 33.8 million euros).

69 Combined Management Report 132

T37 Net and gross debt (in million euros)

	2018	2017	2016	2015	2014
Non-current financial debt	111.4	108.6	120.5	113.2	156.8
Current financial debt	10.1	19.3	4.1	14.9	5.1
Gross debt	**121.5**	**127.9**	**124.6**	**128.1**	**161.9**
minus securities	59.5	64.6	50.5	0.4	0.3
minus cash and cash equivalents	89.3	132.3	92.0	83.8	69.5
Net debt	**–27.2**	**–69.0**	**–17.9**	**43.9**	**92.1**

Mainly due to higher license fees and capitalized development expenses, capital expenditure for intangible assets slightly exceeded the prior-year level, coming to 4.5 million euros (prior year: 4.2 million euros). Investment was again made in the IT landscape and other group projects. During the reporting period, development services arising from internal projects and worth 1.3 million euros were capitalized (prior year: 0.5 million euros).

For more information on capital expenditure by segment see the Segment Report from page 103 on; on future investment projects in the Forecast Report from page 128 on

Scheduled depreciation / amortization totaled 30.6 million euros (prior year: 28.7 million euros). Impairment losses and reversals came to minus 2.1 million euros (prior year: minus 0.2 million euros).

Depreciation on property, plant, and equipment was virtually unchanged at 21.6 million euros (prior year: 21.2 million euros) and thus well below capital expenditure on property, plant, and equipment.

Amortization on intangible assets amounted to 8.9 million euros (prior year: 7.4 million euros), and, as in the prior year, primarily included amortization of patents, trademarks, and software, as well as intangible assets identified in the course of company acquisitions.

Analysis of cash flows

Over the reporting year, cash flows from operating activities increased to 135.5 million euros (prior year: 96.3 million euros), primarily due to higher earnings before tax and the positive impact from the change in working capital, while higher payments for income taxes due to increased back payments and prepayments had a negative effect.

Cash flows from investing activities fell to minus 117.5 million euros in 2018 (prior year: minus 42.2 million euros). Payments of 81.4 million euros for the acquisition of consolidated entities were the main reason for this increase, but higher capital expenditure for intangible assets and property, plant, and equipment also impacted on cash flows. Proceeds from sale of financial assets within the framework of short-term disposition exceeded payments by 4.1 million euros and thus had a positive impact (prior year: negative impact of minus 14.5 million euros).

For more information on the acquisitions see the Notes, on page 148 ff.

T38 Capital expenditure and depreciation / amortization (in million euros)

	2018	2017	Change in %
Capital expenditure	42.5	37.9	12.2
Intangible assets	4.5	4.2	9.1
Property, plant, and equipment	37.9	33.8	12.3
Investment properties	0.1	0	–
Depreciation / amortization / impairment losses and reversals	32.6	28.9	12.9
Intangible assets	10.1	7.4	37.1
Property, plant and equipment	22.4	21.4	4.7
Investment properties	0.1	0.1	3.3

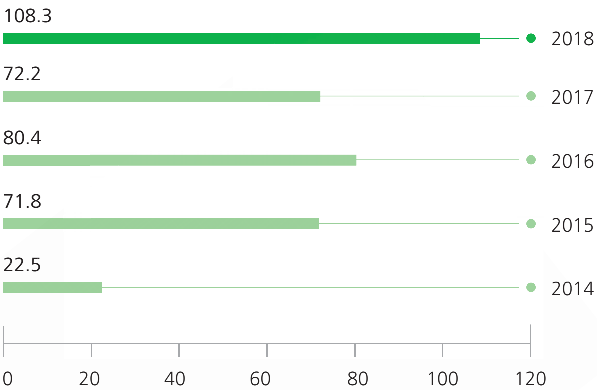
T39 Capital expenditure by segment – intangible assets and property, plant and equipment (in million euros)

	2018	2017	Change in %
Group	42.5	37.9	12.2
Optics & Life Science	16.4	11.3	45.8
Mobility	13.8	17.5	–21.2
Defense & Civil Systems	5.7	4.5	26.0
Other	6.6	4.7	42.5

Over the period covered by the report, improved cash flows from operating activities before taxes and interest resulted in a significant rise in the free cash flow to 108.3 million euros (prior year: 72.2 million euros), despite a higher level of capital expenditure. The free cash flow is calculated as the cash flows from operating activities before payments for income tax in the amount of 149.3 million euros (prior year: 105.1 million euros), less expenditure for operating investment activities, i. e. minus inflows and outflows of funds for intangible assets and property, plant, and equipment, amounting to 41.1 million euros (prior year: 32.8 million euros).

The cash flows from financing activities amounted to minus 60.9 million euros (prior year: minus 12.9 million euros) in the 2018 fiscal year. It was impacted primarily by repayments of bonds and loans of minus 40.3 million euros (prior year: minus 3.6 million euros). In addition to repayment of a tranche of the debenture loans, this item particularly includes repayments of bank loans held by Prodomax in the course of the company's acquisition. In addition, cash flows from financing activities were influenced by a higher dividend payment of 17.2 million euros (prior year: 14.3 million euros).

G18 Free cash flow (in million euros)



Asset position

As of December 31, 2018, the Jenoptik Group's total assets increased to 985.9 million euros, up on the figure at year-end 2017 (31/12/2017: 889.1 million euros). The increase by 96.8 million euros is mainly due to the company acquisitions. By contrast, cash and cash equivalents together with other current non-financial liabilities, in particular, saw a fall.

For more information on the changes to the consolidated companies see the Notes

Non-current assets rose sharply to 491.8 million euros (31/12/2017: 376.2 million euros). Particularly strong growth was seen in the intangible assets and property, plant, and equipment. The former primarily rose as a range of intangible assets such as customer bases and order backlogs were identified and goodwill was recognized during the purchase price allocation in connection with the acquisition of shares in Prodomax and the OTTO Group. The "Goodwill" item increased, in particular due to the acquisitions, to 159.8 million euros (31/12/2017: 101.4 million euros), and thus remained the largest item in intangible assets. Property, plant, and equipment increased to 185.9 million euros (31/12/2017: 164.7 million euros). Due to the capitalization of other deferred taxes on tax losses carried forward, the deferred tax assets increased to 86.3 million euros in the reporting year (prior year: 78.9 million euros).

For more information on intangible assets, on property, plant, and equipment, and on the impacts on these items arising from the company acquisitions see the Notes, sections 5.1, 5.2 and 4.2

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

T40 Cash flows (in million euros)

	2018	2017	2016	2015	2014
Cash flows from operating activities	135.5	96.3	100.1	85.1	46.3
Cash flows from investing activities	–117.5	–42.2	–71.3	–7.2	–37.6
Cash flows from financing activities	–60.9	–12.9	–20.7	–66.5	–13.8
Cash-effective change in cash and cash equivalents	–42.9	41.3	8.0	11.4	–5.0
Non-cash change in cash and cash equivalents	–0.1	–0.9	0.1	2.9	2.9
Change in cash and cash equivalents	**–43.1**	**40.3**	**8.1**	**14.3**	**–2.1**
Cash and cash equivalents at the end of the fiscal year	**89.3**	**132.3**	**92.0**	**83.8**	**69.5**

Over the past fiscal year, current assets fell to 494.1 million euros (31/12/2017: 512.9 million euros). The acquisitions made in the reporting period were paid for entirely using cash and cash equivalents, producing a fall in cash and cash equivalents to 89.3 million euros (31/12/2017: 132.3 million euros). Current financial investments also fell following the repayment of cash investments. Due to the first-time application of IFRS 15, the "Contract assets" item was posted for the first time with a value of 23.4 million euros. Primarily as a result of this new item, current trade receivables fell to 131.2 million euros (31/12/2017: 136.0 million euros). Inventories rose to 175.6 million euros (31/12/2017: 168,6 million euros), as the increase due to operating activities (15.4 million euros) more than compensated for the effect of first-time application of IFRS 15 (minus 8.5 million euros).

For more information on the application of IFRS 15, see the chapter "Change to accounting and valuation principles"

Primarily due to higher operating receivables (trade receivables and contract assets) and inventories resulting from both revenue growth and the company acquisitions, the working capital increased to 216.8 million euros at the end of December (31/12/2017: 214.8 million euros). Despite the absolute increase, active working capital management meant that the working capital ratio, that of working capital to revenue, fell significantly, to 26.0 percent (31/12/2017: 28.7 percent).

The substantial increase in earnings after tax posted at the end of the 2018 fiscal year, minus the dividend payment, primarily resulted in equity, inclusive of non-controlling interests, growing by 68.0 to 598.0 million euros (31/12/2017: 529.9 million euros). Following the higher increase in equity relative to total assets, the equity ratio, that of equity to total assets, improved further to 60.6 percent (31/12/2017: 59.6 percent). G19

At the end of 2018, non-current liabilities rose to 170.3 million euros (31/12/2017: 162.1 million euros). Key reasons for this were an increase of 2.8 million euros in the non-current financial debt (new finance leasing agreements and first-time consolidation of ASAM Grundstücksverwaltungsgesellschaft mbH & Co. Vermietungs KG) to 111.4 million euros, the increase in other non-current financial liabilities (variable purchase price

T41 Elements of working capital (in million euros)

	2018	2017	Change in %
Inventories	175.6	168.6	4.1
Trade receivables (prior year trade receivables from third parties and construction contracts)	131.2	135.8	−3.4
Contract assets	23.4	0	
Trade payables (prior year trade payables towards third parties and from construction contracts)	60.1	61.5	−2.3
Contract liabilities	53.3	0	
Liabilities arising from advance payments	0	28.2	
Total	**216.8**	**214.8**	**1.0**

T42 Financial debt by due date (in million euros)

	Up to 1 year		1 to 5 years		Total as at 31/12	
	2018	2017	2018	2017	2018	2017
Liabilities to banks	9.3	19.2	108.2	107.9	117.5	127.0
Liabilities from finance leases	0.8	0.2	3.2	0.7	4.0	0.9
Total	**10.1**	**19.3**	**111.4**	**108.6**	**121.5**	**127.9**

components from the acquisition of the OTTO Group and derivatives), and deferred tax liabilities in connection with the acquisition of Prodomax.

A major element of the non-current financial debt are the debenture loans totaling 103 million euros.

Current liabilities rose to 217.7 million euros (31/12/2017: 197.1 million euros). The “Contract liabilities” item, valued at 53.3 million euros, was posted for the first time in connection with the application of IFRS 15. Other current non-financial liabilities primarily fell due to the reclassification of advance payments to contract liabilities. The repayment of debenture loans was the main reason for a fall in current financial debt. As at year-end 2018, current liabilities included trade accounts payable in the amount of 60.1 million euros (31/12/2017: 61.7 million euros). Other current provisions increased to 58.7 million euros (31/12/2017: 51.2 million euros), chiefly due to additions to personnel and warranty provisions, among others, for the 2018 fiscal year.

Acquisitions and disposals:
The following acquisitions and disposals were made in 2018:

Prodomax Automation Ltd.
In July, Jenoptik acquired a 100 percent stake in Prodomax Automation Ltd., Barrie (Ontario), Canada, through its US company JENOPTIK North America Inc.

OTTO Vision Technology GmbH and OVITEC GmbH
In late August 2018, Jenoptik acquired a 100 percent stake in OTTO Vision Technology GmbH and OVITEC GmbH (OTTO Group).

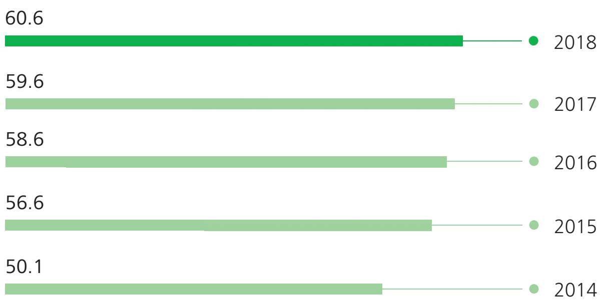
More information on the acquisitions of these companies can be found in the Segment Report, on page 106, and in the Notes, from page 148 on.

There were no other significant acquisitions or disposals in 2018.

Assets and liabilities not included on the Statement of Financial Position

The value of the Jenoptik brand is one of the main assets not included on the statement of financial position. Within the highly fragmented photonics market, which is characterized by a multitude of highly-specialized companies, Jenoptik is considered a key supplier. We aim to further boost awareness of our brand, especially on the international stage, in the coming years. Since February 2019, the company has been on the market with a new brand positioning and a new corporate design.

G19 Equity ratio (in percent)



T43 Elements of interest-bearing liabilities (in million euros)

	2018	2017	Change in %
Current	10.1	19.3	−47.6
Liabilities to banks	9.3	19.2	−51.5
Liabilities from finance leases	0.8	0.2	359.6
Non-current	111.4	108.6	2.6
Liabilities to banks	108.2	107.9	0.3
Liabilities from finance leases	3.2	0.7	360.4

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

With the Strategy 2022 the Group is set to concentrate on the core photonics expertise in light and optics under the Jenoptik brand. The independent VINCORION brand for the mechatronics business (formerly part of the Defense & Civil Systems segment) was launched in 2018 to take better account of specific market requirements.

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, deferred tax assets are not recognized for corporate tax purposes in the amount of 26.2 million euros (prior year: 105.0 million euros) and trade tax purposes in the amount of 181.7 million euros (prior year: 267.9 million euros), as they are unlikely to be used within a determined planning time frame. Equally, no deferred tax assets were recognized for deductible timing differences in the amount of 8.3 million euros (prior year 6.2 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 171 f. on.

Information on contingent assets and liabilities can be found in the Notes, from page 198 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 120.0 million euros (prior year: 122.7 million euros). More information can be found in the Remuneration Report, from page 44 on, and in the Information on Takeover Law, from page 41 on.

General Statement by the Executive Board on the Development of Business

In the 2018 fiscal year, Jenoptik continued on its successful path of growth and achieved new revenue and earnings records, with revenue increases seen in the Optics & Life Science and Mobility segments. As expected, the Defense & Civil Systems segment saw stable development. The rise in revenue was particularly facilitated by strong demand from the semiconductor equipment industry, for traffic safety technology (toll monitoring systems), and, on a regional level, by strong growth in the Americas and Europe. The acquisitions in the automotive business, in particular Prodomax, also made a significant contribution to revenue. Thanks to a more profitable revenue mix and active cost management, we succeeded in achieving an above-average increase in EBITDA and EBIT, despite the impacts arising from the purchase price allocation in connection with the acquisitions.

We also achieved a sharp increase in our order intake and order backlog. A book-to-bill ratio of 1.05 means we have created a very solid basis for the Group's further profitable growth.

With very good earnings capacity and strong cash flows, we were able to finance not only our operating business but also higher investments and the acquisitions of Prodomax and the OTTO Group. The free cash flow saw a significant increase and, at year-end 2018, the Group was free of net debt despite the company acquisitions. Our equity ratio rose again. We were able to improve our total assets as well as other financial and balance sheet indicators.

Overall, the Executive Board was very satisfied with the company's performance.

Segment Report

The range of services and competitive positioning of the segments are set out in greater detail in the Group Business Model chapter, from page 72 on.

Information on the various markets can be found in the Sector Report, from page 88 on, and on future developments in the Forecast Report, from page 124 on.

Optics & Life Science Segment

In the 2018 fiscal year, the Jenoptik Group further expanded its already strong market position as a high-tech photonics company in the Optics & Life Science segment, which as an OEM partner supports its customers with a broad technology portfolio covering everything from development to volume production. Cooperation as a development and production partner with numerous international market leaders was stepped up. Integrated solutions for semiconductor manufacturing underwent further development, while the product range for the IT and communications technology (ICT) markets was expanded. The segment also focused on the medical technology and life science markets, for example with the successful launch of a modular technology platform for analysis and diagnostics solutions in the bio-imaging sector.

The Optics & Life Science segment achieved a new revenue and earnings record in the 2018 fiscal year. Revenue rose 11.8 percent to 290.0 million euros (prior year: 259.4 million euros), with the segment particularly benefiting from good business with solutions for the semiconductor equipment industry and healthy growth in the healthcare and industry business. In total, around 79 percent of the segment's revenue was generated abroad in 2018 (prior year: 79 percent), with Europe still enjoying the greatest share, followed by the Americas.

The segment generated EBIT of 62.3 million euros (prior year: 50.5 million euros). The operating results thus improved by 23.4 percent, mostly for the reasons set out above. The EBIT margin increased sharply to 21.5 percent (prior year: 19.5 percent). Income from operations before depreciation and amortization (EBITDA) also grew significantly, by 19.1 percent to 69.9 million euros (prior year: 58.7 million euros); the EBITDA margin increased to 24.1 percent (prior year: 22.6 percent).

In the 2018 fiscal year, the order intake significantly exceeded the prior-year level by 18.7 percent, particularly following a strong fourth quarter, and was worth 350.8 million euros (prior year: 295.5 million euros). This increase was particularly facilitated by stronger demand for optical systems. Because the order intake grew at a greater rate than revenue, the book-to-bill ratio also rose, to 1.21 (prior year: 1.14).

69 Combined Management Report 132

T44 Optics & Life Science segment at a glance (in million euros)

	2018	2017	Change in %
Revenue	290.0	259.4	11.8
EBITDA	69.9	58.7	19.1
EBITDA margin in %	24.1	22.6	
EBIT	62.3	50.5	23.4
EBIT margin in %	21.5	19.5	
Capital expenditure	16.4	11.3	45.8
Free cash flow	52.7	47.5	11.1
Order intake	350.8	295.5	18.7
Order backlog	165.0	109.1	51.2
Frame contracts	11.8	11.1	6.5
Employees	1,241	1,149	8.0

The order backlog increased by 55.9 million euros at the end of the year, to 165.0 million euros (31/12/2017: 109.1 million euros), thus forming a solid basis for the present fiscal year. The segment also had frame contracts worth 11.8 million euros (31/12/2017: 11.1 million euros).

With a free cash flow of 52.7 million euros (before interests and income taxes), the segment exceeded the good level of the prior year in spite of higher capital expenditure and the growth-related increase in working capital (prior year: 47.5 million euros). This was primarily due to a good earnings performance. The segment's working capital grew to a figure of 64.1 million euros, primarily due to inventory increases made in preparation for revenues in 2019 (prior year: 56.0 million euros).

As of December 31, 2018, the segment had a total of 1,241 employees, 92 more than in the prior year. The segment had 31 people in trainee positions at the end of 2018.

R+D expenses in the past fiscal year totaled 15.7 million euros (prior year: 13.4 million euros). Including developments on behalf of customers, the segment's R+D output came to 23.8 million euros, slightly up on the prior year (prior year: 21.1 million euros). The share of total R+D output in segment revenue was 8.2 percent (prior year: 8.1 percent).

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

Capital expenditure on property, plant, and equipment as well as intangible assets rose sharply, to 16.4 million euros (prior year: 11.3 million euros). It was offset by depreciation/amortization in the sum of 7.7 million euros (prior year: 8.0 million euros). Key areas of investment in the 2018 fiscal year included the expansion of capacities and the technological development of the manufacturing infrastructure, e.g. for the production and coating of optical components. Since 2018, Jenoptik has also been upgrading and expanding its production facilities in Berlin, where newly installed systems are accelerating order handling in the production of high-power laser diodes. The segment is thus ensuring its preparedness to meet sustained high demand for semiconductor lasers. These investments are helping the Group to lastingly secure its competitiveness in its core business of photonics.

Production and organization. Within the segment, a range of initiatives focusing on internal customer and supplier relationships were continued in 2018, resulting in an improvement in the quality of the manufactured products as well as in the development of new products. Further development of the work cell structure allowed customer-related planning processes to be more closely interlinked with internal processes, resulting in shorter lead, handling, and waiting times.

A management structure organized by production systems was gradually introduced at the individual production sites and a corresponding infrastructure and quality management system were established. This made it possible to further improve our overall productivity. On the basis of an increased share of business, e.g. in the automotive and consumer electronics market segments, and the high or very high resulting production quantities, the segment also made targeted investments in new production facilities and considerably boosted both its degree of automation and the efficiency of its production lines.

To better meet the growing demands of our international customers, Jenoptik inaugurated a new site in Fremont, located in California's Silicon Valley, at the beginning of the 2018 fiscal year, thereby putting it in the direct presence of its customers on the west coast of the US. Jenoptik can thus address the region's particular needs, especially in the areas of application engineering and product development, and further accelerate its own growth, particularly in the US.

The Light & Optics division launched its new organizational structure on January 1, 2019, combining the former Optical Systems and Healthcare & Industry divisions, together with the sensors business that was previously part of the Defense & Civil Systems division. The new division operates in three strategic business units: Semiconductor & Advanced Manufacturing, Biophotonics, and Industrial Solutions. Sales and production (Operations) were brought together globally under one management.

In addition, the corporate structure in Germany is being streamlined. The legal merger of the companies will be gradually completed in March 2019.

Mobility Segment

In 2018, 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. With the acquisitions of Prodomax and the OTTO Group, the segment took a further step in its development to become an integrated supplier for high-tech production environments and for production metrology and industrial imaging applications.

Revenue in the Mobility segment increased by 21.4 percent to 327.8 million euros in 2018 (prior year: 270.1 million euros), with the acquired companies contributing 37.0 million euros to this figure. This equated to organic growth of 7.7 percent. Both solutions for the automotive industry and traffic safety technology systems saw increased demand, the latter primarily due to the delivery of toll monitoring systems. Particularly in the fourth quarter, the strong revenue contribution made by the automotive and traffic solutions business allowed the segment to post its highest ever revenue for a quarter, of 104.4 million euros.

At around 70 percent, the segment again generated most of its revenue abroad in 2018 (prior year: approximately 72 percent). Revenues in the Americas increased particularly due to the contribution made by Prodomax; in Germany due to the delivery of toll monitoring systems; and in the Middle East/Africa due to the settlement of traffic safety projects. Reflecting project volumes, revenue in Asia/Pacific saw a slight decline.

Based on this good overall revenue growth, the segment EBIT grew to 27.7 million euros (prior year: 18.5 million euros). Here, again, the fourth quarter saw the highest earnings, of 10.8 million euros, in the past fiscal year. As expected, the segment thus posted a significantly improved quality of earnings compared to the prior year. EBIT for the newly acquired companies came to minus 0.5 million euros, with earnings accounting for the impacts of these acquisitions. Impacts arising from the purchase price allocation came to minus 10.5 million euros, costs for the acquisitions to 1.9 million euros. The prior-year group EBIT had included one-off costs for the project to supply toll monitoring systems. The EBIT margin improved to 8.4 percent (prior year: 6.9 percent). The EBITDA increased by 45.4 percent to 40.5 million euros (prior year: 27.9 million euros). The EBITDA margin rose to 12.4 percent, compared to 10.3 percent in the prior year. Included in the EBITDA are earnings-reducing impacts of minus 7.0 million euros from the purchase price allocation and acquisition costs of approximately 1.9 million euros.

The order intake in the segment increased by 5.2 percent to 319.3 million euros in 2018 (prior year: 303.7 million euros). This growth was generated in the automotive business, while in the traffic solutions business the major order to supply toll monitoring systems included in the order intake for the prior year could not be fully made up for in 2018. The order intake also includes the orders received by Prodomax and the OTTO Group since the acquisition date, in total worth 24 million euros. The book-to-bill ratio reached a figure of 0.97 in 2018 (prior

T45 Mobility segment at a glance (in million euros)

	2018	2017	Change in %
Revenue	327.8	270.1	21.4
EBITDA	40.5	27.9	45.4
EBITDA margin in %	12.4	10.3	
EBIT	27.7	18.5	49.4
EBIT margin in %	8.4	6.9	
Capital expenditure	13.8	17.5	−21.2
Free cash flow	45.5	10.1	349.8
Order intake	319.3	303.7	5.2
Order backlog	182.0	144.7	25.8
Frame contracts	19.2	30.1	−36.3
Employees	1,527	1,326	15.2

year: 1.12). In the fourth quarter of 2018, Jenoptik received two orders to supply several hundred traffic monitoring systems to customers in the Middle East. Together, these orders are in the low double-digit million euros range. In January 2019, Jenoptik reported two orders from North American automotive customers to supply automation solutions worth over 12 million euros.

The value of the order backlog increased by 25.8 percent, to 182.0 million euros at the end of 2018 (31/12/2017: 144.7 million euros). Of this figure, the order backlog pertaining to the acquired companies was worth 35.9 million euros. The value of frame contracts fell to 19.2 million euros (31/12/2017: 30.1 million euros).

Lower capital expenditure and higher earnings were key reasons for the significant improvement in the segment's free cash flow (before interest and income taxes) to 45.5 million euros (prior year: 10.1 million euros). The segment's working capital increased to a value of 69.9 million euros (prior year: 68.0 million euros). This growth was comparatively small, as increased inventories and receivables built up in preparation for revenues in the new fiscal year were offset by higher debts.

As a result of the acquisitions, the Mobility segment had 1,527 employees as of December 31, 2018, a strong increase on the prior year (31/12/2017: 1,326 employees). As of the reporting date, 28 people were in trainee positions (31/12/2017: 22 trainees).

The segment's R+D output fell to a value of 26.8 million euros (prior year: 30.0 million euros). This included developments on behalf of customers in the amount of 9.2 million euros (prior year: 13.5 million euros). In the prior year, the segment posted development expenses particularly relating to the order to supply toll monitoring systems. The segment's R+D expenses came to 17.5 million euros (prior year: 16.4 million euros). In 2018, the share of R+D output in total revenue in the Mobility segment was 8.2 percent (prior year: 11.1 percent).

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

The segment's capital expenditure on property, plant, and equipment and intangible assets (excluding effects from acquisitions) fell 21.2 percent to 13.8 million euros (prior year: 17.5 million euros). The prior year item in part included capital expenditure for construction of the new technology campus at the Rochester Hills location in Michigan, US. Capital expenditure was offset by depreciation/amortization in the sum of 11.7 million euros (prior year: 9.3 million euros).

Jenoptik continued to invest in expanding and upgrading its own development and production facilities in 2018. Around 3 million euros were invested in a modern production and sales environment for high-precision industrial metrology at the Bayeux location in France. 48 employees start work at the 2,500 m² building in the first quarter of 2019. Cutting-edge development, production, and office spaces for industrial metrology are being built at the Villingen-Schwenningen site at a cost of over 13 million euros. Construction will commence in the spring of 2019, with operations scheduled to start at the new site one year later.

In addition, the application centers for the laser processing business were expanded around the world in 2018. The Rochester Hills location in the US, for example, saw the installation of the new VOTAN A Scan laser application machine, supplementing existing application systems for cutting and welding and offering our customers the option to develop processes for new materials.

Acquisitions. Over the 2018 fiscal year, the Mobility segment successfully completed three acquisitions.

Prodomax Automation Ltd.: On the closing date in July 2018, Jenoptik acquired a 100 percent stake in Prodomax Automation Ltd., Barrie (Ontario), Canada, through its US company JENOPTIK North America Inc. Prodomax specializes in process automation for the automotive industry. The acquisition allows the Group to boost its position as a turnkey provider of automated production solutions. Jenoptik already began to serve this market in 2017 with the acquisition of Five Lakes Automation. The combination of automation solutions and laser processing machines gives the Jenoptik Group an opportunity to tap into further potential for growth in the field of advanced manufacturing.

OTTO Vision Technology GmbH and OVITEC GmbH: Jenoptik acquired a 100 percent stake in the sister companies Otto Vision Technology GmbH and OVITEC GmbH in August 2018. The two companies specialize in optical testing systems for product inspection and process optimization, as well as in complex imaging systems for applications in the field of parts measurement, surface testing, and position detection.

Production and organization. At the start of the 2019 fiscal year, the Mobility segment was split up into two new divisions, Light & Production (previously the Automotive division), and Light & Safety (previously Traffic Solutions).

Over the course of the 2018 fiscal year, key new appointments were made in the Mobility segment. At the start of the year a new head of the Traffic Solutions division was appointed, and in January 2019 of the Light & Production division. Operating management structures were also streamlined in this division; key account management in sales was optimized in the course of internal projects and global responsibilities were established for individual functional areas. Supported by the Group's central functions, the segment also began the post-merger integration of the acquired companies.

The Traffic Solutions division pushed on with efforts to more closely and lastingly tailor its work to customer expectations, growth, and efficiency targets. To this end, a project to restructure the division with separate areas of Global Sales Services, Global Strategy & Business Development, Global Development, Regional Units, Operations, and Finance was carried out in the second half of 2018 and successfully completed in December.

Defense & Civil Systems Segment

The Defense & Civil Systems segment was responsible for our mechatronics and sensor businesses in 2018. Since mid-September 2018, the Group has been marketing its range of mechatronics solutions for the aviation, security, defense, and rail markets under the VINCORION brand. This new brand name allows the Group to present itself on its target markets better than was previously possible under the Jenoptik brand.

In the 2018 fiscal year, 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. International sales and service structures were expanded and technology and knowledge transfer to civilian fields was continued.

At 218.6 million euros, revenue, as expected, remained practically unchanged on the prior year (prior year: 219.3 million euros). The share of revenue generated abroad, at around 61 percent (prior year: 57 percent), increased but was still lower than in the other two segments. The segment saw significant growth in Europe, in particular in Great Britain. In Germany, by contrast, revenue of 84.4 million euros was down on the prior year, for project-related reasons (prior year: 93.8 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.

At 20.1 million euros, the segment EBIT was slightly up on the prior-year figure (prior year: 19.2 million euros). A changed product mix, lower currency losses, and cost savings in sales

T46 Defense & Civil Systems segment at a glance (in million euros)

	2018	2016	Change in %
Revenue	218.6	219.3	−0.3
EBITDA	24.4	23.8	2.2
EBITDA margin in %	11.2	10.9	
EBIT	20.1	19.2	4.9
EBIT margin in %	9.2	8.7	
Capital expenditure	5.7	4.5	26.0
Free cash flow	25.5	22.3	14.4
Order intake	203.5	206.2	−1.3
Order backlog	175.4	202.6	−13.4
Frame contracts	31.4	46.3	−32.2
Employees	912	897	1.7

resulted in the EBIT margin increasing to 9.2 percent (prior year: 8.7 percent). The EBITDA also saw a minor increase, to 24.4 million euros (prior year: 23.8 million euros). The EBITDA margin improved to 11.2 percent (prior year: 10.9 percent).

As expected, the segment increased its order intake in the fourth quarter, posting new orders worth some 60 million euros. For the full year, however, the order intake, worth 203.5 million euros, was still marginally down on the prior-year which had included several major projects (prior year: 206.2 million euros). Particularly in the first quarter of 2017, Jenoptik received several major orders for energy and sensor systems. The book-to-bill ratio in the segment remained stable at 0.93 in 2018 (prior year: 0.94).

As of December 31, 2018, the order backlog was worth 175.4 million euros (31/12/2017: 202.6 million euros). The segment also has frame contracts with a value of 31.4 million euros (31/12/2017: 46.3 million euros), the decline is attributable, among others, to reduction of contract volume by the customer.

With a total of 912 employees, the number of people employed in the Defense & Civil Systems segment saw a slight increase at the end of the year (31/12/2017: 897 employees). At the end of December, the segment had a total of 55 people in trainee positions (31/12/2017: 59 trainees).

The segment's R+D output grew to 18.6 million euros in 2018 (prior year: 14.9 million euros). Higher expenditure was particularly due to projects to develop new products in the aviation business. Development costs on behalf of customers amounted to 3.5 million euros (prior year: 1.8 million euros), primarily due to joint development projects with systems companies. At 14.2 million euros, the segment's R+D expenses were up on the prior year (prior year: 12.6 million euros).

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

The segment invested 5.7 million euros in property, plant, and equipment and intangible assets (prior year: 4.5 million euros). As a result, the level of capital expenditure was 26.0 percent higher than in the prior year. Key projects included the establishment of volume production for heated floor panels in aircraft and the modernization and upgrade of machinery. The capital expenditure was offset by depreciation/amortization and impairment losses amounting to 4.3 million euros (prior year: 4.7 million euros).

The free cash flow (before interest and income taxes) improved from 22.3 million euros in the prior year to 25.5 million euros in the 2018 fiscal year, chiefly due to higher earnings and changes in working capital, e.g. with early incoming payments arising from receivables. As of December 31, 2018, the working capital fell to 86.8 million euros, down on the prior year's 95.7 million euros.

Production and organization. Various initiatives relating to the manufacture of mechatronic products and aiming to reduce manufacturing costs and improving quality were carried out in the 2018 fiscal year.

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

With their different target markets, the Jenoptik Group's three operating segments developed differently in 2018. The Optics & Life Science segment achieved new records in key figures. The Mobility segment managed to boost revenue, assisted by a major order as well as the acquired companies Prodomax and the OTTO Group. As expected, the Defense & Civil Systems segment saw stable development. In all three segments, the majority of revenue was generated abroad.

Strong demand in some markets, the delivery of toll monitoring systems, and the acquisitions all impacted on the operating areas' EBITDA and EBIT over the course of the year. The EBITDA margin in the Optics & Life Science segment exceeded the target corridor for 2018. In the Mobility segment, the EBITDA margin was influenced by the impacts arising from the acquisitions described above. The Defense & Civil Systems segment reported slightly positive margin performance.

All three segments saw improvements in their free cash flow. In the Mobility segment, this was particularly noticeable due to a sharp rise in earnings, a significant reduction in working capital, and a lower level of capital expenditure. Over the course of the past fiscal year, Jenoptik boosted its capital expenditure on expanding international sales structures, in efficient processes, and the development of profitable cutting-edge products.

In 2018, we also managed to expand our position in international growth markets, establish a broader range of systems, and secure both international projects and new customers. Buoyed by good demand for optical systems, the order intake in the Optics & Life Science segment saw a strong increase. In the Mobility segment, the major order for the toll project included in the 2017 order intake was more than made up for by the contribution from the companies acquired in 2018. 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.

Management Report of JENOPTIK AG

(Abridged Version According to HGB)

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

JENOPTIK AG is the parent company of the Jenoptik Group and based in Jena. Its asset, financial, and earnings position is fundamentally defined by its capacity as the holding company of the Jenoptik Group. The operating activities of JENOPTIK AG primarily cover the subleasing of commercial premises and the provision of services for subsidiary companies.

JENOPTIK AG's Annual Financial Statements are prepared according to 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.

T47 Abbreviated Income Statement of JENOPTIK AG (in thousand euros)

	1/1 to 31/12/2018	1/1 to 31/12/2017
Revenue	22,533	23,646
Cost of sales	18,468	20,387
Gross profit	4,065	3,259
Selling expenses	1,850	516
General administrative expenses	15,850	14,456
Research and development expenses	253	172
Other operating result	−357	−1,238
Income and expenses from profit and loss transfer agreements and income from investments	104,092	92,711
Financial result	−6	−1,508
Income taxes	10,876	7,674
Earnings after tax	78,963	70,405
Net profit	78,963	70,404
Retained profits from prior year	40,000	59,498
Accumulated profit	118,963	129,902

Asset, Financial, and Earnings Position

Earnings position

Revenue was down 1.1 million euros on the prior year, at 22.5 million euros, primarily resulting from rental business revenues due to the reduction in external renting in favor of own use within the Group.

Administrative expenses were 1.4 million euros up on the prior year, chiefly due to increased extra costs in connection with strategic and business-related projects.

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

Selling expenses of 1.9 million euros (prior year: 0.5 million euros) concerned expenses for strategic marketing projects, communication, advertising, and sponsorship.

The other operating result included other operating income of 7.7 million euros (prior year: 6.0 million euros), which was offset by 8.0 million euros of other operating expenses (prior year: 7.2 million euros).

Other operating income primarily included currency gains worth 4.3 million euros (prior year: 1.6 million euros), intra-group cost allocations of 1.8 million euros (prior year: 2.4 million euros), and income arising from the reversal of provisions in the sum of 1.0 million euros (prior year: 1.0 million euros).

Key items in the other operating expenses were currency losses of 3.1 million euros (prior year: 4.1 million euros), expenses for intra-group cost allocations of 1.6 million euros (prior year: 2.3 million euros), and 2.9 million euros for an internal group project to analyze and optimize the business processes and introduce an SAP S/4 system based on the powerful SAP HANA in-memory platform.

The financial result of zero (prior year: minus 1.5 million euros) included earnings from securities and loans, depreciation/amortization on loans, and the interest result. This 1.5-million-euro improvement was predominantly the result of interest income from issued intra-group loans on 100.7 million euros granted in connection with the purchase of Prodomax.

69 Combined Management Report 132

With the increase in earnings before tax seen in 2018, income taxes rose 3.2 million euros to 10.9 million euros (prior year: 7.7 million euros).

JENOPTIK AG's annual net profit increased by 8.6 million euros, or 12.2 percent, to 79.0 million euros (prior year: 70.4 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. The net earnings contribution of the subsidiaries increased on the prior year, by 18.0 million euros to 103.6 million euros. Expenses for group projects of 2.9 million euros had a negative impact.

Asset and financial position

At 767.6 million euros, JENOPTIK AG's total assets were 6.8 percent up on the figure for the prior year (prior year: 718.8 million euros).

The assets side of the statement of financial position reflects JENOPTIK AG's status as a holding company. Alongside intensity of investments of 72.2 percent, of which 63.5 percent was attributable to financial investments and 8.6 percent to property, plant, and equipment, the total assets are also dominated by a high level of cash and cash equivalents (16.6 percent) and loans to affiliated companies (10.5 percent).

Of the 117.0-million-euro increase in financial investments, 100.7 million euros arose from the issue of internal group loans in connection with the purchase of Prodomax.

Receivables from consolidated associates, worth 78.6 million euros (prior year: 89.3 million euros) were mainly due to the transfer or settlement of cash and cash equivalent to and from group companies, and chiefly affected the settlement accounts for cash pool balances.

The reduction in cash and cash equivalents by 59.9 million euros, from 187.3 million euros to 127.5 million euros, was in part due to the purchase of the Canadian company Prodomax and the related loan issued in the value of 100.7 million euros; this was countered by an increase in cash and cash equivalents of 43.2 million euros arising from reduced settlement accounts and the subsidiaries' positive contributions to earnings.

Prepaid expenses and deferred charges were predominantly due to accrued costs, partly 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 597.5 million euros, liabilities to banks to 103.0 million euros (13.4 percent of total assets).

T48 JENOPTIK AG Statement of Financial Position (in thousand euros)

	31/12/2018	31/12/2017
Assets		
Intangible assets, property, plant and equipment	66,642	67,590
Financial investments	488,773	371,758
Non-current assets	**555,415**	**439,348**
Inventories, trade receivables, securities, and other assets	81.978	89,598
Cash and cash equivalents	127.479	187,356
Current assets	**209,457**	**276,954**
Expenses and deferred charges	2,706	2,490
	767,578	**718,792**
Liabilities		
Share capital	148,819	148,819
(Conditional capital 28,600 thousand euros)		
Capital reserves	180,756	180,756
Revenue reserves	147,140	74,410
Accumulated profit	118,963	129,902
Equity	**595,678**	**533,887**
Provisions	**21,040**	**19,901**
Liabilities to banks	103,000	114,000
Trade accounts payable	1,703	2,164
Other liabilities	46,155	48,840
Liabilities	**150,860**	**165,004**
	767,578	**718,792**

Thanks to the positive net profit in the sum of 79.0 million euros, equity improved by 61.8 million euros. This was countered by the payment of dividends for the 2017 fiscal year worth a total of 17.1 million euros. The equity ratio rose from 74.3 percent to 77.6 percent.

Due to the positive earnings contribution made by the subsidiaries, which is reflected in the positive earnings in the holding company, personnel provisions increased by 1.0 million euros, tax provisions within the companies consolidated for tax purposes by 0.4 million euros. Other provisions remained at the same level as in the prior year.

Other liabilities included 41.4 million euros of cash pool holdings and 0.2 million euros of tax liabilities.

Over the reporting year, JENOPTIK AG's debt-to-equity ratio improved due to the increase in equity, from 34.6 percent to 28.9 percent.

As of December 31, 2018, JENOPTIK AG had 135 employees, of which 10 were temporary workers (prior year: 121 employees, of which 7 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 holding companies and subsidiaries in line with their equity interests. The risks and opportunities of the Group and the segments are set out in the Risk and Opportunity Report from page 120 on.

Forecast report

The net profit of JENOPTIK AG is largely dependent on the development of contributions to earnings by the subsidiaries.

Based on the development set out in the group forecast report, JENOPTIK AG is anticipating higher revenues from holding company services in the 2019 fiscal year, following centralization measures in individual functional areas in 2018, and thus an expansion of its scope of services.

The profit of JENOPTIK AG – before transfer of profits and losses of the subsidiaries – will fall slightly due to the higher marketing expenses involved in the implementation of the "Strategy 2022".

For detailed information on the expected future development of the Jenoptik Group and its segments, we refer to the Forecast Report from page 128 on.

One element of the new strategy is 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 submission of the present Consolidated Financial Statements to the Supervisory Board on March 7, 2019. The Supervisory Board is responsible for reviewing and approving the Consolidated Financial Statements at its March 21, 2019 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 2018 fiscal year, JENOPTIK AG's accumulated profit totaled 118,963,445.04 euros, comprising net profit for the fiscal year 2018 in the amount of 78,963,445.04 euros plus retained profits of 40,000,000.00 euros.

Based on the good annual result for the past 2018 fiscal year, the Executive Board recommends to the Supervisory Board that for the 2018 fiscal year a 17 percent higher dividend of to 0.35 euros per qualifying share (prior year: 0.30 euros) be proposed to the 2019 Annual General Meeting. This means that an amount of 20,033,340.25 euros from JENOPTIK AG's accumulated profit in the 2018 fiscal year will be distributed. From the remaining accumulated profit an amount of 68,930,104.79 euros will be allocated to revenue reserves, and an amount of 30,000,000.00 euros will be carried forward.

No further events of significance occurred after December 31, 2018.

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 ensure the 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. In the process, 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 objectives and forecasts in the company and involve uncertainty regarding the occurrence of an event. 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 matrix. 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 the aggregation of locally identified risks and opportunities that were each allocated to defined categories. G20

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.

Group Compliance & Risk Management organizes and manages the system, working closely with the central 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

69 Combined Management Report 132

G20 Risk assessment

Metrics	Probability of occurence	Consequences / extent of damage: Qualitative		Consequences / extent of damage: 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%

reporting units that are employed to accurately identify and allocate risks and opportunities, and can be both business units and individual subsidiaries.

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.

Within the Risk Committee, all aggregated reporting results are consolidated for a top-level evaluation of the Group's risk position. The Risk Committee consists of the members of the Executive Board and the head of Group Compliance & Risk Management. G21

The consolidation 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 Group Compliance & Risk Management, the Executive Board, and the Audit Committee of the Supervisory Board. Its responsibility and approval lies with the Executive Board. Group 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.

A core process of risk management is the risk assessment, which is carried out using 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 to support management in the evaluation of risks. It comprises several specified categories to which potential risks and opportunities 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 financial targets are analyzed over a time frame of up to two years, strategic topics are considered for periods of up to four years.

G21 Process of Risk Reporting

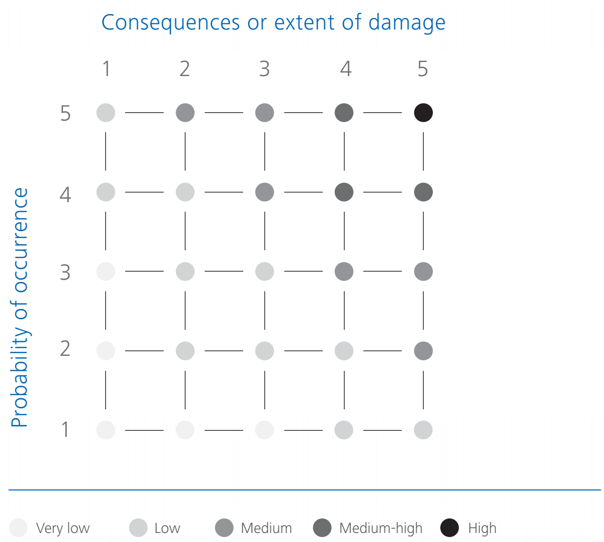
Risk Officers in the Divisions and Central Departments	Assessment of single risks
Central Functions	Review of aggregated risks
Corporate Compliance & Risk Management Department	Review and analysis of group risks
Risk Committee	Analysis of group risks
Executive Board	Final assessment of group risks
Audit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

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. This takes place in accordance with the net method, i.e. mitigating measures are already included in the assessment so that only the assessed residual risk is reported and aggregated. The assessment of a risk is the product of the probability of occurrence and the quantitative amount of loss or the qualitative extent of damage. The opportunities are evaluated in the same way. G22

There is a scale of 1 to 5 for both assessment factors mentioned, probability of occurrence and extent of loss, with 1 being the smallest and 25 the greatest possible risk indicator. G23

Every six months, the results of the risk assessments are requested by central Compliance & Risk Management at the risk reporting units and aggregated to the Group Risk and Opportunity Report. The findings in the risk reporting units are then validated by the departments of the Corporate Center before being discussed on the Risk Committee and subjected to a general assessment by the Executive Board, potentially also involving

G23 Calculation of risk scores



G22 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	

1st year 2nd year 3rd year 4th year

For further information see Corporate Governance Report on page 38 f.

the adoption of further actions. Once the Executive Board has approved the Group Risk and Opportunity 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 above-mentioned 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 EMC, 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.

Adherence to national and international compliance requirements is an integral part of risk prevention and of the processes of Jenoptik's risk management system. In order to improve employee awareness and achieve company-wide uniform understanding of our compliance standards, regular training is provided on subjects relevant to compliance, such as anti-corruption or anti-trust law, 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. Our Code of Conduct and Group Guidelines also help to prevent risk.

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 damage, as well as ensuring clear divisions of responsibility and function, in adherence to the principle of double-checking. In particular, its intention is to ensure the security and efficiency of transaction, as well as the reliability of financial reporting, and it is regularly reviewed by Internal Audit. The established ICS and compliance self-assessments, 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 Group 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 Audit carries 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. 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, and 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 the measures and deadlines for implementation of the stated recommendations. 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 containing its key findings since the last report to the Audit Committee of the Supervisory Board at least once a year. In 2018, six Jenaudits, two follow-up audits, and three ad hoc audits were conducted. Six 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 rate, 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, in part, 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, data from 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 from page 36 on. 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 by going to Investors / Corporate Governance. In accordance with § 317 (2) (6) of the German Commercial Code, the information required under §§ 289 f, 315 d is not considered by the auditor.

The Group's Risk and Opportunity Profile

The Group's risk profile for 2018 and subsequent years was determined using the various risk and opportunity assessments from the segments. Part of the risk assessment of the segments is a review by the corporate departments of the Corporate Center, whose identified risks are then included in the segment reporting and in the final group assessment. Our risk and opportunity management makes possible a direct comparison of the individual risk subcategories and the associated risk symptoms. The risk assessment of subcategories is set out in greater detail in the table below. T49

Overall, the risks to which the Group are exposed are at the lower end of the medium risk range. No significant changes on the prior year were identified.

Once again, strategic risks and opportunities for the overall Group were on average assessed as the most important, compared to operational and financial management risks, in 2018. Jenoptik is active on a range of markets. Following the strategic realignment initiated in 2018 to help focus our work on photonics market segments, their development is both a risk and an opportunity for the Group.

The at times uncertain general direction of economic development in Jenoptik's growth markets, e.g. China, the difficulty in assessing the trade and foreign policy positions of the current US administration, political conflicts caused by existing and emerging trade barriers, and the uncertainties surrounding Great Britain's withdrawal from the European Union that remained unresolved at the time this report was prepared all present potential risks to the Group's current and future business. We are continuously monitoring the effects of Brexit. We have, for example, analyzed our supply chain and examined

T49 Risk profile of the Jenoptik Group 2018

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

the impacts that different suppliers have on different customers. Countermeasures were initiated, in order to effectively counter bottlenecks in the supply chain, e.g. through alternative suppliers or by making specific adjustments to the working capital. We also analyze the impacts of potential financial management factors such as possible tariff and export restrictions or exchange rate fluctuations, which we counter with appropriate hedging mechanisms.

Continuing high levels of public debt in parts of Europe and associated budgetary consolidations are also inhibiting investment by both public sector clients and consumers. In the course of active risk management, we also develop suitable measures to counter political uncertainties within our business processes wherever possible.

Jenoptik is exposed to intense competition throughout its business. The company counteracts the risk of being squeezed out by competitors by, for example, making specific and flexible changes to its product range or offering customization options for customers. In addition, mergers and acquisitions on the markets we target may further exacerbate the competitive environment. Potentially improved cost structures at competitor companies, and the resulting increasing pricing pressure, may have negative effects on group earnings. We counter this risk by continuously analyzing our company portfolio, i.e. by determining whether and how specific acquisitions may usefully complement our product range and generate lasting profitable growth. M&A activities as well as the integration of acquired companies entail an inherent risk for the Group. We actively counter this risk through a thorough due diligence, as well as a structured integration process which is individually adapted to the acquired company.

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 enormous operational demands on all parts of the business. Supply chain management and production are predominantly responsible for assuring the quality of the products we supply. The use of individual single-source suppliers may increase the risk of dependency. Ongoing refinement of our purchasing and production organization aims to ensure that our customers continue to receive high-quality, tailored solutions in good time.

Global IT systems and processes are of great 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 tiered archive and backup system. This aims to enable rapid data recovery in the event of a crisis situation. 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. In 2018, Jenoptik took out cyber risk insurance to limit any such financial impacts on the Group.

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. Due to the difficulties in attracting qualified employees, particularly in Germany, Jenoptik is also exposed to the risk of not being able to fill vacant positions as they arise. We counter this risk with targeted employer branding and both attractive and personalized incentive and loyalty schemes, which are in part geared toward trends and developments in HR.

In view of Jenoptik's international business operations, one general risk is non-compliance with legal, ethical, and contractual requirements. 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 structures and 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.

Financial management risks were assessed on average as low throughout the Group in 2018. The issues cited below also include the segment-specific risks. One key task of Jenoptik's corporate Treasury department is to safeguard and coordinate the financing of all group companies over the long term. Jenoptik has good internal financing and access to alternative, external financing options. Financial indicators have been agreed for JENOPTIK AG's syndicated loan; adherence to them is monitored continuously and regularly reported to the lenders. Currency-related risks arise from the Group's international activities. The corporate Treasury department identifies these risks in collaboration with the Group companies and controls them with appropriate measures such as the conclusion of forward exchange 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 risk of changing interest rates 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. 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.

In the Controlling and Accounting departments, opportunities predominantly arise from the continuing expansion and optimization of the standardized ERP system, and from the centralization of accounting activities for continuous quality improvement. Thanks to the ongoing establishment and development of modern, targeted financial controlling instruments, we counter the risk of lacking business-critical information in internal reporting.

With regard to the use of financial instruments, we refer to the Notes, section 8.2, from page 191 on

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. T50

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 results. Beyond this, the focus on larger customers is generally associated with the risk that poor business performance or the loss of customers may impact severely on revenue and earnings. 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 business segment addresses this risk by continuously reviewing vertical integration with the aim of supplying more system solutions to its customers.

The growing importance of digitization and the strong related demand for applications and devices, both from private households and companies, continues to present the segment with major opportunities for the coming years. Demographic developments in industrialized nations and the relentless progress being made in medical technologies, particularly in our core markets of Asia and the Americas, are also boosting demand for our product solutions. Ongoing development of the product portfolio and Jenoptik's greater market centricity mean that we are better able to meet our customers' requirements. Increasing financial problems in national healthcare systems, however, are resulting in growing price pressure among suppliers. The trend toward increasing complexity 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 is only a very limited number of qualified suppliers that are able to meet the necessary specifications in a timely manner. When such a supplier is lost or the customer changes specifications, this can result in corresponding problems in the development or production process. Partners are subject to ongoing qualification with the help of strategic purchasing to develop a stable base of suitable suppliers in the medium and long term. Specific customer requirements, especially regarding the quality of the products, also lead to increased demands for asset investment in the area of manufacturing, which are met through targeted expansion or replacement investment. If necessary investments are not made, there is a risk that quality requirements may not be met to the agreed schedule, or at all, resulting in either delivery delays or non-acceptance by the customer.

Mobility

Both market developments and political conditions influence the strategic risks and opportunities in the Mobility segment. Within the metrology business, achieving revenue targets is strongly dependent on the automotive market. The trend toward electric mobility is both a risk and an opportunity for us. The reduction in the number of mechanical components is a risk to our established business model and one that we are proactively

T50 Risk profiles of the segments 2018

	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
Strategic risks						
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	Medium high	Medium	Medium
Organizational setup (processes and resources)	Medium	Medium	Medium	Medium high	Medium	Medium
Operational risks						
Supply chain management	Medium	Medium	Medium	Medium	Medium	Medium
Safety and environmental protection	Low	Low	Low	Low	Low	Low
Production (incl. quality management)	Medium	Medium	Medium	Medium	Low	Low
Marketing and sales	Medium	Medium	Medium	Medium	Medium	Medium
Patents and IP rights	Low	Low	Medium	Low	Low	Low
Human resources management	Medium	Medium	Medium	Medium	Medium	Medium
IT	Medium	Low	Medium	Medium	Low	Medium
Compliance	Low	Medium	Medium	Medium	Medium	Medium
Legal affairs	Low	Low	Medium	Low	Medium	Medium
Real estate	Low	Low	Low	Medium	Low	Medium
Financial management risks						
Accounting	Low	Low	Medium	Medium	Low	Low
Finance management	Low	Low	Low	Low	Low	Low
Controlling	Low	Low	Medium	Medium	Low	Medium
Taxes	Low	Low	Medium	Low	Low	Low
Total risk	Medium	Medium	Medium	Medium	Medium	Medium

countering with the aid of the segment's new strategic focus and a corresponding adjustment to its product range, in addition to selectively broadening our prior activities through the acquisition of Prodomax and the OTTO Group.

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, regime change or in connection with the Brexit, this may result in projects being delayed or even stopped entirely. By contrast, improvements in the political situation in certain sales markets and the economic prosperity of the countries are opening up opportunities to better serve the evolving demand for traffic safety technology. However, increased demand for security technologies and intelligent traffic flow solutions ("smart cities"), especially in metropolitan areas, present good opportunities for the segment. We develop strategic advantages over our competition by working to continuously optimize our product range.

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.

An unregulated withdrawal of Great Britain from the European Union could have impacts on the Mobility segment. As described above, we are continuously monitoring possible consequences and have already prepared measures. But at the time of drawing up the risk and opportunity report we cannot completely assess their impact. Therefore, we cannot exclude the risk that unplanned measures or delays in the course of business will lead to higher costs with a negative effect on the segment's earnings.

Innovations and process adjustments in implemented ERP systems may presently still cause isolated delays within the organization. With long-term use of the group-wide ERP system, however, the opportunities outweigh the risks in terms of efficiency and improved controls.

Stricter compliance requirements, whether imposed by customers or legislation, entail the risk of delays in our business processes or of additional costs that could adversely affect the business's results. The requirements of the General Data Protection Regulation are of particular importance in the field of traffic safety technology.

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, in particular with regard to the Middle East. 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 the consideration being given by the European Union's member states to establishing 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 VINCORION.

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

Since a large proportion of revenue generated under the VINCORION brand is the result of project business, product developments and launches represent both a huge risk and a huge 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.

The decision by Airbus to stop the production of the A380 will have no major impact on VINCORION's course of business in 2019 and 2020, based on current information. This is particularly true as the spare part business as well as repair and maintenance work for the A380 currently in use will continue to contribute to our result.

Due to the 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.

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 are countered by measures that enable lastingly beneficial strategic positioning. This is particularly the case for the risks in the "product development", "corporate development", and "organizational development" subcategories. The risks in the "market development" category are attributable to external sources of risk that are also countered by appropriate strategic measures.

In the area of operational risk, the successful development and expansion of the sales structures is of crucial importance. The same applies to supply chain management and production, which demands special attention due to the high technological requirements in an international market environment and, in some cases, associated single source procurement.

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

Overall, it can be said that the restructuring of the Group's strategic market segments (with the help of Strategy 2022) may gradually help to reduce the existing strategic risks. The growing importance of the photonics industry and the strong related demand for applications and devices, both from private households and companies, continues to offer Jenoptik the potential for good further growth.

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.

Forecast Report

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

The International Monetary Fund (IMF) further downgraded its growth forecasts in January 2019, and is now expecting the global economy to grow by 3.5 percent in 2019 (prior forecast: 3.7 percent), followed by 3.6 percent in 2020. The risk of a greater decline in global growth has increased and the weakness seen in the second half-year 2018 will continue in the coming quarters. In addition to escalating trade conflicts between the US and other economies, risks include a potentially disorderly Brexit, a new debt crisis in the euro zone, for example in Italy, and a drop in Chinese economic momentum.

The Chinese government is attempting to counter the economic slowdown and is planning for major tax cuts and higher infrastructure spending in the current year. In view of the trade conflict and a generally weaker global economy, China is expecting GDP to rise just 6 to 6.5 percent in 2019.

According to the IMF, the US economy will continue to grow.

By contrast, the IMF has significantly cut back its forecast for Germany: weakness in industrial production, particularly in the automotive industry, and a drop in foreign demand mean that growth is not likely to exceed 1.3 percent in 2019, down from 1.9 percent. The German economy saw a downturn at the start of the year, according to the ifo Institute. Its Business Climate Index fell for a fifth time in succession in January, with both the present situation and the future outlook downgraded. Uncertainties were primarily the result of problems in key emerging economies, the trade conflict between the US and China, the worrying prospect of a no-deal Brexit, and an economic slowdown in China. The German government is therefore now expecting growth of just 1.0 percent in the current year. Its original forecast of 2.1 percent had already been reduced to 1.8 percent in 2018. For 2020, the German government is anticipating stronger growth of 1.6 percent.

At the time this report was prepared, the economic outlook caused by Brexit was still uncertain, particularly in the event that Great Britain leaves the single market and the customs union with no transition agreement in place. According to the British Chambers of Commerce, thousands of British companies have already triggered emergency plans to cope with a no-deal Brexit, building up stocks to prevent delivery bottlenecks. A number of car manufacturers and aircraft manufacturer Airbus have also announced factory closures or relocations to the European continent in the event of a "hard" Brexit at the end of March 2019. According to the Association of German Chambers of Industry and Commerce (DIHK), the customs controls and bureaucracy that this would entail would result in up to 10 million additional customs declarations and over 200 million euros in extra costs a year for German companies alone.

According to the analysts at Markets and Markets, the global photonics market will grow from 530 billion US dollars to a value of 795 billion US dollars by 2022, an average of 8.4 percent annually, chiefly driven by strong demand from applications such as displays, information and communication technology, medical technology and life sciences, metrology, lighting, and production technology. Spectaris, the German industry association, also assesses the outlook for the German photonics industry as positive: key drivers of growth in the industry include topics such as "Industry 4.0" and smart factories, where large numbers of optical sensors and image capture and processing systems are required. The association also sees the

T51 Gross domestic product forecast (in percent)

	2019*	2020*
World	3.5	3.6
US	2.5	1.8
Euro zone	1.6	1.7
Germany	1.3	1.6
China	6.2	6.2
India	7.5	7.7
Emerging countries	4.5	4.9

Source: International Monetary Fund, World Economic Outlook, January 2019
* Forecast

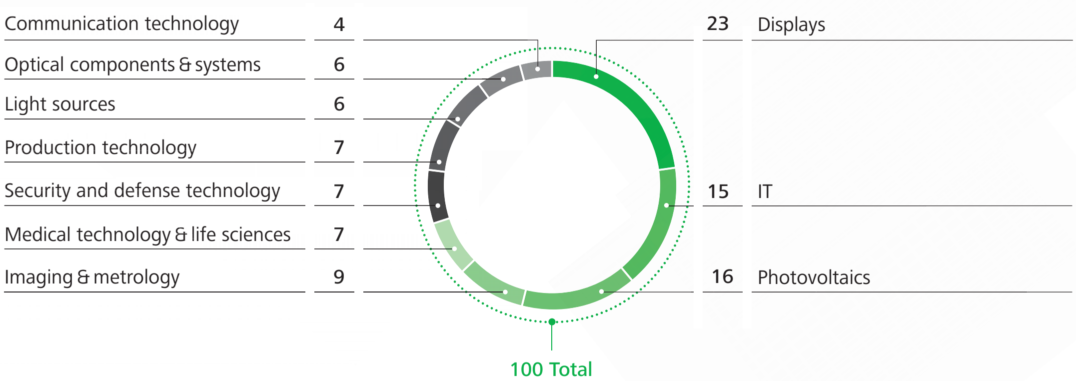
automotive industry adopting a key role with regard to autonomous or semi-autonomous driving, particularly involving optical metrology for data acquisition or LiDAR sensor technology. As stated by the market researchers at Research and Markets, the automotive LiDAR market will grow by an average of almost 30 percent annually over the next ten years as demand for autonomous vehicles and advanced driver-assistance systems (ADAS) increases.

Photonic technologies lie at the heart of many diagnostic procedures and treatment methods used in medical technology, for example in in-vitro diagnostics, endoscopy, and in point-of-care solutions for patient-oriented treatment. Market research company EvaluateMedTech, cited by Spectaris, is forecasting annual growth of some 5 percent, to around 530 billion US dollars in 2022, for the global medical technology market, while sounding cautious on regulatory uncertainties and environmental legislation.

Following a record year in 2018, the international laser market could again grow by 5 to 6 percent in 2019, according to the forecast published in "Laser Focus World" magazine's annual review. Volatile macro-economic conditions could, however, endanger this target.

Following several record years, the major semiconductor equipment manufacturers see the prospects for 2019 in a more cautious light. The slight downturn in the second half-year 2018 is expected to continue in the first few months of 2019. Demand for semiconductors for smartphones, tablets, servers, and cars is in decline at the same time as customers' inventory levels are high and there is general uncertainty caused by trade conflicts and a weaker global economy. The SEMI trade association is expecting revenues to fall 4 percent in 2019, but is more optimistic about 2020, when growth of 20.7 percent, to 71.9 billion US dollars, could signal a new all-time high.

G24 Global photonics market in 2020: 615 billion euros (share in percent)

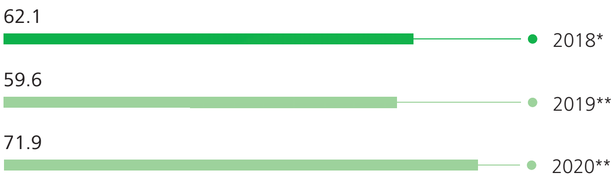


Source: VDMA, ZVEI, Spectaris: Photonics Industry Report 2013

The semiconductor industry is also bracing itself for moderate growth: according to forecasts by the SIA, global revenue in 2019 will rise only 2.6 percent on the prior year. As sales of smartphones stagnate, companies need to move into other areas such as the Internet or the automotive field. Semiconductor manufacturers are hoping for strong business with autonomous vehicles and electromobility. G25

German mechanical engineering companies started 2019 with an order backlog of around eight months, which could temporarily cushion any restrictions caused by Brexit. The situation could be aggravated if several risks emerge at the same time: a hard Brexit, an escalation of the trade conflict between the US and China, and a deepening of the debt crisis in Italy – in which case four of five main export markets would be affected. Nevertheless, the German Mechanical Engineering Industry Association (VDMA) is anticipating growth of 2 percent in 2019. The industry association also published a study entitled "China Business of the Future", according to which increasing numbers of Chinese companies are being developed with government assistance to compete with German small and medium-sized entities, including in the high-end segment.

G25 Semiconductor equipment: Global revenue forecast (in billion US dollars)



Change 7.5 %

Source: Semiconductor Equipment and Materials International (SEMI)
* provisional calculation
** forecast

The trend toward increasing automation shows no sign of abating: market research company Gartner is expecting the "robotic process automation" software market to grow to a value of 2.4 trillion US dollars by 2022, compared with 680 million US dollars in 2018. The International Federation of Robotics (IFR) is forecasting growing robot sales to meet rising levels of automation in the automotive industry. Global sales of industrial robots are set to grow by an annual average of 14 percent by 2021. Smaller and medium-sized manufacturers are also increasingly employing automation technologies, requiring simple and flexible robotics solutions. In addition to the large robots deployed in the automotive industry, the IFR is expecting increased demand for "cobots", smaller collaborative robots that enable close cooperation between man and machine.

In the automotive industry, China is opening up its market, but details are as yet sketchy: the country wants to reduce tariffs on car imports and in general enable greater market access and better investment conditions for foreign companies. The German Association of the Automotive Industry (VDA) welcomed these announcements in April 2018, as China is an important export market and production location for German manufacturers and suppliers. Developments in international trading policies give the VDA cause for concern: the German automotive industry is dependent on free access to markets. The extent and impact of any new punitive tariffs imposed after a break in negotiations are not yet foreseeable. Industry associations warn that, in the automotive industry, for example, import duties could result in higher prices, loss of revenue, an investment backlog, and job losses in production, the supplier chain, and trade.

The automotive industry is also adapting to new, extremely strict technology and environmental regulations. The introduction of the new WLTP exhaust emissions test caused many manufacturers to scale down car production; the situation is only now slowly returning to normal. In addition, the EU nations plan to tighten carbon dioxide emissions limits for new cars: from 2020 to 2030, they aim to reduce limit values by 35 percent and increase the number of electric and hybrid vehicles in the EU. To achieve the latter objective, the EU Parliament wants to oblige car manufacturers to ensure that at least 35 percent of the cars they sell have low emissions by 2030.

The "Global Automotive Outlook" study, published by consultants AlixPartners in July 2018, is forecasting a bleaker outlook for manufacturers and suppliers: on the one hand, growth in the global car market will slow down through 2025, while at the same there is a need to make high investment, particularly in electric drive systems and autonomous driving concepts. Car manufacturers are therefore planning to work in partnership with each other, as well as with automotive suppliers, IT companies, and mobility service providers.

In its "Road Safety Market by Solution, Service" report, US market research company Markets and Markets believes that the global traffic safety market will grow from 2.6 billion US dollars in 2016 to 4.1 billion dollars in 2021, an average annual increase of 9.3 percent. Key factors include the growing number of traffic accidents, growing urbanity and mobility, and increasing statutory regulations for traffic safety. Automatic number plate recognition (ANPR) is becoming more important as a means of traffic monitoring and prevention: as set out in industry reports, market researchers expect the ANPR market segment to grow by an average 12.8 percent annually and be worth 1.4 billion US dollars by 2023. The technology could also be used should a hard Brexit require customs controls. ANPR could further be used to monitor entry permits or restricted zones, such as those in which diesel vehicles are prohibited in Germany. Before this can be done, the necessary (regulatory) political conditions first need to be created.

According to the EU Commission, it will be difficult to achieve the political goal of halving the number of road deaths to around 16,000 between 2010 and 2020. In order to increase traffic safety, the EU Commission intends to adopt new measures that aim to ensure no more road deaths on Europe's roads by the year 2050. Examples include strategies for networked and automated mobility, financing for research projects, improved vehicle technology, or intelligent speed assistant systems that aid compliance with speed limits.

In the rail industry, increased international competition among train manufacturers is having consequences: Bombardier has announced restructuring plans to reduce its workforce while retaining all German plants by 2020; on the other hand, the planned merger of Siemens and Alstom was barred by the EU Commission, citing competition concerns. Market research company SCI Verkehr sees the industry's wave of consolidation reaching a new high, which may lastingly change the manufacturing landscape to help counter competition from China. Companies are hoping that these mergers will primarily reduce development and approvals costs. According to SCI Verkehr, the global market for railway technology is on course for growth with a current market volume of 183 billion euros and an expected annual growth rate of 2.8 percent. However, according to "Worldwide Market for Railway Industries 2018", published on the occasion of the Innotrans trade fair in October 2018, this growth could be endangered by protectionism and both political and economic uncertainty to a greater extent than previously assumed. In addition to the electrification of routes, key trends include alternative drive concepts, digitization, and automation, the latter with the ultimate goal of autonomous railways. The Chinese rail technology market, currently worth 34 billion euros, will remain at its high level in the next five years but not grow further, according to a study entitled "The Chinese Railway Market" from SCI Verkehr. Due to overcapacity, Chinese companies need to focus more strongly on international markets in order to balance a slowdown in growth in their national market.

According to reports issued by Airbus and Boeing, the major aircraft manufacturers increased their long-term forecasts for the aviation industry in summer 2018. As stated in its "Global Market Forecast", Airbus anticipates that the airlines will buy a total of around 37,400 new passenger jets and cargo planes worth 5.8 trillion US dollars by 2037. Boeing forecasts a demand for 42,730 aircraft worth 6.3 trillion US dollars. Both aircraft manufacturers 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, are coming under increasing pressure from smaller competitors. Airbus will cease production of the A380 aircraft following final deliveries in 2021. Following the cancellation of two major orders, the company says that its order backlog is no longer sufficient to continue production beyond this date.

69 Combined Management Report 132

In the security and defense industries, the EU nations plan to boost cooperation with each other. At the heart of the "Pesco" European defense pact established in 2017 is the future joint procurement of defense equipment and coordination of defense projects, supported by a European defense fund for research projects worth 13 billion euros by 2027. Germany and France, in particular, are planning to work more closely together to jointly develop a fighter jet to replace the Eurofighter and Rafale models in the future. The German Ministry of Defense will receive 33 new Eurofighters, allowing Airbus to maintain production for several more years. Great Britain has announced its intention to return to an armored vehicle engineering program: a joint venture between Rheinmetall and BAE Systems aims to secure value creation in Great Britain, in part through the construction of a production facility for armored vehicles.

In Germany, spending on security and defense technology is due to rise sharply under plans revealed by the Ministry of Defense – from almost 43 billion euros in 2019 to 60 billion euros by 2023. This corresponds to about 1.5 percent of GDP. This investment aims to meet NATO requirements that stipulate greater expenditure on national and alliance defense. A new arms race may be imminent, especially considering that the US and Russia have suspended their involvement in the INF treaty that bans intermediate-range nuclear weapons and plan to develop new missile systems.

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

See the Business Model and Markets and the Targets and Strategy chapters for more information on the strategy and the new division structure

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

Expected Development of the Business Situation

Planning assumptions for the Group and the divisions

The forecast for the future business development was based on the group planning undertaken in the fall of 2018 and the Strategy 2022 published in early 2018. Since January 1, 2019, Jenoptik has the following reportable segments: the Light & Optics, Light & Production, Light & Safety and VINCORION divisions.

The starting point is formed by the separate plans from the divisions 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.

The system of key performance indicators covers the revenue, EBITDA margin, order intake, free cash flow, and capital expenditure. Other indicators will also be regularly compiled in the future and are used by top management for informational purposes.

In 2018, we began rolling out our Strategy 2022, which is focused on photonic technologies. In the process, we are concentrating on three building blocks – focus, innovation, and internationalization. We established our new corporate structure on schedule at the start of the 2019 fiscal year, which also forms the basis for our reporting from January 1, 2019 on.

The Jenoptik Group anticipates a continued good development of business in the Light & Optics division in 2019. We aim to boost our leading position in the photonics market by stepping up our activities as a global OEM supplier of solutions and products based on photonic technologies, by focusing on key sales markets, by growing our global reach, and with innovative products and a larger range of integrated system solutions. For the semiconductor equipment market, observers expect demand to fall marginally in the current year. Here, however, the division can profit from its position as one of the leading suppliers of optical and micro-optical system solutions for semiconductor production. In order to support the positive development and broaden our presence in core markets, a focus on optical information and communication technologies is growing in significance. 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 the current fiscal year, the division will also continue to invest in the international production locations and sales to promote future growth and continue the process of internationalization. As an example, Jenoptik is investing further in modern production equipment, thereby anticipating a sustained high level of demand and securing its long-term competitiveness in one core photonics business.

In the Light & Production division, we also expect to see a positive development in a market environment that is becoming ever more difficult in 2019. The acquired companies will also help to achieve this. In the metrology 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 division is continuing to invest in the development of innovative and high-performance technologies and systems. New development and production capacities, and modern office spaces, will be built at the Villingen-Schwenningen location starting in the spring of 2019. Key growth momentum is also expected in the field of laser machines. Alongside established systems for plastics processing in the automotive industry, the division is primarily focusing on the field 3D material processing. It acquired the Canadian company Prodomax in the summer of 2018. The combination of automation solutions and laser processing machines gives Jenoptik an opportunity to tap into further potential for growth in the field of advanced manufacturing and takes a further step along the road to becoming an integrated supplier of high-tech production environments. We also continue to grow from developing stand-alone machines to supplying modular systems and solutions for customer manufacturing in the B2B segment, thereby boosting our customers' productivity. We aim to counter growing price pressure from our competitors with efficient and more flexible system solutions. Our international reach is also due to grow, especially in China.

Following a fiscal year marked by revenue growth and a significant margin improvement, in 2019 the Light & Safety division faces the task of compensating for the loss of revenue and earnings from the project to supply toll monitoring systems. Orders received from the North Africa / Middle East region in the fall of last year will contribute to achieve this aim. Jenoptik won out over several international manufacturers in a tendering process requiring a high level of technical expertise. Further orders are currently in the pipeline. In the fall of 2018, Jenoptik received approval in Germany for section control measuring systems, a technology that has already proven itself in other countries. Beyond this, the Traffic Service Provision business model will also be rolled out further. The civil security business is another area that is growing in significance. We will expand our product range in 2019, particularly in the area of traffic monitoring. Deep learning technology is due to be used to a greater extent in safety and civil security applications. On a regional level, Jenoptik is primarily expecting growth momentum benefiting the Light & Safety division to come from Europe and the Americas.

The VINCORION division is expected to see stable development in 2019. Its business is predominantly project-based and geared toward the long term. After years of stagnation, defense spending in Europe, particularly in Eastern Europe, is picking up again. In Germany, too, a range of new procurement projects are in the pipeline. Key criteria include connectivity, automation, and energy efficiency. At the same time, a potentially more restrictive export policy under the present 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, they may contribute to higher revenues. Internationalization also remains a key topic in 2019; foreign business is due to expand steadily, particularly in North America and Asia/Pacific. Beyond this, the division is looking to further increase the share of systems used in civilian fields. These include system solutions for civil aviation, for example the rescue hoist.

Earnings position forecast 2019

On the back of a robust order situation and continuing good demand from our markets, the Executive Board is expecting revenue and earnings to grow in 2019. Market developments and currently identifiable risks such as bottlenecks in the supply chain are subject to ongoing monitoring. Our scheduled growth also presupposes that political and economic conditions do not worsen. In particular, these include economic trends, the potential impacts of Brexit, regulations at European level, export restrictions, and further policy developments in our sales markets.

For further information on IFRS 16 see the Notes on page 144

The Jenoptik Group anticipates revenue growth without major changes in the portfolio in the mid single-digit percentage range for 2019 (prior year: 834.6 million euros), with key contributions to growth coming from the Light & Optics and Light & Production divisions.

At present, Jenoptik is expecting EBITDA (earnings before interest, taxes, depreciation, and amortization, incl. impairment losses and reversals) to grow in the 2019 fiscal year (2018: 127.5 million euros); the EBITDA margin is due to come in at between 15.5 and 16.0 percent. This includes the positive impacts arising from the introduction of IFRS 16, "Leases".

The order intake for a period is in part affected by major orders, particularly in the VINCORION and Light & Safety divisions. In the past fiscal year, Jenoptik received new orders worth 873.7 million euros and had thus built up a very good order base at year-end 2018. For the current fiscal year, Jenoptik assumes that its order intake will grow slightly, despite an already high initial value. Also worthy of note is that Jenoptik had frame contracts worth 62.5 million euros at the end of 2018, which are not included in the order intake or backlog. Around 79 percent of the order backlog as of the end of December 2018 will be converted to revenue in 2019 (31/12/2017: around 79 percent).

T52 Summary of targets for the Group and divisions (in million euros)

	Actual 2018	2019 guidance
Revenue	834.6	Growth in the mid single-digit percentage range (without major changes in the portfolio)
Light & Optics	339.6	Growth in the mid single-digit percentage range
Light & Production	210.9	Growth in the low double-digit percentage range
Light & Safety	116.9	Noticeable decline (2018: settlement of a major order)
VINCORION	166.4	Stable
EBITDA/EBITDA margin	127.5/15.3%	EBITDA margin between 15.5 and 16%
Light & Optics	74.1	Growth in the mid single-digit percentage range
Light & Production	24.6	Growth slightly stronger than revenue
Light & Safety	15.9	Decline in line with revenue
VINCORION	20.1	Slight increase, improved margin
Order intake	873.7	Slight increase
Free cash flow	108.3	Approx. 80 million euros
Capital expenditure [1]	42.5	Significant increase

[1] Without capital expenditure on financial investments

Following the very positive business performance in 2018, with new record revenue and earnings figures, the Light & Optics division is expecting revenue and EBITDA to increase in the mid single-digit percentage range in 2019.

Buoyed by the contributions to revenue made by the acquired companies, the Light & Production division is anticipating revenue growth in the low double-digit percentage range in the current fiscal year. EBITDA is expected to grow slightly stronger than revenue. The accuracy of forecasts in this division is influenced by the times at which projects are settled.

The Light & Safety division settled a major project with the delivery of toll monitoring systems in 2018; its contribution to revenue can probably not be fully compensated in the current fiscal year. The division is therefore expecting revenue and EBITDA to each fall noticeably. In this division, too, the accuracy of forecasts is influenced by the times at which projects are settled.

In the 2019 fiscal year, the VINCORION division is expected to contribute to the company's overall success with stable revenue, a slight rise in EBITDA, and an improved EBITDA margin.

Group asset and financial position forecast

For the 2019 fiscal year, Jenoptik is forecasting a significant increase in capital expenditure. The largest single investment, worth over 13 million euros, will be the construction of new development, production, and office spaces for industrial metrology at the Villingen-Schwenningen location. Capital expenditure on property, plant, and equipment will focus on the growth areas within the divisions or take place within the scope of new customer projects. It aims to expand capacities, thereby ensuring future growth.

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

Following a sharp rise in the free cash flow over the past fiscal year, we are expecting a free cash flow of around 80 million euros in 2019. Even considering the rise in capital expenditure, this will allow all interest, tax, and dividend payments to be covered by the free cash flow.

Dividend. In addition to financing the continued growth of the company, the future aim of the Executive Board is still to ensure a dividend policy in line with corporate success. In the view of the Executive Board, a stable provision of equity for sustainable organic growth to increase the enterprise 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 2019 fiscal year, the Jenoptik Group will continue rolling out its Strategy 2022, focusing on photonic technologies. In terms of economic development, our key focus remains on profitable growth. We believe that revenue growth, resulting economies of scale, and more efficient and faster processes result in higher, sustainable earnings.

Despite an increasingly difficult environment, Jenoptik aims to see further successful growth in 2019, building on a strong order backlog and good demand in our markets. The solid asset position and a viable financing structure also give us sufficient room for maneuver to finance further growth and acquisitions. In 2019, the Executive Board is forecasting revenue growth in the mid single-digit percentage range without major changes in the portfolio and an EBITDA margin of between 15.5 and 16.0 percent. Achieving these targets is dependent on economic and political conditions.

In the current fiscal year, 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.

The Executive Board expects positive corporate development within the Jenoptik Group overall during the 2019 fiscal year.

Jena, March 7, 2019

JENOPTIK AG
the Executive Board