



# 1 Welcome



## **Profile**

At ADVA Optical Networking we're creating new opportunities for tomorrow's networks, a new vision for a connected world.

Our intelligent telecommunications hardware, software and services have been deployed by several hundred service providers and thousands of enterprises.

Over the past twenty years, our innovative connectivity solutions have helped to drive our customers' networks forward, helped to drive their businesses to new levels of success.

We forge close working relationships with all our customers. As their trusted partner we ensure that we're always ready to exceed their networking expectations.

## Mission

ADVA Optical Networking enables next-generation networks. The Group's mission is to be the trusted partner for open connectivity solutions that ADVANCE next-generation networks for cloud and mobile services.

## 2015 Key Performance Indicators

(in millions of EUR, except net promoter score)



\* Pro forma operating income is calculated prior to non-cash charges related to the stock compensation programs and amortization and impairment of goodwill and acquisition-related intangible assets.

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<sup>\*\*</sup>The Net Promoter Score is obtained by asking customers a single question on a 0 to 10 rating scale: "How likely is it that you would recommend our company to a friend or colleague?" Based on their responses, customers are categorized into one of three groups: promoters (9-10 rating), passives (7-8 rating), and detractors (0-6 rating). The percentage of detractors is then subtracted from the percentage of promoters to obtain a Net Promoter Score.

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# **ADVAntages**

#### Focus on Growth Markets

- ADVA Optical Networking focuses on growth markets in the telecom space that have one thing in common: a strong and sustainable demand for innovative connectivity solutions.
- These markets are driven by the global megatrends "cloud" and "mobility" demanding more and better connectivity in all areas of the network.
- Average growth across these markets is expected to be 9% per year between 2015 and 2018 to a total of USD 14.8 billion in 2018.<sup>1</sup>

### **Innovative Connectivity Solutions**

- ADVA Optical Networking's industry-leading engineering force is exclusively focused on innovative connectivity solutions for cloud and mobile services, outperforming the engineering departments of other vendors in this space.
- Focus on innovation drives market success and has made ADVA Optical Networking one of the two leading players worldwide for fiber-based Ethernet access devices with a market share of 13%<sup>2</sup> and ...
- ... a strong competitor in Europe, Middle East and Africa (EMEA) specifically in the metro optical market with a market share of 14%.<sup>3</sup>

Industry analyst estimates for metro and long-haul WDM equipment ("Optical") and Ethernet access devices ("Ethernet") relevant to ADVA Optical Networking. Sources: Infonetics Research Optical Network Hardware, Quarterly Market Share, Size, and Forecasts 2Q15, August 2015, and Infonetics Research Ethernet Access Devices Biannual Market Share, Size and Forecasts, 2nd Edition, September 2015.

<sup>&</sup>lt;sup>2</sup> Based on 1H 2015 revenues for fiber-based Ethernet access devices. Source: Infonetics Research Ethernet Access Devices Biannual Market Share, Size and Forecasts, 2<sup>nd</sup> Edition, September 2015.

<sup>&</sup>lt;sup>3</sup> Based on Q2 2015 revenues for Metro-WDM equipment in EMEA. Source: Infonetics Research Optical Network Hardware, Quarterly Market Share, Size, and Forecasts 2Q15, August 2015.

### Speed for Customers

- ADVA Optical Networking has a strong track record of being first to market with new functionality that adds value for customers.
- A responsive team serves customers around the globe, with 59% of ADVA Optical Networking's 2014 revenues generated in EMEA, 33% in the Americas and 8% in Asia-Pacific.
- ADVA Optical Networking's innovative networking solutions have been deployed by several hundred service providers and thousands of enterprises around the globe.

### Trusted Partner

- ADVA Optical Networking's unique combination of innovation and speed has seen the Group build close partnerships with customers, resulting in repeat purchases and strong cross-selling opportunities for its innovative networking solutions.
- As a trusted partner for two decades, ADVA Optical Networking provides high-quality solutions with lowest cost of ownership and best user experience.
- ADVA Optical Networking is led by a dynamic, international, experienced and highly-motivated management team with many years of senior management background, making it a dependable partner when it comes to building long-term business relationships.



## 2015 Business Highlights

- Significant revenue growth and solid profitability
- Ongoing innovation leadership and launch of new products
- Expansion of addressable market for next-generation cloud and mobile services

During 2015, ADVA Optical Networking made the following key announcements:

### **Customer Achievements**

January 13: Telekom Malaysia, the national incumbent operator of Malaysia, is deploying Oscilloquartz's complete timing and phase synchronization solution in a 3-year framework agreement. Oscilloquartz, an ADVA Optical Networking company, supplies technology that includes its PTP grandmaster and remote slave clocks. The Oscilloquartz portfolio will become a critical component of Telekom Malaysia's national core network as it prepares for increased demand of LTE-Advanced services and other applications that require ultimate accuracy in the delivery of frequency, phase and time-of-day information. Oscilloquartz will be working with long-term partner, Telechat Communication, to deploy and maintain its technology throughout Telekom Malaysia's national network footprint.

**February 24:** TDC, the incumbent operator of Denmark, has deployed Oscilloquartz's timing and synchronization technology throughout its national Danish network. This deployment marks a major upgrade to TDC's timing and synchronization capabilities and is a critical step in the development of its optical transport infrastructure. The leading provider of communications services in the Danish region, TDC will be using Oscilloquartz's technology to ensure its national core network can meet stringent accuracy demands in the delivery of frequency, phase and time-of-day information.

April 27: Crawford Media Services, a privately-owned company providing end-to-end creative and post production services, has deployed the ADVA FSP 3000 to connect its Atlanta studios to a colocation facility. This new connectivity will enable Crawford Media Services to rapidly transport enormous amounts of audio and video data with clients on a national and international scale. ADVA Optical Networking's services team worked closely with Crawford Media Services on each step of the network, helping to plan, build and activate it over a very short period of time. It's this close interworking, rapid response and in-depth knowledge of data center connectivity that has made this relationship such a success.

August 4: WiTCOM, a regional network operator in Germany, has deployed the ADVA FSP 3000 with reconfigurable optical add-drop multiplexer (ROADM) technology throughout the Hessen region of Germany. The German telecommunications carrier is utilizing ADVA Optical Networking's ROADM capabilities to transform its previously fixed network into a flexible and dynamic infrastructure. WiTCOM supplies residential and enterprise customers in the greater Frankfurt area with secure data center interconnect and telecommunication services. It selected the ADVA FSP 3000 for its ability to radically enhance the performance, flexibility and scalability of its metro network. The new system ensures WiTCOM can rapidly respond to the growing demands of customers by provisioning new services and bandwidth at the touch of a button. The network was designed and tested with ADVA Optical Networking's long-term partner, dacoso, specialists in connectivity solutions and data center services.

September 28: ADVA Optical Networking announced that the company's ConnectGuard™ solution has been deployed in more than 200 data center interconnect (DCI) networks around the world. Engineered to provide the most complete data protection possible, ADVA ConnectGuard™ is being used across all industries to safeguard hundreds of Tbit/s of sensitive data. Enterprises and service providers across the globe have invested in ADVA Optical Networking's unique technol-

ogy in response to the sudden surge in cyberattacks and the changing legal environment for data protection. Fierce demand for the security solution has come from all areas including governments, financial institutions, the healthcare industry and communication service providers. It's now also complemented by ADVA ConnectGuard™ Ethernet for secure connectivity to cloud-based data-center resources.

**October 14:** TDC, the leading telecommunications provider in Denmark, has deployed Oscilloquartz's OSA 3230B cesium clock in its national optical transport network. The technology provides phenomenally precise measurement reference with accuracy 10 times better than ITU-T recommendations. TDC has already deployed Oscilloquartz timing and distribution solutions to meet strict accuracy requirements for frequency, phase and time-of-day information delivery. Now it's leveraging the frequency-source technology for a stable and accurate reference signal entirely free from frequency drift. Oscilloquartz is supporting TDC in all areas from the new cesium-based primary reference source to the OSA 5548C synchronization supply units for phase and frequency regeneration.

October 19: Consorsbank, one of Europe's leading direct banks, is using the ADVA FSP 3000 for secure connectivity between its data centers. Consorsbank is leveraging the platform for secure, ultra-fast, high-capacity optical communications. The fully scalable solution comes with ADVA Optical Networking's ConnectGuard™ technology, enabling Consorsbank to deliver huge amounts of data with the protection of Layer 1 encryption. Part of the BNP Paribas group of financial institutions, Consorsbank has over 800,000 digital banking clients and manages assets worth over EUR 25 billion. That's why security and scalability were key selection factors. The ADVA FSP 3000's 100Gbit/s capabilities enable Consorsbank to grow its range of digital financial services and products in the future. ADVA Optical Networking's long-term partner, Computacenter, Europe's leading independent

provider of IT infrastructure services, was instrumental in designing and deploying the network.

December 2: Neotel, one of South Africa's leading service providers, has deployed the ADVA FSP 3000 and Juniper PTX3000 to create a flexible, dynamic and integrated packet optical network architecture. Neotel is using the multilayer network to respond to enormous bandwidth growth in fixed and mobile data consumption and increasing migration to cloud services. Including ADVA Optical Networking's ROADM technology and Juniper Networks' routers with tunable DWDM interfaces, this network is the first in Africa to feature a unified multi-layer, multi-vendor approach. It will enable Neotel to rapidly roll out new services, increase availability and simplify network operations. The packet-optical solution also marks a major step forward in lowering power consumption and decreasing Neotel's physical footprint. The network was implemented by South African integrator XON Systems, an Elite partner of both ADVA Optical Networking and Juniper Networks.

**December 15:** Openreach, the infrastructure division of BT Group, has deployed the ADVA FSP 150 as the foundation of its new EAD 10G service. The new point-to-point 10Gbit/s Ethernet Access Direct (EAD) service will provide Openreach's customers with 10 times the bandwidth at little more than twice the price of the current 1Gbit/s product. Openreach is utilizing ADVA Optical Networking's technology to respond to rapidly growing demand for bandwidth from enterprise customers across the UK. The new EAD 10G solution saves space, enables flexible deployment and is less expensive than other high-bandwidth products based on optical fiber. The service fully supports the sector's increasingly stringent timing requirements with Synchronous Ethernet. What's more, it enables Openreach to easily roll out more EAD functionality in the future.

# 2915

December 17: Mitteldeutscher Rundfunk (MDR), one of Germany's public broadcasting institutions, has deployed the ADVA FSP 3000 to natively transport high-quality video, data and audio services directly on the optical network layer. The pioneering solution completely eliminates the cost and complexity of encoding and decoding as well as the loss of quality caused by compression. The new dense wavelength division multiplexing (DWDM) network is unique as it supports high-performance fiber transmission of any traffic protocol, including HD-SDI for video and multichannel audio digital interface (MADI) for audio. It connects MDR's television headquarters in Leipzig with its regional broadcasting centers in Dresden, Erfurt and Magdeburg, as well as its radio center in Halle. The infrastructure was installed and will be maintained by ADVA Optical Networking's partner, MEDIA BROADCAST, Germany's leading media and broadcasting service provider.

### Innovation

March 9: Oscilloquartz, an ADVA Optical Networking company, launched the newest member of its OSA 5410 series – the OSA 5411. This new product is the first access network device in the industry to offer Rubidium-based timing and synchronization capabilities along with a unique hold-over algorithm. This technology breakthrough will enable much longer frequency and phase holdover in case of GNSS outages. The OSA 5411, and the wider OSA 5410 series, also support the latest ITU-T G.8275.1 standard. Both of these factors are critical for the successful migration to LTE-Advanced (LTE-A) and LTE-TDD networks.

**March 18:** ADVA Optical Networking unveiled its Network Functions Virtualization (NFV) strategy to the industry. The strategy will be spearheaded by an extended ADVA FSP 150 Carrier Ethernet portfolio that will include a number of new Network Interface Devices (NIDs). The new NIDs will be critical for service providers that are seeking to fully exploit the benefits of NFV-based networks. In recent weeks, ADVA Optical Networking has showcased how its NFV technology can be used to virtualize customer premise equipment and to create virtualized radio access backhaul networks.

April 16: ADVA Optical Networking launched its new ConnectGuard™ solution. Engineered specifically to provide the most advanced data protection possible, ConnectGuard™ presents service providers and enterprises with unique solutions to secure their connectivity networks. ConnectGuard™ is available in two distinct variants. Firstly, ConnectGuard™ Optical for the ADVA FSP 3000 provides robust transport layer security and is ideal for data center interconnection applications that need advanced protection for the transportation of enormous data volumes. Secondly, ConnectGuard™ Ethernet for the ADVA FSP 150 delivers Ethernet layer security and is critical for protecting data as it travels across third-party packet networks.

June 1: ADVA Optical Networking launched its all-new Data Center Interconnect (DCI) solution. The ADVA FSP 3000 CloudConnect<sup>™</sup> has been jointly engineered with leading Internet Content Providers (ICPs) and Cloud Service Providers (CSPs) to ensure that it meets stringent density, scalability and energy demands - something it does with ease. Available in multiple chassis configurations, including four rack units (4RUs), the ADVA FSP 3000 CloudConnect™ features the market's first 400Gbit/s single line card. It can transport up to 25.6Tbit/s duplex capacity per fiber pair from a single rack, delivering 51.2Tbit/s of total throughput at 1.4Tbit/s per rack unit. And this includes amplifiers, multiplexers and all other necessary components - a first for the industry. The ADVA FSP 3000 CloudConnect™ has been designed from the outset to be an open DCI solution featuring open hardware and software interfaces and protocols. This will prove vital for ICPs and CSPs as they seek to develop true bestof-breed networks.

June 14: ADVA Optical Networking introduced its new Network Functions Virtualization (NFV) product family to the industry at the Open Networking Summit (ONS) 2015. The ADVA FSP 150-GE110Pro Series is a unique multi-layer service demarcation solution that has been specifically engineered to enable network operators to smoothly introduce NFV-based services. This new technology is built around openness, security and service assurance – critical components for NFV-optimized Network Interface Devices (NIDs). The ADVA FSP 150-GE110Pro Series is currently in trials with a number of network operators and will be commercially available later in 2015.

October 4: ADVA Optical Networking announced the addition of new client rates, multiplexing and amplification capabilities to its FSP 3000 CloudConnect™ platform. The company's flagship data center interconnect (DCI) technology can now support 10Gbit/s and 40Gbit/s client rates in addition to 100Gbit/s. This mix of client rates ensures that customers can effectively scale their DCI networks as their business demands. Also available are a range of new channel multiplexers to best fit customers' specific needs, including a high-density 48-channel multiplexer on a single line card. What's more, the ADVA FSP 3000 CloudConnect™ also features the industry's first self-contained DCI amplification line card that comprises all necessary components, including an optical supervisory channel.

October 7: ADVA Optical Networking achieved an industry first with the launch of its FSP 150 ProVM product family. The ADVA FSP 150 ProVM is a new generation of edge network functions virtualization (NFV) technology that significantly extends the capabilities of present network interface devices by combining Carrier Ethernet 2.0 and IP demarcation with an internal server that can host virtual network applications. What stands this product family apart is that it's the only carrier-grade virtual network functions (VNF) edge solution on the market that can deliver comprehensive service assurance for both its integrated server as well as the connecting network. Hardware-assisted monitoring enables service providers to directly monitor the performance of applications in the most detailed and reliable manner possible. Such service assurance is critical for service providers as they seek to expand their business to offer managed network services.



October 28: Oscilloquartz, an ADVA Optical Networking company, launched the OSA 5420 series, a family of advanced grandmaster clock synchronization devices engineered for excellent performance even in the most extreme conditions. The pioneering product range delivers the best holdover performance on the market despite its compact footprint. This is achieved with a built-in sync distribution unit, sophisticated algorithm and high-quality oscillator. With capacity for up to 512 remote slaves, the OSA 5420 also represents an enormous increase in scale. It enables timing to be distributed and assured throughout the network over existing packet infrastructure and meets stringent frequency and phase synchronization requirements. With its self-calibrating clock recovery algorithm, the OSA 5420's Precision Time Protocol (PTP) implementation supports accurate phase and time delivery for a wide range of applications, including mobile backhaul and enterprise services.

October 30: Oscilloquartz, an ADVA Optical Networking company, launched its OSA 5401 Syncplug™, a highly accurate and uniquely efficient small form-factor pluggable (SFP) grandmaster clock and GNSS receiver. The innovative device has the smallest footprint and most compact design on the market. It complements the existing portfolio of Oscilloguartz products, driving precise IEEE 1588v2 Precision Time Protocol (PTP) frequency and phase synchronization as well as Synchronous Ethernet deeper into access networks, including radio access and small cell networks. With its miniature form factor and low-touch provisioning, the new synchronization solution can be deployed in the most space-restrictive environments. What's more, it operates at low cost, consumes minimal energy and requires no additional power source or real estate. The OSA 5401 Syncplug™ supports the creation of an entirely new time distribution architecture to meet the stringent phase-synchronization requirements of today's access networks.

### Interoperability and Alliance Partnerships

**February 18:** ADVA Optical Networking prepared a show-case for virtualization in radio access backhaul networks at the Mobile World Congress. The demonstration revealed how Mobile Network Operators (MNOs) can effectively eliminate the restrictions of hardware-coded networks by using Network Functions Virtualization (NFV) technology. Decoupling innovation from hardware implementation radically shifts the value proposition of radio access backhaul networks and adds unprecedented flexibility. The showcase was underpinned by a new Ethernet access device that ADVA Optical Networking was developing.

**March 12:** ADVA Optical Networking announced a joint demonstration at the MPLS SDN World Congress showcasing how Network Functions Virtualization (NFV) can be used to establish a virtual customer premise solution. Developed along with Brocade and Check Point, the demonstration revealed how IP-based business services can be deployed without the need for expensive truck rolls or the installation of additional costly physical devices. Using this NFV-based approach enables services such as routing, firewalling and security to be activated through a simple point-and-click GUI.

**April 9:** ADVA Optical Networking announced that it has officially joined the Open Platform for NFV (OPNFV). As a member of the OPNFV, ADVA Optical Networking will play a key role in helping to shape the community's discussions and focus. The OPNFV is an open source project aimed at accelerating the development and adoption of Network Functions Virtualization (NFV). The OPNFV's community is composed of a broad range of service providers, hardware manufacturers and software vendors. Together the community is developing an integrated open source platform that can be used to build NFV functionality.

**June 24:** ADVA Optical Networking announced its successful participation in T-Systems' advanced Terabit Demonstrator project. The project is focused on showcasing the transportation of terabit applications over a distance in excess of 1,000km. ADVA Optical Networking's technology is a key component of this project and its 100Gbit/s coherent capabilities meet the extremely high data rates and stringent quality of service demanded by such data-intensive applications. What's more, ADVA Optical Networking used the Terabit Demonstrator to showcase its latest 33GHz ultra-narrow channel spacing technology. This is a major breakthrough for 100Gbit/s coherent products.

October 11: ADVA Optical Networking launched a joint demonstration with BT that reveals the future of managed services built upon network functions virtualization (NFV). This demonstration highlights how specific enterprise applications can harness NFV to share resources and dramatically increase efficiency. The demonstration focuses on CCTV-based video surveillance and shows how backhaul-intensive applications such as this are currently limited by the need to centrally process enormous amounts of data. ADVA Optical Networking's new FSP 150 ProVM, with its built-in server, underlines how these applications can use NFV at the network's edge to decentralize processes and drastically improve application performance. The video surveillance application is supplied by ADVA Optical Networking's partner – Alchera Technologies.

November 2: Oscilloquartz, an ADVA Optical Networking company, announced a showcase featuring the future of timing and phase synchronization at the 2015 International Telecom Sync Forum (ITSF). The company hosted multiple demonstrations centered on five key areas, including the value of sync probing and the timing challenges presented by LTE-A. Vital to the showcases was Oscilloquartz's newly announced product range. It included the OSA 5401 Syncplug™, a small form-factor pluggable PTP grandmaster clock with ultra-compact design, and the OSA 5420, a series of advanced

grandmaster clock devices. Members of Oscilloquartz's team also hosted a series of speaking sessions that examined the key challenges ahead for timing and phase synchronization.

**November 17:** ADVA Optical Networking announced that it had been chosen by the MEF to host a joint network functions virtualization (NFV) demonstration with Time Warner Cable Business Class and Juniper Networks at GEN15. The practical showcase went much deeper than other demonstrations to actually reveal how NFV-centric services integrate with existing operations and business processes of communication service providers (CSPs). This aspect of the demonstration is key for CSPs as they seek to use NFV to rapidly expand the range of managed network services they offer. To succeed here requires a smooth migration from the existing hardware-centric model to one focused upon virtualizing customer premise equipment. The MEF specifically selected ADVA Optical Networking, Time Warner Cable Business Class and Juniper Networks because they collectively show how CSPs can effectively accomplish the transition to NFV-centric networks. The demo was featured as part of the MEF's Proof of Concept showcase and was available to view from November 16 until November 19.

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### **Corporate Events**

January 2: ADVA Optical Networking announced the appointment of Ulrich Dopfer as Chief Financial Officer (CFO), effective January 1, 2015. Ulrich Dopfer took over the role of CFO and president of our North American subsidiary from Jaswir Singh, who had served in this position since 2007. Ulrich Dopfer, previously the company's vice president of financial planning & analysis and corporate services has served in various financial and business roles at ADVA Optical Networking since 2004. Jaswir Singh left ADVA Optical Networking on December 31, 2014. Christoph Glingener, who has been serving as Chief Technology Officer (CTO) since 2007, took over ADVA Optical Networking's industry leading operations team headed by Paulus Bucher, senior vice president global operations, in order to integrate research and development, new product introduction and global operations into a unified development operations team.

January 9: ADVA Optical Networking announced that Nikos Theodosopoulos, founder and managing director of NT Advisors LLC, was elected by the Supervisory Board as their Chairman. The election followed a unanimous proposal by the Management Board of ADVA Optical Networking and court appointment of Nikos Theodosopoulos as a member of the Supervisory Board until the next General Meeting. Nikos Theodosopoulos succeeds Anthony Maher, ADVA Optical Networking's former Chairman of the Supervisory Board, following Mr. Maher's unexpected passing in November of the prior year.

May 6: ADVA Optical Networking announced that it has won two prestigious BT awards for its forward-looking sustainability program. As a member of BT's Better Future Supplier Forum (BFSF) since 2013, ADVA Optical Networking has worked closely with BT to reduce its carbon footprint and drive greater sustainability. BT was so impressed by ADVA Optical Networking's efforts that it awarded the company BFSF silver supplier status. BT also awarded ADVA Optical Networking first place in its Game Changing Challenge (GCC) competition for the development of a new logistics model.

**August 3:** ADVA Optical Networking announced that it acquired Time4 Systems to capitalize on new synchronization opportunities. Based in Finland, Time4 Systems produces SFP-based pluggable clock devices that drive synchronization deeper into the access network. With these mini-clock devices, Time4 Systems changes the way network synchronization is provided via global navigation satellite system (GNSS) receivers, telecom slave clocks (T-SCs), grandmasters (GMs) or boundary clocks (BCs). The small form factor enables users to deploy synchronization solutions in the most space-efficient manner possible, with low energy consumption and at the lowest possible cost. The SFP-based pluggable clock devices will become a part of the Oscilloquartz product portfolio and complement its existing synchronization offerings.

November 24: ADVA Optical Networking announced that it had won one of QuEST Forum's two annual awards for sustainability. It achieved the accolade for improvements in every one of Quest Forum's 10 sustainability areas, which include resource management and the creation of a circular economy. Central to the award was ADVA Optical Networking's End-to-End Supply and Re-Use project, a revolutionary initiative that restructures logistics and improves product delivery. The innovative scheme streamlines processes by removing equipment from customer warehouses and delivering only what engineers need close to the installation site. This is already saving hundreds of tons of carbon emissions. QuEST Forum is a global association dedicated to promoting quality and sustainability and ADVA Optical Networking has begun sharing the details of its pioneering supply chain process at QuEST events across the world.

**November 27:** ADVA Optical Networking announced that is acquired an engineering division from technology incubator, mic AG/FiSEC GmbH. The talented team of engineers is specifically focused on the development of optical monitoring technology in fiber networks. Their skills will be key for ADVA Optical Networking as it continues to rapidly advance its popular ADVA FSP 3000 Access Link Monitoring (ALM) product. Since its launch in 2014, the ADVA FSP 3000 ALM has been widely applauded for introducing a compact and easy-to-use optical monitoring solution – something previously missing from the marketplace.

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born in 1964 Bachelor of Science in Electrical Engineering, Stanford University, USA

Brian Protiva co-founded ADVA Optical Networking in 1994. As the CEO, he is responsible for overall strategy, human resources, quality management, sales and marketing. Under Brian's leadership, ADVA Optical Networking advanced to become a global market leader in Ethernet access devices and one of the top players in metro Wavelength Division Multiplexing (WDM) worldwide. To date, ADVA Optical Networking's in-

novative networking solutions have been deployed in more than 10,000 enterprises and more than 300 carrier networks around the world. Prior to leading ADVA Optical Networking, Brian was managing director at AMS Technologies (now the EGORA Group), which he joined in 1987 and where he focused on co-managing its subsidiaries.

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born in 1968 Ph.D. in Electrical Engineering, University of Dortmund, Germany

Dr. Christoph Glingener joined ADVA Optical Networking in April 2006, assuming responsibility for all global research and development activities at sites in Europe, the United States, China and, more recently, the Middle East. In 2007, Christoph was appointed CTO. Since that time, he also leads ADVA Optical Networking's product management and advanced technology teams. Christoph has focused on streamlining ADVA Optical Networking's product portfolio, defining the product strategy and building the Group's standing as a global innovator in optical networking. Strategic partnerships and

mergers & acquisitions are an integral part of this strategy. Additionally, in January 2015, Christoph took on responsibility for global operations, enabling ADVA Optical Networking to integrate research and development, new product introduction and global operations into a unified development operations team. Christoph's activities at ADVA Optical Networking build on a long and successful industry career with experience gained in both academic and corporate roles. These include leading positions at Marconi Communications (now Ericsson) and Siemens Communications (now Coriant).



born in 1973 Graduate in Business Administration, Verwaltungs- und Wirtschaftsakademie Munich, Germany

Ulrich Dopfer joined ADVA Optical Networking in March 2004 and led the Group through some key financial initiatives taking on increasing responsibility over time. In 2006 Ulrich moved to Norcross, Georgia, where he is still based today. Prior to his appointment as CFO in January 2015, Ulrich served as vice president of financial planning & analysis and corporate services where he strategically optimized major processes, systems and support infrastructure, enabling ADVA Optical Networking to maintain the right balance between vision and execution. Combining his operational expertise with his vast financial skills and strong leadership style, Ulrich

provides ADVA Optical Networking with the ability to flexibly steer the Group in a volatile high-growth environment, to ensure profitable growth. In addition to his CFO role, Ulrich was appointed president of the Company's North American subsidiary in January 2015, assuming full legal responsibilities for the region. Ulrich's activities at ADVA Optical Networking build on more than 20 years' experience of designing and implementing financial reporting, performance measurements, policies and standards to maintain strong internal controls in corporate roles including positions at ESCADA AG and FJH AG.

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## Letter to Shareholders

Dear shareholders and friends,

Light – the foundation of life and modern communication The United Nations declared 2015 as the Year of Light and light-based technologies. On the most fundamental level through photosynthesis, light is necessary to the existence of life itself. The many applications of light have revolutionized society through medicine, communications, entertainment and culture. Light and photonics are poised to become key enabling technologies of the future. For ADVA Optical Networking, light is the foundation of everything we do, the foundation of our solutions. We use light to transmit enormous amounts of data – and ultimately to connect people.

On a less inspiring note, 2015 was also influenced by political turmoil, economic turmoil and human tragedy. There were global developments such as the erosion of the oil price, the refugee crisis, the transatlantic free trade agreement TTIP and the weakening global economy. In addition we saw European problems such as the Greek sovereign debt crisis, rampant youth unemployment and low inflation. International problems, however, have had little impact on the telecommunications industry. The major growth drivers cloud and mobility are still intact. The demand for more bandwidth in networks around the globe continues to grow rapidly and the economic strength of most network operators has developed positively. For ADVA Optical Networking 2015 was a very positive year. Truly a year of light.

Record year with 30% revenue growth **We achieved new highs.** In 2015, we have collected record revenue of EUR 441.9 million. That makes this fiscal year by far the strongest in our company's history. After a record 2014, we have grown in 2015 by an additional 30.3%. We were able to not only increase our top line, but also have achieved our goal of profit-

able growth. Pro forma operating income increased by more than 200% from EUR 9.5 million last year to EUR 30.0 million in 2015. Throughout the year, ADVA Optical Networking maintained financial strength, with an equity ratio well north of 50% and high net liquidity levels at all quarterly balance sheet dates.

Market capitalization nearly quadrupled **Our market capitalization increased by more than 280%.** After years of sideways movement on the stock market and a disappointing market capitalization that had recently been well below the annual turnover of our company, the shares of ADVA Optical Networking were poised for a phenomenal comeback in 2015. The resumption in the TecDAX, the peak of just under EUR 12 per share in November, as well as sustainable solid operational results, commanded investors' attention. Thanks to an intensive communications campaign on the part of our new CFO, Ulrich Dopfer, we were able to increase our visibility in the capital markets and to bring the market capitalization of ADVA Optical Networking closer to the valuation of comparable competitors.



Open networking solutions – strategically important for today's digital societies

We have successfully positioned ourselves in attractive growth markets. The two megatrends cloud and mobility are crucial for the development of our industry. Emerging Internet companies are transforming entire industries and changing them sustainably. As such, the Internet has become an indispensable component in everyday life and in work processes across industrialized countries and now the emerging economies are following suit. The Internet economy dictates where traffic originates and where it terminates. It is affecting network architectures everywhere in the world. Some of the big players are even building their own transmission networks. In addition to the opportunities that Web 2.0 offers, many other enterprises want to own and manage private networks. Hence cloud services are the fastest growing business for service providers. More than ever, networking solutions are the mission-critical foundation for future growth. All these trends are good news for optical network equipment manufacturers. They offer ADVA Optical Networking numerous opportunities, especially in conjunction with new technology requirements. Concepts such as programmability and virtualization - both already well established inside the data center - have now started to embrace the networks that connect them. Software-defined networking (SDN) and network functions virtualization (NFV) will change the way networks are operated and organized. Mobility, the second mega-trend, further accelerates the transition to the cloud. Today's users of mobile broadband services are using data and applications that no longer reside on their devices. The mass adoption of smartphones and tablets, as well as the success of video streaming and real-time applications, created pressure on the mobile infrastructure, and the technical requirements are changing rapidly. ADVA Optical Networking is investing in the right technologies and offering competitive solutions for a wide range of market participants.

We are prepared for the future. Looking at 2016 and beyond, we are confident that we can expand our market position with continued focus on profitable growth. In 2015 we launched new product generations for both of our main hardware platforms. The acquisition of Time4 Systems and of the development team of FiSEC GmbH further strengthened our technological know-how in the fields of synchronization and fiber monitoring technology. And most recently, in January 2016, we significantly enhanced our position in the future market of virtualized networks through the acquisition of Overture Networks. These initiatives expand our addressable market and strengthen our competitiveness with key customers. Regionally we see, after years of restraint, a resurgence of demand in Europe as well as additional impetus by the Internet economy in the United States.

These opportunities support our mission to be the trusted partner for open networking solutions for existing and new customers. The combination of cost-effective innovation, short development and delivery times, a broad and growing customer base and a well-balanced distribution model differentiates ADVA Optical Networking from its peers and will further fuel our profitable business model for the benefit of our customers, shareholders and employees. I would like to thank our dedicated employees for their consistent and valuable contributions. Their combined talents have made ADVA Optical Networking a strong company with bright prospects for the future. Thank you! ADVA Optical Networking will continue to **ADVANCE** by capitalizing on **open networking solutions for cloud and mobile services.** 

February 23, 2016

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Brian Protiva

Chief Executive Officer

New product launches and acquisitions further strengthen our competitive edge Welcome

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# 3 Supervisory Board



## **Members**

ADVA Optical Networking's Supervisory Board consists of a diverse and international group of seasoned experts in their respective fields:

### Nikos Theodosopoulos - Chairman

Member since December 29, 2014 Chairman since January 9, 2015

- Chairman of the Compensation and Nomination Committee
- · Member of the Audit Committee
- Founder and Managing Member of NT Advisors LLC, Manhasset, New York, USA

# Johanna Hey – Vice Chairwoman since 2011

- Chairwoman of the Audit Committee
- Professor for tax law, University of Cologne, Cologne, Germany

### Eric Protiva - Member

from 1999 until July 27, 2015

- Member of the Compensation and Nomination Committee
- Managing Director, EGORA Holding GmbH, Martinsried/Munich, Germany

# Report of the Supervisory Board

In 2015, the Supervisory Board once again performed its duties under the law and the Company's articles. It carefully and continuously monitored the Management Board and supported it in all strategic matters. The Supervisory Board has been directly involved in the early stages of all important strategic decisions of the Company. During a total of six ordinary meetings, in which all members of the Supervisory Board and the members of the Management Board regularly participated, the Management Board consistently, promptly and extensively informed the Supervisory Board about the business situation of the Company and the Group, in particular about strategic orientation, market development, prospects for growth and the development of net assets, financial position and profitability, including budgeting, investments, personnel, compliance, internal audit and risk management. The Supervisory Board extensively discussed all important business issues on the basis of the Management Board's reports. Any deviations of the actual business development from the Group's plans and objectives were explained by the Management Board in detail and reviewed by the Supervisory Board. The Supervisory Board gave its approvals to all important decisions, after thorough examination and consultation, where required by law or the Company's articles, acting in the best interest of the Company and the Group. In addition to the six ordinary Supervisory Board meetings, the Supervisory Board held one extraordinary Supervisory Board meeting inter alia to elect Nikos Theodosopoulos as Chairman and member of committees and also passed resolutions during the year on urgent matters. Moreover, especially the Chairman and the Vice Chairwoman of the Supervisory Board maintained regular contact with individual members of the Management Board outside of scheduled meetings and were kept up-to-date with respect to current business developments, important transactions and forthcoming decisions.

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# Main Management Board Activities Covered and Examined by the Supervisory Board

In 2015, as in the prior year, the Supervisory Board focused mainly on the business development and strategic direction of the Company and the Group, particularly its revenue, earnings and headcount development, and ADVA Optical Networking's financial situation. In this context, new opportunities for revenue growth and the development of margins were discussed.

The Supervisory Board closely monitored and supported the activities of the Management Board, including discussions on mergers and acquisitions, and approved the acquisition of all assets of FiSEC GmbH ALM-product business and the acquisition of Time4 Systems Oy (T4S), a start-up company from Finland. It discussed the Group's organization and key business processes with the Management Board and assured itself of the efficiency of this organization and these processes. The Management Board submitted to the Supervisory Board all transactions and decisions requiring approval according to the Company's articles. The Supervisory Board approved all such transactions and decisions.

#### **Committees**

In order to perform its tasks efficiently, the Supervisory Board continued to maintain two committees during 2015, the Audit Committee and the Compensation and Nomination Committee. Members of the Audit Committee were Johanna Hey (Chairwoman) and Nikos Theodosopoulos, and members of the Compensation and Nomination Committee were Nikos Theodosopoulos (Chairman) and Eric Protiva (until July 27, 2015). Nikos Theodosopoulos was elected as Chairman of the Compensation and Nomination Committee and as member of the Audit Committee on January 9, 2015.

The Audit Committee held five meetings during the course of the year. All Audit Committee members regularly participated in these meetings. In addition to reviewing the consolidated annual and three quarterly financial statements and

Group management reports as well as the Company's annual financial statements and management report, the Audit Committee discussed the financial position and performance of the Group, the appointment of the external auditor, the audit scope for 2015, the development of tax positions and risks, internal audit activities, as well as the effectiveness of the internal controls related to financial reporting and of the risk management system.

The Compensation and Nomination Committee met two times during the past year. All members of the Compensation and Nomination Committee regularly participated in these meetings. The Committee's discussions focused in particular on the remuneration and the contract extensions of the chief officers.

Reports on the work of the Supervisory Board committees were regularly presented and discussed during the subsequent Supervisory Board plenary meeting.

### **Corporate Governance Code**

The Supervisory Board welcomes the German Corporate Governance Code and supports its objectives. The Supervisory Board has approved compliance with and the implementation of most recommendations and proposals of the Corporate Governance Code within the ADVA Optical Networking organization. In its meeting on November 17, 2015, the Supervisory Board and the Management Board discussed deviations from the Code, and jointly approved an updated declaration of compliance in accordance with section 161 of the German Stock Corporation Law (Aktiengesetz, AktG). This declaration is published on the Group's website and is accessible for all shareholders.

# Annual Financial Statements and Management Reports

ADVA Optical Networking's consolidated annual financial statements for the year ended December 31, 2015, and ADVA Optical Networking SE's annual financial statements for the year ended December 31, 2015, as well as the Group management report and the management report of ADVA Optical Networking SE for the fiscal year 2015 were audited by the Company's appointed auditor for 2015, Pricewaterhouse-Coopers Aktiengesellschaft Wirtschaftsprüfungsgesellschaft, Munich, who issued unqualified audit opinions. Pursuant to section 315a of the German Commercial Code (Handelsgesetzbuch, HGB), the consolidated annual financial statements have been prepared according to International Financial Reporting Standards (IFRS) as enacted in the EU. All management letter points issued by the auditor were taken up, discussed with the Management Board, and their consideration was ensured.

All relevant accounting documents, financial reports and audit reports were submitted to the Supervisory Board members prior to the meeting of the Supervisory Board dealing with the Company's and Group's 2015 financial statements. On February 18 and 22, 2016, these documents were discussed and examined in detail jointly by the Audit Committee and the auditor and in consideration of the auditor's long-form report. The Audit Committee reported its findings to the entire Supervisory Board in its meeting on February 23, 2016. Furthermore, the auditor, who was present in all three meetings, reported on the material results of the audit, explained net assets, the financial position and the results of operations of the Company and the Group, and was available to answer additional questions from the members of the Supervisory Board.

In view and consideration of these audit reports and on the basis of the additional information provided by the auditor, the Supervisory Board discussed and examined the financial statements and management reports in detail in its meeting

on February 23, 2016. It unanimously approved ADVA Optical Networking SE's annual financial statements and management report, as well as ADVA Optical Networking's consolidated annual financial statements and Group management report. The annual financial statements of ADVA Optical Networking SE for the fiscal year 2015 are thereby adopted.

# Changes within the Management and Supervisory Boards

On July 27, 2015, Eric Protiva resigned from the Supervisory Board. The Supervisory Board thanked Eric Protiva for his valued contributions.

In its meeting on February 23, 2016 the Supervisory Board approved the proposals of the Compensation and Nomination Committee to re-appoint Brian Protiva, Christoph Glingener and Ulrich Dopfer as members of the Management Board until December 31, 2017. Corresponding contractual provisions were agreed to be implemented in writing with the individual members of the Management Board.

The Supervisory Board would like to express its appreciation for the personal dedication, performance and the ongoing commitment of the Management Board and all employees of the Company and the Group during 2015.

February 23, 2016

On behalf of the Supervisory Board:

Nikos Theodosopoulos

Chairman of the Supervisory Board

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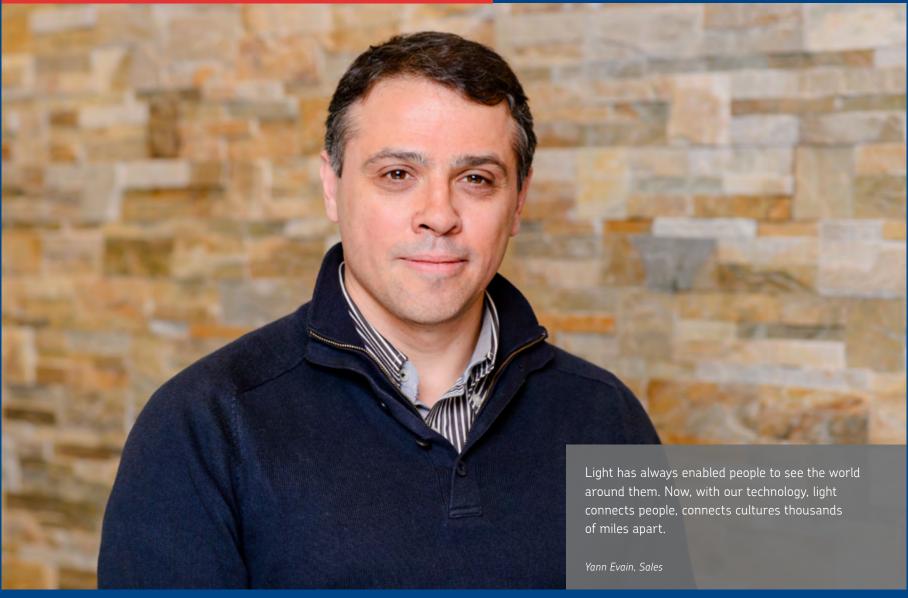
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# 4 The ADVA Optical Networking Stock



Successful comeback in 2015 with multi-year record high After a disappointing performance in 2014 and a weak market capitalization, which was significantly below the annual revenues of the company, ADVA Optical Networking shares had a successful comeback in 2015. With a share price of less than EUR 3 at the beginning of the year, the share price reached a multi-year high at the end of November close to the EUR 12 mark. This fourfold increase of ADVA Optical Networking's market capitalization has narrowed the valuation gap with comparable telecommunications equipment suppliers. With a price of just over EUR 11 on December 31, 2015, and an increase of 271.9% (TecDAX: +33.5%), ADVA Optical Networking finished a very successful trading year.

High free float

On December 31, 2015, the Company's nominal share capital totaled EUR 49,374,484, an increase of EUR 1,278,053 compared to December 31, 2014. The higher share capital is fully attributable to the issuance of ordinary shares from conditional capital following the exercise of employee options and similar rights throughout 2014. As for the shareholder structure of ADVA Optical Networking, at the end of 2015 free float equaled 84.5%, including 0.8% of outstanding ADVA Optical Networking stock held directly by members of the management and supervisory boards, while the Company's sole major shareholder EGORA Group held the remaining 15.5%. Compared to the end of 2014, the free float of 82.0% increased to 84.5%. During the year, the Company did not utilize the share buyback authorized at the Annual Shareholders' Meetings in June 2010 and May 2012.

## Stock Information 1

2015 share price performance	+271.9%	
2014 year-end price	EUR 2.99	
2015 year-end market capitalization	EUR 549.04 million	
2015 year-end price	EUR 11.12	
2015 high/low price	EUR 11.80/EUR 2.81	
Number of shares outstanding at year-end 2015	49,374,484	
Industry	Communications Technology	
Sector	Technology	
Exchange	Prime Standard Segment Frankfurt Stock Exchange	
Symbol	ADV	
Trade name	ISIN DE0005103006/ WKN 510300	

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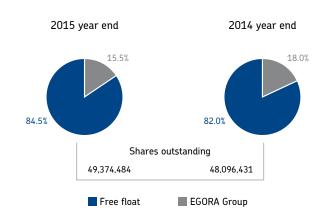
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Price information is based on Xetra closing prices.



### Shareholder Structure



First signs of positive share price development at the beginning of the year In Q1 2015, the first signs of a positive development of ADVA Optical Networking stock could already be seen. On February 25, the Company published record revenues for the fiscal year 2014 accompanied by a positive outlook for Q1 2015. In contrast to the multi-year trend, the Q1 2015 revenue guidance indicated further revenue growth, higher than revenues of Q4 of the previous year with good profitability. The disruption of the typical seasonal pattern as well as an increased interest in the capital markets for Cloud and Internet economy were the prelude to a continued positive share price development for the remainder of the year.

During the investor meetings that followed in March and April, the relationship between the megatrend "cloud" and the underlying expansion of data centers, as well as the strategic importance of optical transmission technology for interconnecting these data centers could be clearly explained. In addition, the offer by Nokia to acquire Alcatel-Lucent, the announced acquisition of Transmode by Infinera and the acquisition of Cyan through Ciena stimulated further interest in the networking industry. The publication of the Company's Q1 numbers in April included another strong outlook for the following quarter Q2, which was well received by the capital markets. Due to the positive business development in Q2, the guidance for the quarter was revised on June 16. Shortly thereafter, on June 22, ADVA Optical Networking was reincluded in the TecDAX.

Revised Q2 guidance and re-inclusion in the TecDAX

Revised Q2 guidance and re-inclusion in the TecDAX drive share price beyond the record highs of 2007

Mergers and acquisitions stim-

ulate further in-

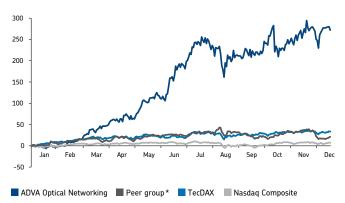
terest from the in-

vestor community

Share price increase of +271.9% for the year

The Company's positive business development also continued in the third quarter, which ended with a revenue growth of 40% compared to Q3 of the previous year. The cautious outlook for the remaining fourth quarter resulted in a short-term decline of the share price. The shares, however, had fully recovered by the end of November and closed the year at a price level of just over EUR 11. With this development of +271.9% ADVA Optical Networking significantly outperformed comparable publicly listed companies in the networking space and surpassed the yields of major technology stock indices. With a market capitalization of EUR 549.0 million, ADVA Optical Networking is closer to the valuation of comparable network equipment suppliers.

# Price Development 2015 in Comparison (in %, indexed)



\* Peer group data are calculated with the arithmetic average of Alcatel-Lucent, Ciena, Cisco, Infinera and MRV Communications stock prices.

## Investor Relations Review

Investor relations work was influenced by the following priorities in 2015:

- Strong revenue growth and sustainable profitability
- Increased interest of the financial community for the Internet economy and the associated growth drivers for optical transmission equipment
- Intensified roadshow activities and expansion of direct investor communications

The megatrends "cloud" and "mobility" have driven the demand for optical transmission technology and Ethernet access solutions in 2015. The long-term bandwidth growth in communication networks around the world is on average about 30% per year. The addressable markets for ADVA Optical Networking show an average long term growth close to 10%, varying by region and segment. In fiscal year 2015, the revenue growth of the Company was well above the long-term average market growth. This was due to the strong positioning of the Company in key market segments and positive investment cycles in those segments.

The growing interest of the financial community for the Internet economy, for data centers and their networking needs was further stimulated by several acquisitions within the networking industry. ADVA Optical Networking's IR team was able to educate the market about the megatrend "cloud", the expansion of data centers and the strategic importance of optical transmission technology for interconnecting those data centers.

Revenue growth strongly outperforms market growth

Stronger interest in the capital markets for data centers and interconnect technology Welcome

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Intensified IR activities To address the demand from the investor community for more details about market dynamics and ADVA Optical Networking's exposure, the Company intensified its IR work throughout 2015. The Company conducted a total of 17 roadshows (2014: four) in Frankfurt, New York, London, Amsterdam, Helsinki, Oslo, Copenhagen, Vienna and Zurich and organized over 150 individual meetings (2014: 60). ADVA Optical Networking was present in a total of six investor conferences for institutional investors (2014: six), including four cross-sector conferences and two events with technology focus. These conferences were organized by Berenberg/Goldman Sachs, Deutsche Bank, LBBW, Jefferies, Needham and JP Morgan.

In addition, with a total of 37 press releases, one ad hoc release, three quarterly reports and regular conference calls, the financial community was kept informed about any significant developments within ADVA Optical Networking. Further, throughout the year, the Company continued to provide comprehensive and up-to-date information relevant to the financial community on the investor relations pages of its website at www.advaoptical.com, including full transcripts of archived conference calls.

At the end of 2015, five financial analysts (end of 2014: four) provided research coverage of ADVA Optical Networking's stock.

## Financial Analyst Coverage

### (as of December 31, 2015)

Overall trading liquidity in ADVA Optical Networking's shares Improved liquidity significantly increased in 2015. The positive revenue development and the broader interest of investors in the networking industry driven by the dynamics of the Internet economy (Cloud) led to higher liquidity. The average Xetra trading volume was at 381 thousand shares per day during 2015, following 99 thousand shares per day during the previous year. Free float in the Company's shares remained high in 2015, at levels between 82.0% and 84.5% throughout the year.

The annual shareholders' meeting took place on May 20, 2015, in Meiningen, Germany. All items on the agenda were approved by a majority, including the creation of new authorized capital 2015/I with the option to exclude subscription rights, the expansion of authorization to issue stock option rights (stock option program 2011) and the creation of additional conditional capital. Furthermore, the annual shareholders' meeting appointed PricewaterhouseCoopers Aktiengesellschaft Wirtschaftsprüfungsgesellschaft as the auditor for the 2015 financial results.

Continued high free float

Successful annual shareholders' meeting

# **Investor Relations Contact**

Stephan Rettenberger Vice President Marketing & Investor Relations, Marketing & Strategy +49 89 89 06 65 854 <a href="mailto:srettenberger@advaoptical.com">srettenberger@advaoptical.com</a> Welcome

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# 5 Business Overview



### Mission

Trusted partner for open connectivity solutions

ADVA Optical Networking enables next-generation networks. Its mission is to be the trusted partner for open connectivity solutions that *ADVANCE* next-generation networks for cloud and mobile services.

## **Technology**

ADVA Optical Networking develops, manufactures and sells networking solutions for a modern telecommunication infrastructure. Its products are based on fiber-optic transmission technology combined with Ethernet functionality and intelligent software. The acquisition of Oscilloquartz SA in April 2014 expanded the Group's technology portfolio to include timing and synchronization solutions for networks.

### Optical

Wavelength division multiplexing (WDM) multiplies the transmission capacity of fiber

Fiber is the optimum physical medium to transmit large amounts of data over long distances. The bandwidth-over-distance capabilities of fiber by far exceed those of any other physical medium such as copper or wireless technologies. Therefore, fiber-optic transport is the unchallenged foundation for all high-speed networks. ADVA Optical Networking's optical transmission solutions are based on wavelength division multiplexing (WDM) technology. With WDM, multiple data streams are transmitted simultaneously over a single optical fiber by assigning each stream to a different wavelength (i.e. color) of laser light. Every wavelength (more than 100 in total) can carry a different application such as voice, video, data or storage traffic. Combining (i.e., multiplexing) these wavelengths at one end of the fiber, transmitting them over distance and then separating (i.e., de-multiplexing) them at the far end multiplies the fiber capacity and makes transmission more efficient. WDM supports all data protocols and transmission speeds, and is a natural foundation for all high-capacity networks.

### Ethernet

Ethernet is the dominant data-link protocol for today's networks supporting a multitude of communication applications. ADVA Optical Networking provides Ethernet-optimized transmission solutions for fiber-based networks used to interconnect enterprises and mobile network base stations with carrier networks. Ethernet is also one of the key protocols used to carry applications in high-speed optical networks for data backhaul and the interconnection of routers (see "Optical" above).

Ethernet is the dominant data-link protocol for advanced networks

### **Synchronization**

Reference sources that deliver stable frequency and timeof-day information are crucial to the effective transmission of digital signals. Especially in mobile networks, the availability of highly accurate synchronization and timing information is crucial for best end-user experience. In April 2014, ADVA Optical Networking acquired Oscilloquartz. The acquisition expanded ADVA Optical Networking's technology base and enabled the Group to provide a smooth evolution across multiple generations of synchronization technologies. Accurate timing and synchronization become increasingly important in telecommunications networks

### Innovative Connectivity

The combination of fiber-optic transmission technology and Ethernet-optimized data processing, complemented by the ability to deliver and assure highly accurate timing, is an ideal solution to deliver high-speed connectivity for data, storage, voice and video applications. Network operation is automated by an intelligent management software suite, which enhances the end-user experience and simplifies network operations and maintenance.

ADVA Optical Networking creates innovative connectivity solutions from inception through manufacturing and into service. The following paragraphs describe important market dynamics that drive growth for the Group's business.

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### Market and Growth Drivers

Growth drivers: cloud and mobility

ADVA Optical Networking's addressable market encompasses several applications for optical transmission technology, Ethernet access solutions and network synchronization. The demand for the Group's solutions is driven by the global megatrends "cloud" and "mobility", fueling the demand for universally available bandwidth. Within the different segments, ADVA Optical Networking deals with different customers and target groups that are described in the following paragraphs.

With innovative products, ADVA Optical Networking enables carriers and enterprises to deliver intelligent services, simplify their networks and scale their infrastructure for future growth. The Group's market-leading approach to combining Optical and Ethernet technologies with intelligent software into one integrated family of products provides a compelling value proposition to network operators looking for greater service assurance, automated network operation, security of data and expanded flexibility for a variety of services and topologies. Moreover, customers benefit from ADVA Optical Networking's powerful software and service-provisioning features that manage and control the entire network with lower costs and higher quality of service.

### Cloud – The Age of the Data Center

The Internet has profoundly changed the world. We are in the middle of a global transformation process that redefines the characteristics of our society, the way we interact and the way we work. Access to information, regardless of its specific nature, has been accelerated by many orders of magnitude. Things have become a lot more transparent – and global. Not a day goes by without a new idea being born, creating new business in our digital economy.

The basis for the rapid development of our digital society is a powerful communications network that spans the globe. This network is highly available and provides fast access to a wide range of data and applications. The cornerstones of this network are data centers equipped with gigantic server farms and large capacity for data storage. These data centers are in turn connected by high-performance, fiber-based communication networks that enable data exchange between the sites and provide enormous transmission bandwidth.

There are different actors that perform an important role in the interconnection of data centers (data center interconnect, DCI) and the provision of the required transmission capacity. All of these actors have their own requirements and collectively define ADVA Optical Networking's addressable market for that application.

### Data Center Interconnect for Large Enterprises

In a digitally networked world, enterprises depend more than ever on the integrity of their data and the availability of digital resources. There is a growing need to develop more reliable and efficient IT infrastructures, which not only protect against data loss, but also ensure that all processes run smoothly and at all locations. The loss of mission-critical information is a very big threat that can lead to the destruction or serious deterioration of the fiscal basis. System failures can result in lost revenue, idle staff and a loss of reputation for the affected enterprise.

Due to the criticality of data and application availability, many large enterprises, research and educational institutions as well as health care providers have gone down the path of operating their own data centers connected via private fiber-optic networks. Such private enterprise networks serve purely the business processes of an individual company or organization and offer a high degree of security and control. The network operation is either in the hands of the in-house IT department or a specialized communication

Data centers

– the cornerstones of today's
networked society

Loss of data and application downtime are a big threat to enterprises

Geographically dispersed business continuity solutions provide maximum protection service provider or network operator. The private IT infrastructure (private cloud) is often complemented by a partial outsourcing of less critical functions and data in external data centers, operated by a third party (public cloud). Such a hybrid scenario (hybrid cloud) has already been implemented in many places and will continue to spread rapidly in the corporate world.

Market leading position for data center interconnect with Fortune 500 enterprises

ADVA Optical Networking has over 20 years of experience in the development and deployment of innovative transmission technology for data center interconnect. Many major companies from the so-called Fortune 500 league rely on ADVA Optical Networking's transmission technology for their business continuity and disaster recovery applications. ADVA Optical Networking offers a highly innovative product feature set in this market segment and has built a strong partner landscape supporting the go-to-market process.

### Data Center Interconnect for Internet Content Providers

Internet content providers inject additional growth opportunities for optical transmission solutions

Internet Content Providers (ICP) are companies whose principal business is the creation and dissemination of digital content. The ICP community includes, for example, large Internet companies such as Apple, Amazon, Facebook, Google, HP, IBM and Microsoft. These companies operate data centers of enormous proportions and are often referred to as a "hyper-scale" or "cloud-scale" operators. ICP data centers contain huge server farms. The main asset of an ICP is its digital content and the associated services.

The ICP community is focused on innovation, has much experience in developing software and a pronounced do-ityourself mentality. ICPs' main objective is optimizing costs and strengthening the performance of their portfolios. For wide-area connections between their data center sites, they mainly resort to leased lines from communication service providers. However, there is a trend toward more and more scenarios where ICPs rent dark fiber and equip it with their own transmission technology. Because of their size and purchasing power, ICPs are not only a relatively new, but also interesting target group in the market for optical transmission equipment, promising high growth potential.

ADVA Optical Networking, thanks to its extensive experience in the field of data center interconnect for enterprise networks (see previous section), offers many compelling product features and solutions to the ICP community. The Company's highly agile and innovative corporate culture makes it an attractive partner for this target group.

### Carrier Infrastructure

Carriers are companies that are in the business of building and operating large-scale networks that they use to offer communication services to end-users or other communications service providers. The demand from enterprises and ICPs for more bandwidth to interconnect data centers is a key growth driver for this target group. In addition, carriers need to satisfy the increasing demand from residential users for more bandwidth to their homes, driving upgrades to carriers' infrastructure.

The rapid growth of video-on-demand offerings from so called "over-the-top" providers like Netflix is creating huge traffic loads in carrier networks. In order to guarantee good signal quality carriers need to deliver several Mbit/s of bandwidth per household. Building and operating a network that dedential households livers such capacity is no trivial task. Moreover, due to the adoption of higher resolution video standards and 3D-technology, bandwidth demand will continue to grow relentlessly for the foreseeable future. The first examples of so-called Gigabit Cities have emerged, where the available bandwidth per household reaches 1Gbit/s. This is more than a factor of 10,000 higher than the bandwidth required for a traditional phone service. Hence, a network node that serves households in a Gigabit-City handles 10,000 times the bandwidth of a comparable site in an old telephony network.

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Video-streaming,

and cloud applica-

tions continue to

drive bandwidth demand in resi-

> to unprecedented levels

social networks

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Different carriers use different access technologies in the first mile of the network

There are several ways for service providers to deliver broadband connectivity to their customers. Traditional telecommunications companies often rely on digital subscriber line (DSL) technology to increase the capacity of their phone lines, (i.e., twisted pairs of copper wires), which are typically available to every household. Coaxial cables are a good alternative, typically owned by cable TV companies that are expanding their offerings to become multiple service operators (MSOs). New initiatives for fiber-to-the-home (FTTH) or fiber-to-the-building (FTTB) are rolling out, providing the ultimate bandwidth pipe. Last but not least, there are wireless technologies in the mix. Currently the fourth generation (4G) of mobile network technology is being deployed, mostly in the form of Long Term Evolution (LTE) standards. All these access technologies deliver significantly higher bandwidth per end user than legacy technology.

Fiber is moving closer to the end user

For carriers, the challenge is to provide market competitive connectivity to as many customers as possible at the lowest possible cost. That means making good use of existing infrastructure, especially in the last mile, and intelligent investment in new technology to support growth and emerging applications. The prevalence of flat-rate based pricing models, the rising cost of labor and other resources as well as the dramatic increase of end-user bandwidth require new and more powerful network concepts. The underlying network infrastructure needs to scale by many orders of magnitude and be simpler to operate, pushing fiber optic transmission technology closer to the end customer and making it the only viable choice for the backhaul and core of the network. ADVA Optical Networking helps carriers to simplify their networks and build a scalable network infrastructure that is future-proof. By deploying the Group's networking solutions, carriers can combine various traffic streams from different access technologies onto a single transport platform. Backhaul for copper, coax, fiber and wireless access technologies on a single platform eliminates the costly operation of parallel systems. In addition, ADVA Optical Networking offers one of the most scalable platforms on the market, allowing seamless transport from the customer premise to the core of the network. Thus, carriers can bypass some of the small access nodes, eliminating the expense of operating these locations.

Scalable transmission technology delivers bandwidth for residential and business users

The ability to deliver more bandwidth to more customers More bandwidth to from fewer sites located farther back in the network enables operators to streamline their networks while simultaneously improving the end-user experience. Energy-hungry devices, which are needed for data processing, can be concentrated in fewer network locations, leading to a network architecture that is more energy-efficient and easier to operate.

more customers from fewer network sites using less energy

#### Carrier Ethernet Access

Enterprise customers require bandwidth, quality of service, network availability and security Serving residential customers is, in most regions around the world, a highly competitive business with low margins for service providers. The providers are therefore keen to offer telecommunications services to business customers. Serving enterprise customers is typically more lucrative as this clientele has more stringent requirements for quality of service, network performance, network availability and security. The service provider can charge a premium for these quality attributes but needs to back the service offerings with service level agreements.

Business Ethernet
– fiber-based
connectivity for
enterprises

Communication service providers increasingly rely on fiber-based Ethernet access solutions to serve their business customers. With this technology, they can provide very scalable and cost-effective connectivity to buildings and business parks. Many operators deploy Carrier Ethernet today as a unified, data-optimized transmission technology in the access area of their infrastructure. Business customers appreciate a wide area connectivity service, which looks like a simple extension for their in-house networking solutions.

Mobile backhaul – fiber-based Carrier Ethernet solutions to connect mobile base stations In addition to connecting business customers, communication service providers also use fiber-based Ethernet access solutions to backhaul traffic from mobile base stations. The success of smart phones and the associated high-speed mobile services created a bandwidth explosion. Mobile operators are now challenged to provide significantly higher bandwidth via their mobile networks without compromise on geographic coverage. Operators consequently upgrade their mobile base stations and introduce 4G Technology (LTE). And the next step to LTE-Advanced is already on the horizon. While 4G technology allows the delivery of more bandwidth over the air interface to the mobile device, operators also need to solve the backhaul challenge from base stations to their core networks. Traditional backhaul was done via SONET/SDH-leased lines or radio links. Higher-speed backhaul, however, needs to be data-optimized and relies to a large extent on fiber.

In the context of 4G, mobile operators further increase the density of their cell sites with both macro and small cells. The higher density of antennae requires better synchronization between these cell sites. In summary, the build-out of mobile broadband networks leads to a new generation of fiber-based Carrier Ethernet solutions that deliver and assure high data throughput and accurate timing information.

The popularity of Ethernet with enterprise customers, the increasing demand of mobile operators for Carrier Ethernet backhaul, and the rapid adoption of Carrier Ethernet in the network infrastructure have all fueled the demand for Ethernet access solutions. ADVA Optical Networking has reached a leading market position in this segment. The Company's solutions enable network operators to provide intelligent Ethernet services quickly and efficiently.

A higher density of radio heads improves spectral efficiency and requires accurate synchronization

Carrier Ethernet becomes increasingly important Welcome

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Mobile operators benefit from data-optimized highspeed backhauling



## **Products**

ADVA Optical Networking's portfolio strategy is built on a foundation of innovative connectivity solutions that combine the strengths of optical transmission technology and Carrier Ethernet with intelligent software into one unified family of products called the Fiber Service Platform (FSP).

WDM: ultimate scalability for best fiber utilization

The optical expertise of ADVA Optical Networking is built on a core of WDM technology and is represented in the ADVA FSP 3000 platform. This technology enables network operators to leverage their existing fiber optic infrastructure by flexibly deploying new applications, transporting more data on fewer fibers and coping with relentless bandwidth growth.

Cloud services and data center growth are accelerating the demand for WDM technology With the accelerating trend of hosting data and applications in the cloud, data centers are becoming the new hot spots of fiber-optic networks. And consequently, high-speed connectivity for the rapidly increasing number of data centers drives the demand for more WDM technology. The FSP 3000 has a very successful track record of data center connectivity deployments and provides a highly differentiated feature set for this application, which includes high-performance data encryption.

ADVA FSP 3000: scalable optical transport

ADVA FSP 3000 CloudConnect – highest performance for internet content providers The FSP 3000 is a modular WDM system designed to maximize the bandwidth and service flexibility of access, metro and core networks. The unique optical layer design supports WDM-PON, CWDM and DWDM technology, including 400Gbit/s line speeds and dynamically configurable ROADMs. The industry-leading encryption technology ConnectGuard™ guarantees highest data protection. In 2015 ADVA Optical Networking introduced a new variant of the platform, the ADVA FSP 3000 CloudConnect™. This new release further enhances fiber utilization and scales to a capacity of more than 25Tbit/s per fiber. The ADVA FSP 3000 CloudConnect™ also dwarfs other solutions in terms of space and power efficiency. The platform delivers a highly compelling feature set for interconnecting hyper-scale data centers in the ICP.



The ADVA FSP 3000 - The scalable optical transport solution

ADVA Optical Networking's Ethernet access solutions have been a core element of the Group's product portfolio since 2000, driven by the increasing demand for Ethernet services from carrier customers. With its ADVA FSP 150 family of products, ADVA Optical Networking has built a market-leading position in Ethernet access devices, enabling its customers to efficiently deliver intelligent Ethernet services. The Group's unique Etherjack™ demarcation software provides unparalleled service assurance and OAM&P capabilities that enable carriers to guarantee the highest quality of service to their end users.

Carrier Ethernet for performance-

assured business

services

More recently, mobile backhaul has emerged as one of the key applications for this product family. More and more base stations are being connected via fiber, and data-friendly Carrier Ethernet is the transmission technology of choice. The ADVA FSP 150 portfolio provides significant value in this application thanks to its capability to deliver and assure highly accurate timing information in addition to high data throughput.

The ADVA FSP 150 has evolved to become a programmable, universal network demarcation device that can take over the functions of other networking appliances. Through the introduction of network function virtualization (NFV), more and more network functions are defined as software applications and developed in isolation from the supporting hardware. These software applications can be deployed centrally

Mobile broadband drives the demand for fiber-based Carrier Ethernet backhaul and accurate timing in a data center, or alternatively on a device with an integrated server functionality. In 2015, ADVA Optical Networking introduced a new generation of the ADVA FSP 150, which is fully aligned with this trend: The ADVA FSP 150 Pro Series supports both centralized and decentralized NFV concepts and significantly expands the addressable market for these Carrier Ethernet access devices.

ADVA FSP 150: intelligent Ethernet service delivery and assurance The ADVA FSP 150 family of products provides devices for Carrier Ethernet service demarcation, extension and aggregation. The advanced Etherjack™ software and the programmability of the ADVA FSP 150 Pro Series enable the delivery of performance-assured services that meet the standards of the Metro Ethernet Forum. Also in the Pro Series, encryption technology is available, enabling secure connectivity services for remote locations. The comprehensive Syncjack™ technology for timing distribution, monitoring and timing service assurance opens new revenue opportunities from the delivery of synchronization services. Synchronization solutions are complemented by the Oscilloquartz SA (OSA) product family which is explained in more detail below.



The ADVA FSP 150 – The intelligent Carrier Ethernet transport solution

Both hardware platforms, the ADVA FSP 3000 and ADVA FSP 150, are complemented by the ADVA FSP Service Manager, an enhanced component of the ADVA FSP Management Software Suite that simplifies the operation of end-to-end networks. While the Group continues to add flexibility to its hardware platforms, ADVA Optical Networking also ensures that the additional functionality and associated degrees of freedom do not have a negative impact on the operator's user experience. The ADVA FSP Service Manager allows carriers to provision, turn up and maintain more services with less operational effort than ever before. They can take full advantage of new features without being burdened by lengthy and complicated operational processes.

ADVA Optical Networking's automated network management is built to reduce complexity and ultimately the cost of network operations. The ADVA FSP Management Software Suite provides a unified platform for network operations that empowers service providers and enterprise IT organizations to cost-effectively ensure availability and quality services. The ADVA FSP Management Software Suite is built on an intuitive graphical user interface that provides service provisioning and management across the entire network. With just a few simple mouse clicks, new services can be online, eliminating the need to drill down to configure individual elements.

ADVA FSP Service Manager simplifies service delivery and network operation

ADVA FSP Management Software

Suite reduces

complexity and

operational cost

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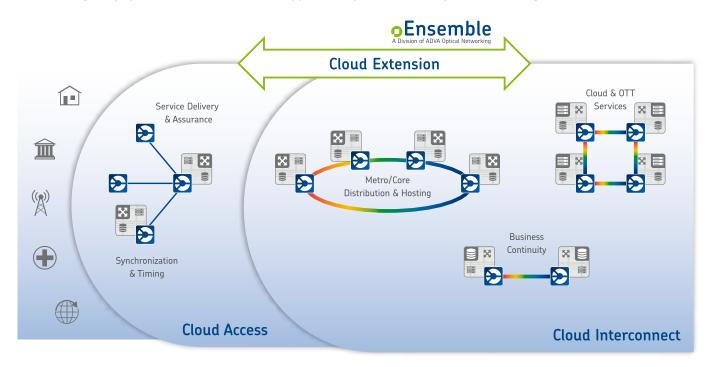
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The following image provides an overview of the application space for ADVA Optical Networking's Fiber Service Platform.



Wide range of network support services to plan, build and care In addition to hardware and software products, ADVA Optical Networking also offers a wide range of support services that help its customers to plan, build and care for their networks. The services portfolio offering includes a network operation center, where experts operate and manage customer networks.

# Oscilloguartz Products

Oscilloguartz: turnkey solutions for time and frequency synchronization

In April 2014, ADVA Optical Networking acquired Oscilloquartz SA based in Neuchâtel, Switzerland. Oscilloguartz was founded in 1949 and has built global brand recognition for providing end-to-end time and frequency synchronization solutions for the telecommunication industry.

Oscilloquartz has a wide range of products that provide turnkey solutions for the synchronization of time division multiplex (TDM) and packet-based networks. The portfolio includes:

- Highly accurate, self-contained frequency sources (e.g. cesium clocks)
- Synchronization supply units (SSU)
- End-to-end solutions to synchronize 3G, 4G and LTE networks via a packet-based infrastructure
- Global Navigation Satellite System (GNSS) receivers
- Network Timing Protocol (NTP) solutions (standalone or integrated in SSUs)
- Network management solutions

# Sales Regions and Customers

ADVA Optical Networking sells its products to a broad customer base worldwide, either through distribution partners or its own direct sales force. In 2015, the Group continued to increase its global end-customer base with several wins with both carriers and enterprise customers across all regions. The evolution of the product portfolio provided significant advantages for data center interconnect applications and further strengthened valuable relationships with British Telecom, Deutsche Telekom and other large carriers. The strength of ADVA Optical Networking's own sales team allowed the Group to drive more direct business and serve an ever increasing pool of value-added resellers (VARs).

Diverse global customer base

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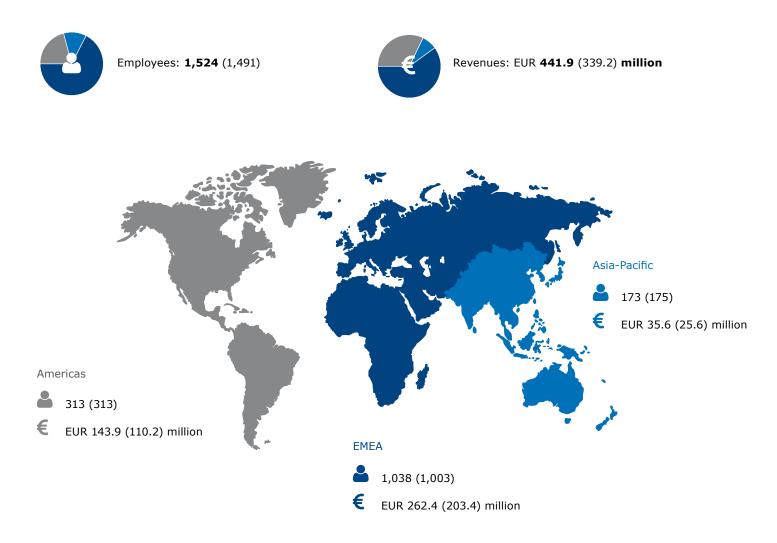
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# 2915

# Total numbers at year-end 2015 (2014 in brackets)



#### **EMEA**

The region comprises Europe, Middle East and Africa. Employees at year-end 2015: 1,038 (year-end 2014: 1,003) Revenues in 2015: EUR 262.4 million (2014: EUR 203.4 million)

EMEA shows signs of recovery and continues to be the strongest region

Growth potential for future years

Customers in this region include AMS-IX, British Telecom, COLT, DE-CIX, Deutsche Telekom, Media Broadcast, Rom-Telecom, Telefónica, Telkom South Africa and enterprise customers from the financial and other verticals. ADVA Optical Networking was able to leverage the returning confidence in European countries that got hit by the financial crisis and managed to further expand its existing customer base. In a generally still moderate market environment, the Group Company was able to significantly increase revenue levels versus the previous year in the EMEA region. EMEA continued to be the Group's largest sales region in 2015 and will continue to play a prominent role in the future.

For several years the market development in EMEA had been trailing behind other market developments, particularly behind North America. 2015 delivered, for the first time in many years, some signs of resurgence of the European market. After years of consolidation, some customers have now loosened their restraint in investment behavior. As demand for bandwidth grows unabated in EMEA, there is still pent-up demand. Catching up, an average market growth per year of  $11\%^1$  is expected for this region through to 2018. ADVA Optical Networking anticipates that the WDM market will continue to represent a major driver, as capacity is expanded to meet the rising business and residential demand for bandwidth in the access, metro and core of the network, further fueled by cloud services and data center growth. The market for Ethernet access solutions for enterprises also offers

significant opportunity. In addition, the Group anticipates growth impulses driven by investments from mobile communication providers. The upgrade of mobile networks to 4G LTE technology requires more fiber-based Carrier Ethernet access solutions in this space, and the preparation for LTE-Advanced drives the demand for the Group's synchronization solutions. Given the growth potential for WDM, Carrier Ethernet access and synchronization solutions, ADVA Optical Networking expects further positive development of its business in the EMEA region and strengthening of its market position.

#### Americas

The Americas region comprises North America and Latin America.

Employees at year-end 2015: 313 (year-end 2014: 313) Revenues in 2015: EUR 143.9 million (2014: EUR 110.2 million)

ADVA Optical Networking saw significant revenue growth in North America and was able to further stabilize business in Latin America at solid revenue levels. The North American business was driven by the success of cloud-based communication solutions and the related build-out of mega data centers across this region. The tier 2 carrier market and the rapidly growing Internet content provider space showed strong demand for optical transmission solutions that interconnect data centers. The Group continues to maintain a broad customer base across the entire region and was successful in acquiring new business and accounts in all areas. Customers from this region include Level(3) Communications, NoaNet, Time Warner Cable, various research and education networks and enterprise customers from the financial and other verticals.

The Group expects ongoing market growth in the Americas, amounting to an average of  $8\%^1$  per year through 2018. Sales efforts are focused on servicing both carriers and corporate customers. Key corporate verticals are Internet con-

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Another strong year in the

Further growth expected for 2016

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Average annual industry analyst estimates, 2015 to 2018, for metro and long-haul WDM equipment ("Optical") and Ethernet access devices ("Ethernet") relevant to ADVA Optical Networking. Sources: Infonetics Research Optical Network Hardware, Quarterly Market Share, Size, and Forecasts 2Q15, August 2015, and Infonetics Research Ethernet Access Devices Biannual Market Share, Size and Forecasts, 2nd Edition, September 2015.



tent providers, healthcare and financial institutions as well as municipal governmental agencies. Growth in this region will be driven through demand for metro and regional carrier infrastructure deployments, data center and enterprise applications, Ethernet access solutions for enterprises and infrastructure upgrades for mobile networks, which drive the demand for fronthaul, backhaul and synchronization solutions. ADVA Optical Networking is well-positioned for all these growth opportunities. After the strong performance in 2015, ADVA Optical Networking expects to continue its growth mode in the Americas in 2016.

#### Asia-Pacific

The Asia-Pacific region comprises Australia, New Zealand, Greater China, India, Japan and South East Asia. Employees at year-end 2015: 173 (year-end 2014: 175) Revenues in 2015: EUR 35.6 million (2014: EUR 25.6 million)

Good revenue development in Asia-Pacific with continued growth expectations for the upcoming years 2015 was a good year for ADVA Optical Networking in the Asia-Pacific region, despite a still relatively narrow customer base. The development of respective revenues is still volatile. There were mixed trends in the various sub regions, with some good demand for the Group's carrier infrastructure solutions. Customers in the Asia-Pacific region include KDDI, NextGen Networks, NTT, PCCW, SingTel, TATA Communications, Telstra and other enterprise customers from the financial and other verticals.

The region will also continue to develop positively, with an average annual market growth of  $11\%^1$  through to 2018. This development will primarily be driven by increasing managed service opportunities, more infrastructure deployments and Ethernet access business. The market conditions present good growth opportunities for ADVA Optical Networking and will be addressed through direct sales business and the further development of sales channel partnerships.

# Sales and Marketing

#### Sales

ADVA Optical Networking continues to employ a well-balanced sales distribution strategy to maximize customer reach around the world: Well-balanced approach between direct and indirect sales

#### **Direct Sales**

The Group continues to focus on its direct-touch initiative as well as its direct sales force to win new customers. Establishing direct contact with enterprises and carriers enables ADVA Optical Networking to work more closely and better understand customers' specific requirements, which in turn helps to develop the right products and solutions. A direct sales approach is required in particular to address Internet content providers and the evolutionary nature of the Ethernet access market.

Direct sales is particularly important in the Ethernet access market and for Internet content providers

#### **Partner Sales**

Sales partners of ADVA Optical Networking include global system integrators such as IBM, OEM-partners such as Fujitsu Network Communications (FNC) and so-called value-added resellers (VARs). These VAR-partners resell ADVA Optical Networking's products primarily under the brand name "ADVA Optical Networking" or with co-branded products under the name "Powered by ADVA Optical Networking". The Group works particularly closely with its distribution partners to provide planning and network consulting services for large enterprise and carrier customers and is intensely focused on developing optimized customer solutions. Partners typically provide the required technical support following network installation. In 2012, ADVA Optical Networking launched the "Partner Ecosphere Program" (PEP), which provides distribution partners with in-depth training, fast and easy access to equipment and quarantees high-quality support. In 2013, several companies successfully passed the PEP certification

VAR partners mostly provide access to carrier and large enterprise customers and achieved "Select" or "Elite" status. The PEP community has grown and includes a total of 19 qualified partners globally. More certifications have been planned for 2016.

#### Marketing

Focus on online presence and live communication at events

Direct-touch efforts are proactively supported by the marketing team to build the ADVA Optical Networking brand and to expand visibility of the FSP and the OSA product portfolios. Specific marketing activities include regular participation in tradeshows and conferences, tactical online advertising, news coverage and bylined articles in trade publications. ADVA Optical Networking conducts customer and partner workshops, supports co-marketing efforts with its partners and delivers a quarterly e-newsletter to customers and partners. The Group also maintains a dynamic and active online presence, including a blog and social media outreach on multiple platforms. In 2014, ADVA Optical Networking exhibited at the Mobile World Congress tradeshow in Barce-Iona, Spain, Communicasia in Singapore, Africacom in Cape Town, South Africa, Futurecom in São Paolo, Brazil, and at the OFC/NFOEC as well as at Comptel events in the USA. In addition to these major events, ADVA Optical Networking also participated in numerous smaller shows and organized customer events with targeted focus. To drive thought leadership, the Group continued strong relationships with industry trade press and analysts, delivered presentations at conferences and launched special event campaigns.

Furthermore, ADVA Optical Networking continues to actively support marketing alliances with other global communications hardware and software vendors like Brocade, IBM and Juniper Networks. The numerous interoperability tests conducted with partners carry significant weight, as they demonstrate the compatibility of the various systems and assure customers that ADVA Optical Networking's products seamlessly integrate and operate with the systems of its partners as well as its customers' existing IT infrastructures. ADVA Optical Networking's partners serve as multipliers for joint marketing programs. This drives new customer opportunities and strengthens the Group's sales efforts.

Marketing alliances with other network equipment providers

External communication in 2015 was organized around three main themes:

2015 themes: security, data center interconnect and programmability

- Security: launch of ADVA ConnectGuard™
- Data center interconnect: launch of FSP 3000 CloudConnect™
- Programmability for the transition to NFV: Programmable by Design

ADVA Optical Networking' brand promise can be summarized by three headlines: "Innovation", "Speed" and "Trusted Partner". The combination of these three elements makes ADVA Optical Networking a unique player in the industry, combining R&D power and thought leadership with customer focus and personal touch. The brand promise underscores the Group's drive to help customers accelerate their transition to high-performance networks.

Brand promise to customers: "Innovation", "Speed" and "Trusted Partner"

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# **Development and Operations**

## Organizational Evolution

ADVA Optical Networking is taking a new approach to development and operations. In order to further optimize product quality, manufacturability and time to market. These traditionally separate areas are now tightly integrated with cross-functional teams working closely across the entire system. DevOps and the business life cycle process 4.0 (BLCP 4.0) form the two main units in the organizational realignment.

Cross-functional teams manage the full lifecycle of a product DevOps is a model that has successfully been used in software development firms. ADVA Optical Networking is possibly the first company to translate this into a hardware-heavy R&D environment. The DevOps team covers products from cradle to the grave. Its goal is to ensure consistently high quality and to routinely deliver the right product to the customer in the shortest possible time.

BLCP 4.0 is ADVA Optical Networking's move into next-generation, automated manufacturing, supply chain management, sales and operations planning (S&OP), logistics and reverse logistics.

A third unit, the Advanced Technology Team, continues to identify new areas of innovation. It explores research possibilities and potential avenues for feasibility analysis and proofs of concept.

## Research and Development

ADVA Optical Networking's market-leading product offering is the result of its R&D program. New innovation ensures the Company's position as a global technology leader. ADVA Optical Networking continues to evolve its leading intellectual property rights portfolio, which currently includes more than 150 granted patents.

As a member of all key industry standardization groups, ADVA Optical Networking makes a significant contribution to the development of standards. It also demonstrates technology leadership through multiple publications and presentations.

Through new technology trials and the development of early prototypes, ADVA Optical Networking plays a significant role in validating innovative ideas and concepts. R&D strategies are developed in close cooperation with partners, including suppliers and colleagues in research centers and universities. Many collaborative projects are conducted in conjunction with partner organizations.

Advanced technology team drives innovative, forward looking concepts

Some of 2015's highlights include the development of prototypes and the trialing of ADVA Optical Networking's high speed connectivity solution, the ADVA FSP 3000 Cloud-Connect™. 2015 also saw successful trials and demonstration of CloudConnect™ with lead customers, involving advanced modulation formats like PAM-4/DMT. The company also conducted a demonstration of the ultimate data security measure – quantum key encryption. ADVA Optical Networking's continuing evolution towards the leading sustainability approach in the market was another notable achievement – one that won the company major industry awards.

The target for 2016 is to reinforce ADVA Optical Networking's position as a leader in the field of programmable virtual networking on a secure, flexible infrastructure.

In terms of product development, the major high points of last year include the significant increase of ADVA Optical Networking's customer base using software solutions like the ADVA FSP Network Manager, the development and introduction of the ConnectGuard™ Layer 2 security solution and the introduction of centralized and distributed NFV Carrier Ethernet platforms.

Innovation for data center interconnect, security and virtualization Among the product development aims for 2016 is the successful market introduction of the ADVA FSP 3000 Cloud-Connect™ platform and the next-generation SDN management system. 2016 will also see the deployments of ADVA Optical Networking's Edge NFV solution after many successful trials with both orchestrated and "unorchestrated" solutions to assist customers. ADVA Optical Networking's service delivery and assurance portfolio will be extended further through the development of its Access Link Monitoring technology The innovative ADVA FSP 3000 MicroConnect™ Metro/ Access solution will also be launched.

## DevOps

DevOps – speed, quality and efficiency for the full product life cycle As the term suggest, DevOps refers to a combined approach to development and operations. By adopting this model ADVA Optical Networking is encouraging communication, collaboration and shared goals across cross-functional teams in all business areas. With a set of practices and policies being adopted by the whole team the aim is to improve quality at all stages of the development lifecycle by enabling fast feedback loops and rapidly changing systems.

In 2015, ADVA Optical Networking took several key steps towards an integrated, value-stream oriented DevOps model of organization involving product-line management, R&D, new product introduction – life cycle engineering and quality management. It also developed a merged approach to system verification testing, network engineering and customer application testing.

ADVA Optical Networking began an increased focus on software in 2015 with the creation of new software production engineering groups. These were given responsibility for build and verification processes for all new products. A new test automation and tooling group was also created. This will provide the test automation process, infrastructure and common device drivers to all of the company's test teams.

A Software Security Authority group was set up in order to drive one common approach across all products and ensure software security assurance.

In 2015, ADVA Optical Networking further strengthened its commitment to enhancing customer and user experience. This was achieved through an increased focus on customer use cases throughout the development cycle as well as the creation of detailed guidelines to improve the experience of product users.

To prepare for the evolution towards an agile, iterative DevOps processes, ADVA Optical Networking increased its efforts in the photonic integration area and launched development projects for highly integrated optical components/ modules with the objective of reducing product cost and increasing product differentiation.

In 2016, the company aims to evolve its organization further by embracing DevOps strategies for both hardware and software, always with the customer as the central focus. New DevOps processes will be launched based on online dashboards and key performance indicators. Teaching programs will be used to disseminate these concepts across different company areas.

ADVA Optical Networking is also developing its own differentiated optical sub-modules which will enable it to tailor solutions more closely to individual customer needs for a more vertically integrated value chain.

Focus on software is increasing

Photonic integration helps to

reduce product

differentiation

cost and increases

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#### **BLCP 4.0**

Business life cycle process takes holistic approach to product definition As technology and the demands of customers change over time, business approaches need to constantly evolve and adapt. ADVA Optical Networking's business lifecycle planning involves identifying the wishes and needs of actual and future customers. Requirements for product features, as well as delivery and service activities, are then determined. Challenges are reviewed prior to giving a final commitment to supply products and/or services. The aim of this approach is to ensure that requirements are clearly defined and understood, potential issues are resolved and ADVA Optical Networking is able meet and exceed customer expectations.

## Supply Chain Management and Sales & Operations

2015 saw significant improvements in working capital needs through the establishment of a weekly S&OP cycle along with real-time segmented material planning mechanisms extending into the supplier base.

Improvements in material planning and forecast accuracy

The 2016 plan is to improve forecast accuracy by adding big data predictive capabilities and to connect suppliers via real-time electronic interfaces to ADVA Optical Networking's resource planning engine.

## Transport, Logistics & Reverse Logistics

In 2015, ADVA Optical Networking built an efficient and scalable logistics network made up from freight consolidation centers in supplier regions and a set of customization and distribution centers in customer regions.

2016 will involve further optimization of this logistics model by means of technology such as the implementation of mobile data entry devices among several Industry 4.0 innovations. There will also be ongoing field trials of the use of radio-frequency identification for improved inventory organization as well as the continued automation of customer configuration and failure verification processes.

The aim is to attain further customer wins for ADVA Optical Networking's award-winning portfolio of logistics services. This is founded on its groundbreaking supply chain model where materials are dispatched to installation sites precisely when needed; the refurbishment and recycling of materials returned by customers; and ADVA Optical Networking's radical approach to collaborating with customers on planning to maximize flexibility.

Award winning portfolio of logistics services

## Strategic Procurement

ADVA Optical Networking established rigorous processes for supplier onboarding, supplier performance and stringent component cost management in 2015. Next it will focus on the introduction of commodity strategies (jointly with R&D) to explore alternative suppliers, and to streamline, consolidate and harmonize the supplier base for fabrication and pluggable optics.

In 2016, ADVA Optical Networking will introduce a preferred parts catalogue for B and C type electronic components, jointly with R&D, aimed at maximizing components re-use and buying power.

## Manufacturing

ADVA Optical Networking has always chosen to be light with regard to manufacturing and it will continue to outsource board-level assembly to contract manufacturers. The focus will be on consolidating suppliers of electronic manufacturing services with the aim of creating economies of scale and improvement on pricing, quality and flexibility.

In 2016, there will be a renewed focus on time to market by building complex prototypes in regions with ADVA Optical Networking R&D centers. The company will drive manufacturing cost-savings by developing automation and smart robotics at its contract manufacturers. It will also explore areas of the value chain where it can play more of a manufacturing role, enabling ADVA Optical Networking to produce unique product offerings and improve time to market. This will involve developing select internal manufacturing process capabilities especially around optical function manufacturing.

Hybrid production model drives economies of scale and retains ability to differentiate Welcome

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# **Quality Management**

ADVA Optical Networking is committed to ensuring world-class quality in all areas. From research & development to post-sales support, quality management is at the heart of every business process. This focus is crucial to maintaining ADVA Optical Networking's reputation as a trusted partner and its position as a quality leader in the market place. The company's quality management system is based on well-controlled business processes and dynamic improvement. It takes a top-down approach to ensuring high-quality products, customer satisfaction and sustainability, and its quality management team reports directly to the chief executive officer. To eliminate weaknesses in all areas the quality management team also focuses on cross-functional monitoring and quality planning.

Successful certifications – TL9000 5.0 and ISO 14001:2004 ADVA Optical Networking's commitment to quality management shows in its highly successful 2015 certifications in accordance with the telecommunications quality and general environmental management practices TL9000 5.0 and ISO 14001:2004. The company was found to have zero non-conformities and was rated as best in class. The report's accompanying statement described ADVA Optical Networking as a performance benchmark for the telecommunications industry.

ADVA Optical Networking takes an end-to-end approach to quality assurance, beginning with a clear focus on excellence in product development, continuing into operations, through into shipping products to customers and support by technical service. With regard to operations activities, supplier quality is a vitally important component of quality management. Compliance with stringent quality standards and continued improvement are ensured through thorough selection of suppliers, periodic evaluation through audits and systematic inspection of incoming goods. This is also supported by cross-functional commodity teams and the ever-increasing involvement of ADVA Optical Networking's suppliers in the development process.

The complaint management process is driven by the quality management team which takes a proactive approach to problem solving as well as the development and optimization of business processes. The quality management process is underpinned by strong customer orientation and a clear focus on customer experience. This results in greater efficiency and high customer satisfaction ratings. For 2015, ADVA Optical Networking's Net Promoter Score<sup>2</sup> was 41%. This excellent result extends the positive trend from the previous year. ADVA Optical Networking is committed to continuing to work with its customers to further improve customer satisfaction in 2016.

Holistic approach encompassing the entire development and business process

Positive trend in Net Promoter Score continues

The Net Promoter Score is obtained by asking customers a single question on a 0 to 10 rating scale: "How likely is it that you would recommend our company to a friend or colleague?" Based on their responses, customers are categorized into one of three groups: promoters (9-10 rating), passives (7-8 rating), and detractors (0-6 rating). The percentage of detractors is then subtracted from the percentage of promoters to obtain a Net Promoter Score.

To identify weaknesses and opportunities in order to optimize cross-functional business processes, ADVA Optical Networking analyzes outcomes based on Lean Six Sigma methodologies. This ensures all aspects of the business can be measured and analyzed so that waste can be eliminated from every process. The quality management team is led by several members who specialize in Six Sigma improvement methods including a master "black belt". As well as working towards the strategic goal of operational excellence, the team is also tasked with identifying and driving projects key to ADVA Optical Networking's other strategic goals of growth and profitability, innovation and people.

2015 KPIs significantly better than industry average In 2015, all key performance indicators for product-line quality such as early return indicator (ERI), yearly return rate (YRR) and long-term return rate (LTR) continue to be comfortably below the industry average. QuEST Forum, the global organization dedicated to quality and sustainability in the ICT community, praised ADVA Optical Networking for having "developed a culture of continuous improvement in many areas". Members of ADVA Optical Networking's quality management team are now sharing best practices at QuEST Forum events around the world

The year also saw the first certification according to ISO 22301 of ADVA Optical Networking's new business continuity management system. This was another area that was found to have zero non-conformities and was judged to be exceptionally effective. Key customers confirmed that the company's supply and risk-management processes are outstanding.

2015 marked the end of separate certifications for Oscilloquartz, the time and frequency synchronization wing of ADVA Optical Networking. From the beginning of 2016, quality management certification for Oscilloquartz will be fully integrated with the rest of the company.

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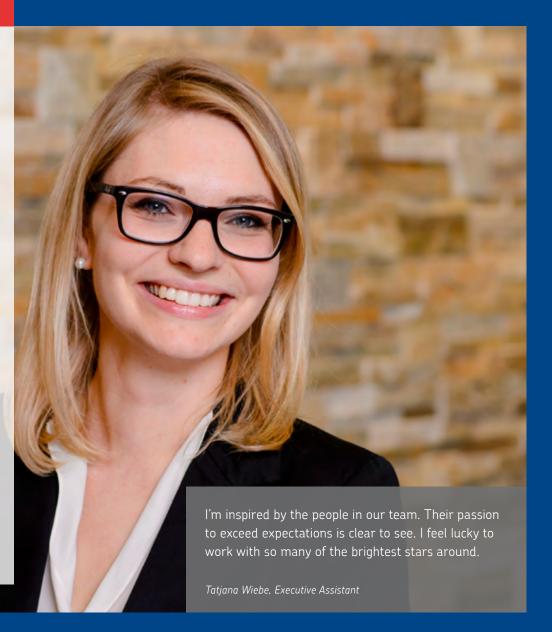
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# Forward-Looking Statements

This Group management report of ADVA Optical Networking SE contains forward-looking statements using words such as "believes", "anticipates" and "expects" to describe expected revenues and earnings, anticipated demand for optical networking solutions and anticipated liquidity from which internal estimates may be inferred. These forward-looking statements are based on the beliefs of the Management Board and respective assumptions made, and involve a number of unknown risks, uncertainties and other factors, many of which are beyond ADVA Optical Networking's control. If one or more of these uncertainties or risks materializes, or if the underlying assumptions of the Management Board prove incorrect, actual results can differ materially from those described in or inferred from forward-looking statements and information. Unknown risks and uncertainties are discussed in the "risk report" section further below.

In the following, ADVA Optical Networking SE as a company is labeled "the Company" or "ADVA Optical Networking SE", "ADVA Optical Networking" or "the Group" always refers to the ADVA Optical Networking Group.

# **Basis of Preparation**

This Group Management Report of ADVA Optical Networking SE was prepared in accordance with sections 315 and 315a of the German Commercial Code (Handelsgesetzbuch, HGB) and German Accounting Standards (Deutsche Rechnungslegungs-Standards) No. 17 and 20 (DRS 17 and 20).

All information contained in this report relates to the status on December 31, 2015, or the financial year ending on that date, unless stated otherwise.

# Strategy and Control Design

ADVA Optical Networking's strategic goals are focused around growth & profitability, innovation, operational excellence and our employees. The strategic goals are reviewed by both the Management Board and the Supervisory Board on a yearly basis and amended where appropriate. Each of these goals is defined in detail and then broken down into specific departmental and individual targets. The strategic goals are traced to each individual employee, so that each employee can focus and be evaluated on his/her individual performance and contribution to ADVA Optical Networking's overall performance.

ADVA Optical Networking measures the accomplishment of its strategic goals against revenues, pro forma operating income<sup>1</sup>, net liquidity<sup>2</sup> and as a non-financial criterion customer satisfaction as measured by the Net Promoter Score<sup>3</sup>. These metrics represent the Group's key performance indicators. The Management Board sets target values for all four metrics for the coming year and measures actual values against the target values on a monthly basis for revenues and pro forma operating income, on a quarterly basis for net liquidity and on a yearly basis for the Net Promoter Score. In case of deviations from plan, corrective action can be taken quickly. This information is summarized and communicated to the Management Board in monthly, quarterly and yearly reports.

Revenues, pro forma operating income, net liquidity and Net Promoter Score operationalize strategic goals and represent ADVA Optical Networking's key performance indicators Welcome

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Pro forma operating income is calculated prior to non-cash charges related to the stock compensation programs and amortization and impairment of goodwill and acquisition-related intangible assets.

Net liquidity is calculated by subtracting current and non-current financial liabilities as well as current and non-current finance lease obligations from cash and cash equivalents.

The Net Promoter Score is obtained by asking customers a single question on a 0 to 10 rating scale: "How likely is it that you would recommend our company to a friend or colleague?" Based on their responses, customers are categorized into one of three groups: promoters (9-10 rating), passives (7-8 rating) and detractors (0-6 rating). The percentage of detractors is then subtracted from the percentage of promoters to obtain a Net Promoter Score.



## General Economic and Market Conditions

## The Global Economy in 2015

2015 growth in USA was stronger than anticipated; growth in emerging countries was more problematic

Growth in the world economy weakened further in 2015. The International Monetary Fund (IMF) expects growth for 2015 to come in at 3.1%, according to its most recent forecast published in January 2016. In July 2015, global growth for the year was still predicted to be 3.3%. In 2014, the figure was 3.4%. The economy in Germany and the euro zone is expected to have grown 1.7% in 2015 with a forecast of 1.7% for the following year. In the US, on the other hand, the economy gained more momentum than previously anticipated and the gross domestic product (GDP) is forecast to have grown by 2.5%. For 2016, the experts revised their forecast slightly downwards, to 2.6%. The situation in the emerging markets remains difficult. According to the IMF forecast, China will only have grown at a rate of 6.9% in 2015. Its growth for 2016 is predicted to be 6.3%, the lowest in decades. Russia and Brazil are even threatened by prolonged recessions. One reason here is the erosion of the oil price. In 2016 the world economy is expected to grow again with 3.4% being back at the growth level of 2014. But even so, the IMF lowered its forecast for 2016 by 0.2 percentage points.

## Market Environment for ADVA Optical Networking

Total addressable market has a CAGR of close to 10% In this mixed macro-economic environment of 2015 the overall market for communications equipment, which is relevant for ADVA Optical Networking, grew at around  $10\%^4$ . Industry analysts expect that the addressable market for ADVA Optical Networking will grow at a similar pace in 2016, varying by region.

The addressable market for ADVA Optical Networking consists of three areas: enterprise networks, carrier infrastructure and Ethernet access solutions for network operators. The volume of ADVA Optical Networking's total addressable market amounted to USD 11.3 billion<sup>4</sup> (EUR 10.2 billion<sup>5</sup>) in the year 2015. This amount splits into USD 10.6 billion (EUR 9.6 billion<sup>5</sup>) for optical networks and USD 0.7 billion (EUR 0.6 billion<sup>5</sup>) for Ethernet-based network access solutions.

Market growth is primarily driven by steadily increasing bandwidth demand. Communications service providers are striving to improve the performance of their triple play services (data, voice and video) for private customers and significantly expand and accelerate the roll-out of 4G mobile technology. Those two drivers were the main reasons for numerous infrastructure projects. Enterprise customers showed a strong demand for data storage and security solutions and continued with their rapid adoption of cloud applications, all representing additional growth drivers for the global bandwidth demand. Based on these developments, the total addressable market for ADVA Optical Networking is forecast to grow between 2015 and 2018 at an annual compound growth rate of 9% to a total of USD 14.8 billion in 2018.

## Market Environment for Enterprise Networks

The market for private enterprise networks was approximately 18%<sup>4</sup> of ADVA Optical Networking's total addressable market. Based on a volume of USD 2.1 billion (EUR 1.9 billion<sup>5</sup>) in 2015, this market segment is forecast to grow with a compound annual growth rate of 13%<sup>4</sup>. The increasing demand for cloud applications and the rapid adoption of digital processes in all industries are key drivers for this market segment.

Market segment for private enterprise networks shows strongest growth with a CAGR of 13% p.a.

Industry Analysis estimates for metro and long-haul WDM equipment ("Optical") and Ethernet access devices ("Ethernet"), which are relevant for ADVA Optical Networking. Sources: Infonetics Research, Optical Networking Hardware, Quarterly Market Share, Size, and Forecasts 2Q15, August 2015 and Infonetics Research, Ethernet Access Devices Biannual Market Share, Size and Forecasts, 2nd Edition, September 2015. The split for WDM equipment in carrier infrastructure and enterprise networks is based on internal estimates of ADVA Optical Networking.

<sup>5</sup> Calculated at the average annual conversion rate for 2015: EUR 0.89983 per USD.

#### Market Environment for Carrier Infrastructure

Carrier infrastructure is the largest market segment with a CAGR of 9% p.a. The largest addressable market segment for ADVA Optical Networking is carrier infrastructure. This segment amounted to 76% of the relevant market and it is expected to grow with a compound annual growth rate of 9% up to 2018<sup>4</sup>. The market volume for carrier infrastructure amounted to USD 8.5 billion<sup>4</sup> (EUR 7.7 billion<sup>5</sup>) in 2015. ADVA Optical Networking anticipates that growth in this market segment will be driven by the increasing demand for bandwidth from the carriers' residential and business customers.

#### Market Environment for Carrier Ethernet Access

Market for Ethernet access devices accounts for 6% of the addressable market, with a CAGR of 7% p.a.

ADVA Optical Networking has a strong market position in this segment, which accounts for 6% of the total addressable market<sup>4</sup>. Based on a volume of USD 0.7 billion<sup>4</sup> (EUR 0.6 billion<sup>5</sup>) in 2015, the market segment for Carrier Ethernet access solutions is forecast to grow at a compound annual growth rate of 7% until 2018. Growth will continue to be driven by the ongoing conversion from legacy services to intelligent Ethernet-based services, as well as by the virtualization of network functions.

Addressable market and growth rates <sup>4</sup>	2015 USD billion	Share of total	CAGR* 2015-2018
Enterprise networks	2.1	18%	13%
Carrier infrastructure	8.5	76%	9%
Carrier Ethernet access	0.7	6%	7%
Total addressable market	11.3	100%	9%

<sup>\*</sup> CAGR = Compound annual growth rate

# Business Development and Operational Performance

#### Revenues

Revenues represent one of the four key performance indicators for ADVA Optical Networking. In 2015, the Group generated revenues of EUR 441.9 million, an increase of 30.3% on revenues of EUR 339.2 million in 2014. This increase in revenues mainly relates to improved carrier infrastructure as well as enterprise network business. Large Internet content providers accelerate their investment, reflecting the continued network traffic migration to the cloud. The megatrends cloud and mobility continue to fuel the global demand for more bandwidth and strengthen the overall demand for the ADVA Optical Networking's products.

Revenue increase in 2015 to a new record high of FUR 441.9 million

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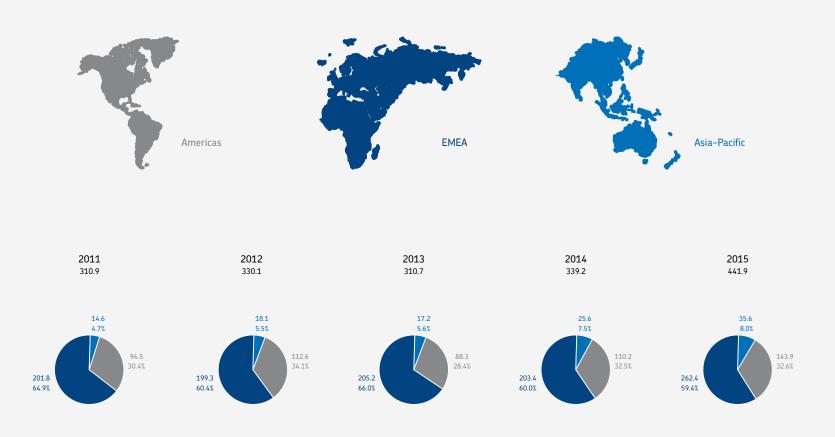
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# Revenues by Region

(in millions of EUR and relative to total revenues)



ADVA Optical Networking has only one single operating segment, which is the development, production and marketing of innovative connectivity solutions, thus there is no requirement for further breakdown of revenues.

EMEA remains most important sales region, followed by the Americas and Asia-Pacific The most important sales region in 2015 remained EMEA, followed by the Americas and Asia-Pacific. EMEA revenues were significantly up 29.0% from EUR 203.4 million in 2014 to EUR 262.4 million in 2015, comprising 59.4% of total revenues in 2015, comparing to 60.0% in 2014. This increase mainly relates to stronger enterprise networks business. However, revenue development in this region is still affected by a challenging market environment with strong consolidation tendencies and continuing price pressure.

In the Americas, revenues increased significantly by 30.6% from EUR 110.2 million in 2014 to EUR 143.9 million in 2015. In this region, carrier Ethernet and carrier infrastructure business grew strongly as ADVA Optical Networking successfully continues deploying products in large accounts in 2015. The regional share of total annual revenues remained stable at 32.6% in 2015 after 32.5% in the prior year.

In the Asia-Pacific region, revenues were up by 39.2% from EUR 25.6 million in 2014 to EUR 35.6 million in 2015, mainly due to strong enterprise networks business. The Asia-Pacific region comprised 8.0% of total revenues in 2015 after 7.5% in 2014. Revenues in the Asia-Pacific region remain volatile due to the relatively small customer base. However, this region still continues to offer new opportunities and growth potential for the Group. ADVA Optical Networking will continue to invest in growing its market share in the Americas and will seek investment opportunity in select Emerging Markets.

## **Results of Operations**

(in millions of EUR, except earnings per share)	2015	Portion of revenues	2014	Portion of revenues
Revenues	441.9	100.0%	339.2	100.0%
Cost of goods sold	-285.0	64.5%	-221.1	65.2%
Gross profit	156.9	35.5%	118.1	34.8%
Selling and marketing expenses	-56.5	12.8%	-48.3	14.2%
General and administrative expenses	-30.4	6.9%	-27.1	8.0%
Research and development expenses	-47.6	10.7%	-40.5	11.9%
Other operating income and expenses, net	4.4	1.0%	6.2	1.8%
Operating income	26.8	6.1%	8.4	2.5%
Interest income and expenses, net	-0.8	0.2%	-1.3	0.4%
Other financial gains and losses, net	2.1	0.5%	1.1	0.3%
Income before tax	28.1	6.4%	8.2	2.4%
Income tax benefit (expense), net	-1.2	0.3%	0.2	0.0%
Net income	26.9	6.1%	8.4	2.5%
Earnings per share in EUR				
basic	0.55		0.17	
diluted	0.55		0.17	

Cost of goods sold increased from EUR 221.1 million in 2014 to EUR 285.0 million in 2015, primarily due to the rise in revenues and increased amortization of intangible assets. Cost of goods sold includes amortization charges for capitalized development projects of EUR 26.4 million in 2015 after EUR 22.9 million in 2014.

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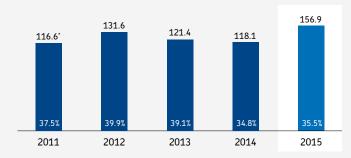
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Favorable development of gross profit is mainly a result of increased revenues Gross profit increased from EUR 118.1 million in 2014 to EUR 156.9 million in 2015, comprising 34.8% and 35.5% of revenues, respectively. The increase in gross profit compared to the prior year is predominantly due to the increase in revenues while cost of goods sold increased at a lower rate. Moreover, the development of the Group's gross margin in general is impacted by variations in regional revenue distribution and in product and customer mix.

#### **Gross Profit**

(in millions of EUR and relative to total revenues)

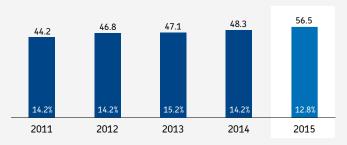


Selling and marketing expenses of EUR 56.5 million in 2015 were up from EUR 48.3 million in 2014, and comprised 12.8% and 14.2% of revenues, respectively. This absolute increase is mainly attributable to increased personnel expense related to increased revenues. ADVA Optical Networking continues to invest in post-sales customer service and intensified direct-touch activities with those key customers served via indirect distribution channels. Establishing direct contact enables the Group to work more closely with its end customers and better understand their specific requirements, which in turn helps in developing suitable products.

Increase in selling and marketing expenses due to higher personnel expenses related to higher revenues

## Selling and Marketing Expenses

(in millions of EUR and relative to total revenues)

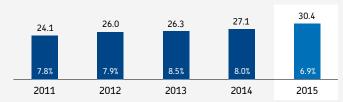


Decreasing share of general and administrative expenses

General and administrative expenses at EUR 30.4 million in 2015 were up from EUR 27.1 million recorded in 2014. However, the share of total revenues further decreased from 8.0% in 2014 to 6.9% in 2015. This relative decrease reflects ADVA Optical Networking's focus to increase revenues while keeping operating expenses at low level.

## General and Administrative Expenses

(in millions of EUR and relative to total revenues)



ADVA Optical Networking's research and development activities are driven by the distinct emphasis on differentiating its highly innovative connectivity solutions for cloud and mobile services and working with customers and partners to identify and meet their current and future needs. The resulting key technologies and products radically simplify complicated network structures and supplement existing solutions. During 2015, research and development activities focused on enhancements to the scalable optical transport platform, timing delivery and synchronization features for Ethernet access as well as the virtualization of networks.

At EUR 47.6 million in 2015, net research and development expenses were up from the EUR 40.5 million in 2014, thereby constituting 10.7% of revenues in 2015 after 11.9% in the prior year. Capitalization of development expenses of EUR 32.1 million in 2015, was up from EUR 27.1 million seen in 2014. The capitalization rate in 2015 remains stable at 40.2% (prior year: 40.0%). The increase in capitalization mainly relates to extended investment in the development of the Group's innovative connectivity solutions.

#### Increase in net R&D expenses

Capitalization of development expenses significantly increased

# Research and Development Expenses

(in millions of EUR and relative to total revenues)



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Net other operating income and expenses amounted to positive EUR 4.4 million in 2015, down from positive EUR 6.2 million in the prior year. This item is mainly impacted by subsidies received for specific research activities and release of provisions as well as release of bad debt allowances created in earlier periods.

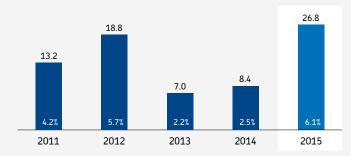
Total operating expenses increased by EUR 20.4 million, from EUR 109.7 million in 2014 to EUR 130.1 million in 2015, disproportionally to revenues, representing 29.4% of revenues in 2015 after 32.3% in the prior year.

Significantly improved operating income

Overall, ADVA Optical Networking reported a significantly increased operating income of EUR 26.8 million in 2015 after an operating income of EUR 8.4 million in the prior year. The increase in operating result is largely due to higher revenues, stable gross margin and a disproportional increase in operating expenses.

## Operating Income

(in millions of EUR and relative to total revenues)



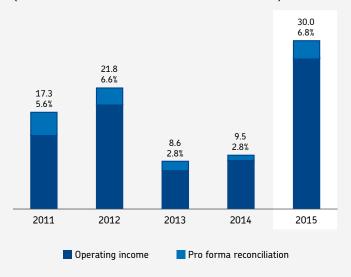
Pro forma operating income¹ represents one of the four key performance indicators for ADVA Optical Networking. This metric is derived from operating income by excluding noncash charges related to stock compensation and acquisitions. The Management Board of ADVA Optical Networking believes that pro forma operating income is the more appropriate measure than operating income when comparing the Group's operational performance with the operational performance of other telecommunications equipment providers.

The increase of pro forma operating income from EUR 9.5 million in 2014 to EUR 30.0 million in 2015 is mostly due to the higher operating income discussed above.

Strong increase of pro forma operating income

## Pro Forma Operating Income

(in millions of EUR and relative to total revenues)

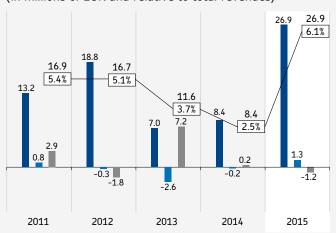


Net income is mainly driven by operating income Given the highly favorable development of operating income ADVA Optical Networking reported net income of EUR 26.9 million for 2015, after EUR 8.4 million in 2014. Beyond operating income, the net result in 2015 included net interest expenses of EUR 0.8 million (prior year: EUR 1.3 million) and net other financial gains of EUR 2.1 million (prior year: EUR 1.1 million) relating to the translation of foreign currency assets and liabilities and to gains and losses on currency hedging instruments.

In 2015, the Group reported an income tax expense of EUR 1.2 million after an income tax benefit of EUR 0.2 million in 2014. The 2015 tax expense mainly results from increased current tax expenses related to the positive development of taxable income only partly offset by recognition of deferred tax assets on temporary differences. In 2014, the tax benefit was mainly due to the recognition of deferred tax assets on tax-loss carry forwards.

#### Net Income

(in millions of EUR and relative to total revenues)



Basic and diluted earnings per share were both EUR 0.55 in 2015 after both EUR 0.17 in the prior year. Basic average shares outstanding increased by EUR 0.5 million to EUR 48.5 million in 2015, due to capital increases from the exercise of stock options. Diluted weighted average shares outstanding increased by EUR 0.8 million to EUR 49.2 million in 2015.

## Summary:

## Business Development and Operational Performance

Overall, the business development and operational performance in 2015 significantly improved when compared to 2014. This was predominantly a result of the favorable revenue development combined with disproportional increase of operating expenses. As a result net income strongly increased in 2015 compared to prior year.

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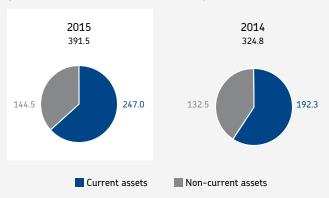
## Net Assets and Financial Position

#### Balance Sheet Structure

Total assets increased, portion of current assets increased mainly due to higher inventories ADVA Optical Networking's total assets increased by EUR 66.7 million or 20.5%, up from EUR 324.8 million at year-end 2014 to EUR 391.5 million at the end of 2015.

#### Assets

#### (on December 31, in millions of EUR)



Current assets rose by EUR 54.7 million or 28.5% from EUR 192.3 million on December 31, 2014 to EUR 247.0 million on December 31, 2015, and comprised 63.1% of the balance sheet total after 59.2% at the end of the prior year. The increase in current assets was mainly driven by a rise in inventories, trade accounts receivable and cash and cash equivalents. Inventories of EUR 73.0 million at the end of 2015 were EUR 26.0 million higher than at the end of December 2014, while inventory turns reduced to 4.4x in 2015 after 5.2x in 2014. Trade accounts receivable increased by EUR 16.3 million to EUR 70.4 million. Days sales outstanding improved to 58 days in 2015 after 62 days reported in 2014. At the same time, cash and cash equivalents were up from EUR 83.9 million at year-end 2014 to EUR 93.9 million at the end of

December 2015, mainly due to a new financial loan paid out in December 2015. In addition, other current assets were up by EUR 1.7 million to EUR 8.7 million.

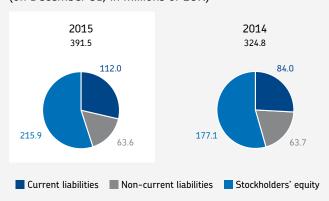
Non-current assets increased by EUR 12.0 million from EUR 132.5 million at year-end 2014 to EUR 144.5 million on December 31, 2015. Within non-current assets, capitalized development projects grew by EUR 6.0 million to EUR 62.4 million at year-end 2015. The increase was largely driven by enhancements to the fiber-based service platform FSP 3000. In addition, deferred tax assets rose by EUR 3.5 million to EUR 29.1 million at year-end 2015, mainly related to temporary differences. Other intangible assets increased by EUR 1.4 million to EUR 4.2 million at the end of 2015 mainly due to capitalization of purchased technologies from the acquisitions of Time4 Systems Oy and an engineering division of FISEC GmbH.

Meaningful additional assets belonging to ADVA Optical Networking are the broad and global customer base of several hundred service providers and thousands of enterprises, the ADVA Optical Networking and Oscilloquartz brands, the vendor and partner relationships and a highly motivated and skilled global team. These assets are not included in the balance sheet. Customer satisfaction as measured by the Net Promoter Score<sup>3</sup> represents one of the Group's four key performance indicators, highlighting the value of sustainable relationships with customers to ADVA Optical Networking.

Additional off-balance sheet assets

#### Liabilities

(on December 31, in millions of EUR)



Total liabilities increased due to higher current liabilities

With respect to equity and liabilities, current liabilities increased by EUR 28.0 million from EUR 84.0 million at yearend 2014 to EUR 112.0 million at the end of 2015, primarily due to increases in trade accounts payable, other current liabilities and current financial liabilities. Trade accounts payable rose from EUR 33.0 million at the end of 2014 to EUR 43.7 million at year-end 2015, with days payable outstanding increasing to 62 days in 2015 compared to 56 days in 2014. The increase in trade accounts payable is driven by the timing of material purchases and corresponds with the increase in inventories. Other current liabilities were up EUR 5.8 million to EUR 26.9 million at the end of 2015. Current financial liabilities were up by EUR 10.9 million to EUR 18.2 million, mainly affected by reclassification of a loan, which will be redeemed in January 2016 prior to original maturity.

Non-current liabilities remained fairly stable at EUR 63.6 million at year-end 2015. Within non-current liabilities, non-current financial liabilities decreased by EUR 3.2 million to EUR 24.5 million at the end of 2015 due to the reclassification of repayments falling due in the coming 12 months to current financial liabilities. The net defined benefit obligation decreased to EUR 4.0 million at December 31, 2015, compared to EUR 5.7 million reported at prior year-end. The decrease mainly relates to a change in the pension plan for employees of Oscilloquartz SA. Furthermore, deferred tax liabilities were up by EUR 1.6 million to EUR 22.0 million on December 31, 2015 based on temporary differences. Other non-current provisions increased by EUR 0.8 million to EUR 1.6 million mainly due to inclusion of non-current warranty obligations.

Stockholders' equity increased by EUR 38.8 million from EUR 177.1 million at year-end 2014 to EUR 215.9 million at the end of 2015, mainly due to net income of EUR 26.9 million reported in 2015. In addition, capital increases totaling EUR 3.2 million from the exercise of stock options, and stock compensation expenses totaling EUR 0.8 million were reported in 2015.

High capital increase due to exercise of stock options driven by favorable share price development in 2015 Welcome

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#### **Balance Sheet Ratios**

The equity ratio improved to 55.1% at the end of 2015, after 54.5% at year-end 2014. The non-current assets ratio amounted to 149.4% on December 31, 2015, with stockholders' equity fully covering the non-current assets and a portion of the current assets. This healthy balance sheet structure reflects the Group's careful financing strategy.

(on December 31, in %)		2015	2014	
Equity ratio	Stockholders' equity  Total assets	55.1	54.5	
Non-current asset ratio	Stockholders' equity Non-current assets	149.4	133.6	
Liability structure	lity structure Current liabilities Total liabilities			

## Capital Expenditures

Capital expenditures for additions to property, plant and equipment in 2015 amounted to EUR 7.9 million, up from EUR 7.1 million in 2014, largely reflecting higher investments in leasehold improvements.

Capital expenditures for intangible assets of EUR 34.4 million in 2015 were significantly up from EUR 29.2 million in the prior year. This total consists of capitalized development projects of EUR 32.1 million in 2015 after EUR 27.2 million in 2014, and investments in software licenses and other intangible assets of EUR 2.3 million in 2015 after EUR 2.0 million in 2014. Investments in capitalized development projects are mainly driven by development activities for ADVA Optical Networking's enhanced FSP 3000 platform.

#### Cash Flow

(in millions of EUR)	2015	Portion of cash	2014	Portion of cash
Operating cash flow	39.4	42.0%	46.2	55.1%
Investing cash flow	-41.3	44.0%	-38.7	46.2%
Financing cash flow	9.7	10.3%	-5.5	6.6%
Net effect of foreign currency translation on cash and cash equivalents	2.2	2.3%	1.0	1.2%
Net change in cash and cash equivalents	10.0	10.6%	3.0	3.5%
Cash and cash equivalents at the beginning of the period	83.9	89.4%	80.9	96.5%
Cash and cash equivalents at the end of the period	93.9	100.0%	83.9	100.0%

Cash flow from operating activities at EUR 39.4 million in 2015 was down EUR 6.8 million from EUR 46.2 million in 2014. This development was largely due to an increase of EUR 37.0 million of total cash bound in net working capital in 2015 compared to 2014. This effect was partly offset by the improved income before tax and higher non-cash relevant depreciation and amortization of tangible and intangible assets.

operating cash flow mainly due to higher net cash bound in working capital

Decreased

Cash flow from investing activities was EUR -41.3 million in 2015 after EUR 38.7 million in the prior year. The increased use of funds for investing activities is largely due to higher capital expenditures for capitalized development projects.

Increased use of funds for investing activities

Capital expenditures for property, plant and equipment are mainly related to investments in production & test equipment and leasehold improvements

Capital expenditures for intangible assets are mainly related to capitalized development projects Financing cash flow mainly relates to new financial debt Finally, cash flow from financing activities at positive EUR 9.7 million in 2015 was significantly up compared to the 2014 level of negative EUR 5.5 million. In 2015, these cash inflows mainly included the increase in financial liabilities due to a new loan contract signed in December 2015. In 2014, net financing cash flows are mainly due to the servicing of existing debts.

Overall, including the net effect of foreign currency translation on cash and cash equivalents of EUR 2.2 million (2014: EUR 1.0 million), cash and cash equivalents rose by EUR 10.0 million in 2015, from EUR 83.9 million at year-end 2014 to EUR 93.9 million at the end of 2015, after an increase of EUR 3.0 million in the prior year.

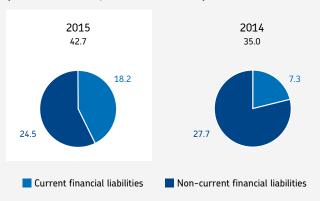
## Financing and Liquidity

Strong equity base

ADVA Optical Networking's financial management objective is to provide sufficient funds to ensure ongoing operations and to support the Group's projected growth. Beyond the strong equity base appropriate for the business, ADVA Optical Networking finances its business by means of liabilities with maturities typically exceeding the life of the assets being financed. For any liability taken, ADVA Optical Networking is focused on minimizing related interest cost, as long as access to funds is not at risk. Excess funds are used either to redeem debt or are invested in short-term interest-bearing term deposits.

#### Financial Liabilities

(on December 31, in millions of EUR)



Due to a new loan of EUR 15.0 million paid out in December 2015 total financial liabilities increased from EUR 35.0 million at year-end 2014 to EUR 42.7 million at the end of 2015. The new loan has a fixed interest rate and will be repaid in 16 equal instalments of EUR 938 thousand per quarter commencing Q1 2017. While the current portion increased from EUR 7.3 million to EUR 18.2 million, the non-current portion decreased from EUR 27.7 million on December 31, 2014, to EUR 24.5 million at the end of December 2015. This movement is mainly due to the reclassification of a loan that will be repaid early in January 2016. All financial liabilities were exclusively denominated in EUR at the end of 2014 and 2015.

Increased financial liabilities

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On December 31, 2015, the Group had available EUR 8.0 million (on December 31, 2014: EUR 8.0 million) of undrawn committed borrowing facilities in respect of which all conditions had been met.

Further details about the Group's financial liabilities can be found in note (13) to the consolidated financial statements.

## **Net Liquidity**

Net liquidity at record level

Net liquidity<sup>2</sup> represents one of the four key performance indicators of ADVA Optical Networking. Due to the increase in cash and cash equivalents and disproportional increase in financial liabilities in 2015, ADVA Optical Networking's net liquidity increased by EUR 2.3 million compared to end of 2014, ending up at EUR 51.2 million on December 31, 2015. Cash and cash equivalents of EUR 93.9 million on December 31, 2015, and of EUR 83.9 million on December 31, 2014, were mainly denominated in EUR, USD and in GBP. At yearend 2015 same as at year-end 2014, access to EUR 0.1 million of cash and cash equivalents was restricted.

(on December 31, in millions of EUR)	2015	2014
Cash and cash equivalents	93.9	83.9
- financial liabilities		
current	-18.2	-7.3
non-current	-24.5	-27.7
Net liquidity	51.2	48.9

ADVA Optical Networking's liquidity ratios reflect the healthy balance sheet structure of the Group.

Financing ratios (on December 31)		2015	2014
Cash ratio	Cash and cash equivalents	0.84	1.00
	Current liabilities		
Quick ratio	Monetary current assets*	1.47	1.64
	Current liabilities		
Current ratio	Current liabilities	2.20	2.29

Monetary current assets are defined as the sum of cash and cash equivalents, short-term investments and securities and trade accounts receivable.

Return on capital employed in 2015 was at 10.4%, significantly up from 3.6% reported in 2014. This favorable development is largely due to the increased operating result reported in 2015.

Significantly improved return on capital employed due to higher operating income

	on capital employed (ROCE) ata in millions of EUR)	2015	2014
Operation	ng income	26.8	8.4
Average	e total assets*	363.6	313.5
Average	e current liabilities*	105.8	82.7
	Operating income		
ROCE	Ø total assets – Ø current liabilities	10.4%	3.6%

<sup>\*</sup> Arithmetic average of five quarterly period-end values (Dec. 31 of the prior year and Mar. 31, Jun. 30, Sep. 30 and Dec. 31 of the year).

#### Transactions with Related Parties

Transactions with related individuals and legal entities are discussed in notes (34) and (35) to the consolidated financial statements.

## **Dividend Payments**

In 2015, there were no dividend payments for 2014 (prior year: nil for 2013). ADVA Optical Networking does not plan to pay out a dividend for 2015.

### Summary: Net Assets and Financial Position

The net assets and financial position of ADVA Optical Networking continues to develop favorably in 2015, with cash and cash equivalents and net liquidity at record levels.

# Share Capital and Shareholder Structure

On December 31, 2015, ADVA Optical Networking SE had issued 49,374,484 no par value bearer shares (December 31, 2014: 48,096,431). No other class of shares had been issued during the reporting period.

Year-end free float at 84.5%

At year-end 2015, EGORA Holding GmbH held a total of 7,656,749 shares or 15.5% of all ADVA Optical Networking SE shares outstanding (at year-end 2014: 8,656,749 shares or 18.0% of all shares outstanding). 5,930,902 of these shares or 12.0% of all shares outstanding (at year-end 2014: 6,330,902 shares or 13.2% of all shares outstanding) were held by EGORA Ventures GmbH, a 100% subsidiary of EGORA Holding GmbH, and the remaining 1,725,847 shares or 3.5% of all shares outstanding (at year-end 2014: 2,325,847 shares or 4.8% of all shares outstanding) were held directly by EGORA Holding GmbH. Both EGORA companies have their registered offices in Fraunhoferstrasse 22, 82152 Martinsried/Munich, Germany. No other shareholder has filed with the Company to have held more than 10% of the Company's shares out-

standing on December 31, 2015. Further details on share capital and shareholder structure are disclosed in note (17) to the consolidated financial statements.

# Restriction of Voting Rights and Share Transfers

At year-end 2015, the Management Board of ADVA Optical Networking SE had no knowledge of any restrictions related to voting rights or share transfers.

# Appointment and Dismissal of Management Board Members

The appointment and dismissal of members of the Management Board of ADVA Optical Networking SE follows the direction of the German Stock Corporation Act (Aktiengesetz, AktG), the German SE Implementation Act (SE-Ausführungsgesetz, SEAG) as well as the provisions in section 6 of the Company's current articles of association, dated May 28, 2015. According to these articles, in principle the Supervisory Board appoints the members of the Management Board and does so for a maximum period of five years. However, it is the Company's practice to appoint the members of the Management Board for two years only. Repeated appointment is possible. According to the Company's articles of association, the Management Board of ADVA Optical Networking SE shall regularly consist of two individuals and the Supervisory Board shall have the right to appoint a higher number of individuals. If the Management Board consists of more than one individual, the Supervisory Board may appoint one member of the Management Board Chief Executive Officer or Speaker of the Management Board, and another member his or her deputy. The Supervisory Board may recall an already-effective appointment for important reasons. Apart from the appointment of Ulrich Dopfer as of January 1, 2015, there were no further appointments or dismissals of ManWelcome

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agement Board members in 2015. ADVA Optical Networking SE's Management Board consisted of Brian Protiva (Chief Executive Officer), Christoph Glingener (Chief Technology Officer & Chief Operating Officer) and Ulrich Dopfer (Chief Financial Officer) throughout the year.

# Changes to Articles of Association

Changes to ADVA Optical Networking SE's articles of association follow section 179 of the German Stock Corporation Act (Aktiengesetz, AktG) in conjunction with section 133 AktG, as well as the provisions in section 4 paragraph 6 and section 13 paragraph 3 of the Company's current articles of association, dated May 28, 2015. Accordingly, in principle any changes to the articles of association other than purely formal amendments need to be resolved by the Shareholders' Meeting. However, the Shareholders' Meeting has authorized the Supervisory Board to change the version of the articles of association in accordance with capital increases from authorized capital and conditional capital.

# Issuance and Buy-Back of Shares

At year-end 2015: Authorized capital at 48.7% of total shares outstanding

Conditional capital at 7.2% of total shares outstanding

Authorization for share buy back up to 10% of exisition share capital The rights of the Management Board to issue new shares are regulated in section 4 paragraphs 4 to 5k of the articles of association of ADVA Optical Networking SE. According to ADVA Optical Networking SE's current articles of association the Management Board is authorized with approval of the Supervisory Board to increase the capital stock until May 19, 2020 by up to 24,048,215 new shares from authorized capital, amounting to a total of EUR 24,048,215 against cash or contribution in kind with possible exclusion of subscription rights (Authorized Capital 2015/I). On December 31, 2015, the authorized capital amounted to EUR 24,048,215, i.e., that day the Management Board may have issued up to 24,048,215 shares or 48.7% of total shares outstanding. In addition, on December 31, 2015, a total of two tranches of conditional capital amounting to a total of EUR 4,809,178 or 9.74% of the share capital were recorded in the commercial register (Conditional Capitals 2003/2008 and 2011). The conditional capital has been used for granting stock option rights to members of the Management Board, to employees of the Company and to management and employees of affiliated companies. The conditional capital increase is put into effect only if and when the holders of the option rights exercise these rights. 1,278,053 new shares were already created in 2015 as a result of the exercise of stock options, but will only be registered in the trade register after the balance sheet date. Thus, the number of shares that can be issued by the Management Board from the two tranches of conditional capital is reduced to 3,531,125 or 7.2% of total shares outstanding.

At year-end 2015, the Management Board was authorized to buy back up to a total of 10% of the existing share capital at the time of resolution by the Annual General Meeting or – if this value is lower – at the time the authorization is exercised. This right was granted to the Management Board by a resolution of the Shareholders' Meeting on May 20, 2015 until May 19, 2020. Shares bought back may be used exclusively as compensation for the acquisition of companies, parts of companies or investments in companies, for issuing stock to employees of the Company or affiliated companies, for serving share subscription rights from the Company's stock option plans, and for redeeming the shares.

# Takeover Bid-Driven Change of Control Provisions

At year-end 2015, a bonded loan with redemption value of nominally EUR 11.5 million (to be earlier repaid in January 2016), a loan with redemption value of nominally EUR 15.7 million (being repaid in 16 equal quarterly installments since September 2014) and a loan with redemption value of nominally EUR 15.0 million (being repaid in 16 equal quarterly installments from Q1 2017), respectively, are part of ADVA Optical Networking SE's financial liabilities. In the event of

a potential takeover bid-driven change in control of ADVA Optical Networking SE, the creditors have the right to terminate these loans with immediate effect.

On December 31, 2015, for the event of a takeover bid-driven change in control there have been no recourse agreements in place with any of the members of the Management Board or with any of the Group's employees.

# Declaration on Corporate Governance and Corporate Governance Report

Declaration on corporate governance and corporate governance report published on website Compliance with the rules of proper corporate governance is of great importance to ADVA Optical Networking, it is the foundation for the Group's success. According to section 289a of the German Commercial Code (Handelsgesetzbuch, HGB), ADVA Optical Networking SE is obliged to publish a "declaration on corporate governance", and section 161 of the German Stock Corporation Act (Aktiengesetz, AktG) in connection with section 3.10 of the German Corporate Governance Code as amended on May 5, 2015 recommend that Management Board and Supervisory Board shall prepare a "corporate governance report". In order to facilitate public access to all respective data, ADVA Optical Networking integrates the "declaration on corporate governance" and the "corporate governance report" into one single publication on its website www.advaoptical.com (About Us/Investor Relations/Corporate Governance/Declaration on Corporate Governance and Corporate Governance Report).

# Definition of Aims and Terms for the Rise of the Women Portion in Supervisory Boards, Management Organs and both Leadership Levels below the Management Organ

In 2015, ADVA Networking SE fulfils the legal regulation for a gender rate of 30% in the Supervisory Board with one female Supervisory Board member. All three Management Board members are male. On December 31, 2015, the women's portion in ADVA Optical Networking SE at the first management level amounts to 7% and at the second management level to 35%. On account of the low portion of female university graduates in relevant fields of study it is difficult for ADVA Optical Networking to achieve a desirable high women's portion in management. However, the Management Board and Supervisory Board took the decision that until June 30, 2017, the portion of female Supervisory Board members should stay stable at 33% and the portion in the Management Board as well as in the top two levels of management should be at least maintained at current status.

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# Remuneration of Management and Supervisory Boards

The Management Board receives fixed compensation, a short and long-term variable bonus and stock options; maximum amounts have been defined The compensation of ADVA Optical Networking's Management Board members consists of fixed and variable components. In addition to a fixed salary, the members of the Management Board receive variable compensation in the form of bonus payments which are assessed based in part on short-term aspects and in part on long-term criteria focusing on the sustainable development of the Group. As additional long-term variable compensation, the Management Board members receive stock options within the scope of ADVA Optical Networking's stock option program. The maximum amount of compensation for the members of the Management Board is capped, both overall and for its variable compensation components (annual bonus, long term bonus, newly issued options).

In 2015, the combined fixed salary of the two members of the Management Board in office throughout the years 2014 and 2015 remained unchanged. The short-term variable compensation for both years was based on the Group's pro forma operating income 1 (40%), the Group's revenues (20%), the Group's net liquidity<sup>2</sup> (20%) as well as individual goals agreed with each member of the Management Board at the beginning of the respective year (20%). The short-term variable compensation is determined annually as compensation for the current year at the discretion of the Supervisory Board. Furthermore, a new long-term variable compensation focusing on the sustainable development of the Group was agreed in 2015 after the previous long-term variable compensation became obsolete. The new long-term variable compensation will be paid to the members of the Management Board after three years, provided that minimum Group pro forma operating income margins, increasing year-by-year, are met for each of the three years. All members of the Management Board additionally receive a company car or a car allowance, as well as - in Germany - reimbursement of half of their social security contributions. Moreover, ADVA Optical Networking bears the costs of pecuniary damage liability insurance for the Management Board members, taking into account the statutory deductible amount. These benefits are partially taxable by the members of the Management Board as non-cash benefits. In addition, ADVA Optical Networking grants stock options to members of the Management Board. These option rights authorize the members of the Management Board to purchase a set number of shares in the Company once a fixed vesting period has elapsed.

Jaswir Singh left the Company at the end of 2014 by mutual agreement. From January 1, 2015, Ulrich Dopfer took over responsibility as Chief Financial Officer and Christoph Glingener took over responsibility as Chief Operating Officer. In addition to Jaswir Singh's remuneration for his services performed in 2014, he received an additional compensation amounting to EUR 490 thousand (USD 660 thousand).

Total Management Board compensation payable for 2015 and 2014 was EUR 3,732 thousand and EUR 1,943 thousand, respectively. During both years, there were no long-term service contracts in the sense of IAS 19 for any members of the Management Board. In 2015 and 2014, no loans were granted to the members of the Management Board. At December 31, 2015, ADVA Optical Networking had a receivable of EUR 62 thousand outstanding from Brian Protiva regarding payroll tax related to stock option exercises. The receivable has been offset against the remuneration paid in January and February 2016.

# Value of Benefits Granted for the Reporting Period

(in thousands of EUR)	Brian Protiva Chief Executive Officer					istoph ( f Technol ief Opera	ogy Offic	er	Ulrich Dopfer Chief Financial Officer from January 1, 2015				Jaswir Singh Chief Financial Officer & Chief Operating Officer Operations until December 31, 2014			
Benefits granted	2015	2014	(Min) 2015	(Max) 2015	2015	2014	(Min) 2015	(Max) 2015	2015	2014	(Min) 2015	(Max) 2015	2015	2014	(Min) 2015	(Max) 2015
Fixed compensation	253	253	253	253	253	253	253	253	230	-	230	230	-	324	-	-
Fringe benefits	22	20	22	22	19	19	19	19	17	-	17	17	-	15	-	-
Total	275	273	275	275	272	272	272	272	247	-	247	247	-	339	-	-
Short-term variable compensation (1 year)	314	265	-	537	213	179	-	360	118	-	-	200	-	125	-	-
Multi-year variable compensation:																
Compensation	-	-	-	-	-	-	-	-	-	-	-	-	-	490	-	-
Long-term variable compensation (3 years)	268	-	-	268	180	-	-	180	111	-		111	-	-	-	-
Stock option plans (7 years)	426	632	-	3,700	316	466	-	3,600	351	-		3,060	-	-	-	-
Total	1,283	1,170	275	4,780	981	917	272	4,412	827	-	247	3,618	-	954	-	-

# Actual Contribution for the Reporting Period

(in thousands of EUR)	Brian Protiva Chief Executive Officer				Chie	f Techno	Glingen ology Offic ating Offi	cer	Ulrich Dopfer Chief Financial Officer from January 1, 2015				Jaswir Singh Chief Financial Officer & Chief Operating Officer Operations until December 31, 2014			
Contribution	2015	2014	(Min) 2015	(Max) 2015	2015	2014	(Min) 4 2015	(Max) 2015	2015	2014	(Min) 2015	(Max) 2015	2015	2014	(Min) 2015	(Max) 2015
Fixed compensation	253	253	253	253	253	253	253	253	230	-	230	230	-	324	-	-
Fringe benefits	22	20	22	22	19	19	19	19	17	-	17	17	-	15	-	-
Total	275	273	275	275	272	272	272	272	247	-	247	247	-	339	-	-
Short-term variable compensation (1 year)	314	265	314	314	213	179	213	213	118	-	118	118	-	125	-	-
Multi-year variable compensation:																
Compensation	-	-	-	-	-	-	-	-	-	-	-	-	-	490	-	-
Long-term variable compensation (3 years)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stock option plans (7 years)	1,183	-	1,183	1,183	893	-	893	893	35	-	35	35	-	-	-	-
Total	1,772	538	1,772	1,772	1,378	451	1,378	1,378	400	-	400	400	-	954	-	-



Supervisory Board receives fixed compensation

The compensation of the members of ADVA Optical Networking's Supervisory Board, beyond the reimbursement of out of pocket expenses, only consists of fixed compensation paid out quarterly.

The total compensation payable to the members of the Supervisory Board of ADVA Optical Networking for 2015 amounted to EUR 215 thousand, after EUR 224 thousand for 2014.

Furthermore, ADVA Optical Networking bears the cost of pecuniary damage liability insurance for all members of the Supervisory Board. During 2015, no loans or advance payments were granted to members of the Supervisory Board.

Detailed information on the compensation structure of the individual members of the Management and Supervisory Boards can be found in note (35) to the consolidated financial statements.

# Compliance and Sustainability

## Corporate Ethics and Compliance

Integrity and ethical decision making are central requirements for the sustainable success of ADVA Optical Networking. The Group recognizes its responsibility to comply with national and international laws, regulations, internal policies and ethical standards - otherwise known as compliance. In order to ensure observance of all applicable laws and regulations, ADVA Optical Networking has actively adopted a code of conduct and a range of Group-wide policies which govern the Group's business operations and are mandatory for all employees to follow. Training on the code has been conducted in all major sites and all employees have acknowledged their compliance. The code is an extension of the Group's core values, and employees are encouraged to report suspected incidents of non-compliance and to seek support when they have questions or suggestions. An external ombudsman (this role is currently covered by Frank Fischer, tax lawyer and former member of ADVA Optical Networking's Supervisory Board) and an externally operated ethics and compliance helpline enable confidential and anonymous reporting. Enforcement of compliance with all applicable laws and requlations and deriving internal policies is coordinated by ADVA Optical Networking's Chief Compliance Officer who reports to the Chief Executive Officer and the Supervisory Board.

Comprehensive compliance system and code of conduct in place

# **Employees**

Total headcount increased to 1,524 employees

On December 31, 2015, ADVA Optical Networking had 1,524 employees, including 16 apprentices (previous year 1,491 including 17 apprentices).

On average, ADVA Optical Networking had 1,491 employees during 2015, up from 1,463 during 2014. Furthermore, there were 22 and 17 temporary employees working for ADVA Optical Networking at year-end 2015 and 2014, respectively. During 2015, the increase in employees largely relates to the Group's expansion in Poland and to the acquisition of Time4 Systems Oy in Espoo, Finland in July 2015 and the acquisition of a development team from FiSEC GmbH in Meiningen, Germany, in December 2015.

Employees per country (on December 31)	2015	2014	Change
Germany (including apprentices)	500	496	+4
USA	309	309	-
Poland	271	248	+23
China	137	139	-2
United Kingdom	108	102	+6
Israel	58	58	-
Switzerland	56	58	-2
France	16	17	-1
India	14	14	-
Singapore	12	11	+1
Other countries	43	39	+4
Total employees	1,524	1,491	+33

Personnel expenses increased from EUR 118.3 million in 2014 to EUR 135.5 million in 2015, representing 30.6% of revenues in 2015 compared to 34.9% in 2014.

ADVA Optical Networking successfully attracts and retains highly qualified staff due to its competitive compensation programs and the rewarding work environment offered. The employee compensation packages comprise fixed and variable elements, and also include stock options and stock appreciation rights. These compensation packages enable employees to participate appropriately in the success of the Group and support employee retention, while at the same time rewarding individual efforts, teamwork, innovation and productivity. Furthermore, employees who perform exceptionally well or who make suggestions for significant improvements are recognized through the Group's Spot Award program. In addition, the Group is committed to offering all employees comprehensive on-the-job training, as well as specific continuing education opportunities in order to advance their personal and professional development.

The Group offers different types of continuing education programs through the ADVA Optical Networking University, based on employee development needs. These needs are identified, documented and reviewed semi-annually within an electronic performance appraisal and competency management system.

Within ADVA Optical Networking, all relevant local regulations for health and safety in the workplace are complied with and for the Group's sites in some countries are regularly monitored by independent engineering offices for safety in the workplace. ADVA Optical Networking provides a global work environment that is clean, bright and friendly. An efficient employee representation without trade union ties is in place on a global basis, reflecting the international employee base and overall orientation of the Group.

Compensation comprises fixed and variable elements

Employee devel-

opment through various education

Global employee representation

programs

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Equal opportunities for all employees ADVA Optical Networking is an equal opportunity employer and has an on-going commitment to the creation of a work-place free of discrimination and harassment. The Group recruits, hires, trains and promotes individuals on all job levels without regard to race, religion, ancestry, sexual orientation, marital status, national origin, age, gender and physical or mental disability. ADVA Optical Networking is committed to a fair and equitable workplace where everyone is a respected and valued member of the team. The Group's core values (teamwork, execution, accountability and motivation) and leadership principles (integrity/honesty, decisiveness and respect) guide employees and managers in all business activities.

Recognized apprenticeship positions

At its main production and development facility in Meiningen, Germany, ADVA Optical Networking currently provides 17 apprenticeship positions, which lead to professions as electronic technicians for devices and systems and as office management assistant. In Meiningen, Germany, the Company is among the most recognized apprenticeship providers for industrial electronics professions in its region. In addition, ADVA Optical Networking offers an active university student trainee program in Germany that provides on-the-job work experience to students pursuing degrees.

International, highly qualified and motivated employees The Group relies on a team of highly qualified and motivated employees of 40 different nationalities, with extensive experience in telecommunications and in various other industries. The interdisciplinary and intercultural exchange among employees on all levels advances the open and transparent culture of the Group and the creativity of its employees in the best possible way. In 2015, the Group conducted an employee survey with the support of an independent human resources consultancy. Based on the results of the 2015 survey, the Management Board derived an action plan to further improve employee satisfaction which has been implemented in 2016.

# Focusing on Sustainability

The various aspects of sustainability have always been important for ADVA Optical Networking and it has a successful track record in most of these areas. To further improve the related work, a dedicated Sustainability Group was established in the middle of 2015. This organizational step followed extensive sustainability-related work for dedicated key customers.

As a consequence, the Group issued its first Sustainability Report in 2015 and adopted a holistic model which covers all aspects of sustainability, as shown in the following diagram: Detailed sustainability report is available on the ADVA Optical Networking homepage



This model is now used for sustainability assessments by large operators like British Telecom. It is used for the same purpose, including self-assessments, by QuEST Forum, the body who also defines TL9000, telecommunication's version of the international quality standard ISO9001. It is a superset of a multitude of standards which, independently, cover the same areas. In particular, the self-assessments enable relatively simple identification of strong sustainability areas as well as areas which may require more attention.

Internationally recognized sustainability framework

The model is divided into three super-segments, called Operational, Organizational and Commercial. The Operational super-segment refers to environmental and resource aspects that are related to production, and therefore mainly to ADVA Optical Networking's sites. The Organizational super-segment covers the corporate-related aspects of CSR (Corporate Social Responsibility) and sustainability-related organizational structure and capability, as well as stakeholder engagement and supply-chain management (the latter two again with regard to sustainability). Finally, the Commercial super-segments considers end-to-end delivery and logistics, eco design and ultimately Circular-Economy lifecycle strategies.

# Sustainability Performance

As mentioned, ADVA Optical Networking is regularly assessed regarding the different aspects of sustainability by QuEST Forum and also a large customer, both using the same model as shown above. The latest result, as of November 2015 showed strong performance across all segments of the sustainability model. In particular, the Group's performance in the Commercial super-segment is strong, which includes all preparation, including various practical demonstrations, toward Circular-Economy business models.

For details regarding the Group's sustainability performance and indicators, we refer the reader to our Code of Conduct and to our dedicated Sustainability Report, which is compiled according to the GRI's G4 (Global Reporting Initiative) Guideline. These can be found on the Group's website <a href="https://www.advaoptical.com">www.advaoptical.com</a> (About Us/Corporate Responsibility). The Sustainability Report is the latest addition to GRI reporting which started 2011.

# Sustainability Awards

As an indication of the sustainability-related progress that has been achieved since late 2014, the Group was granted two sustainability awards in 2015. First, in early 2015, ADVA Optical Networking received the Silver award in British Telecom's Better Future Supplier Forum, following the 2014 assessment and the win of BT's Game-Changing Challenge in late 2014.

Secondly, in September 2015, the Group also won the QuEST Forum's first annual Most-Improved Sustainability Award. This award followed a series of assessments which demonstrated a strong degree of improvement across the full area of sustainability.

More information can also be derived from the related press releases, which can be found on the Group's website www.advaoptical.com (Press Releases).

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# Risk Report

ADVA Optical Networking's future development is subject to various risks, which in certain cases could endanger the Group's continued existence. The Management Board has implemented a comprehensive risk management and an internal control system that enables the Management Board to detect risks in a timely manner, to take corrective actions and benefit from identified opportunities. An integral aspect of the Group's strategy is its ability to anticipate developments in the marketplace and future customer needs. Special emphasis is given to product development, the quality of the Group's products and the validation, selection and oversight of key business partners. However, despite this comprehensive approach, due to the ever-changing market environment, limited ability to anticipate current geopolitical risks, as well as an ever increasing reliance on dispersed IT systems combined with potential efforts to compromise data confidentiality and intellectual property, no risk management system can fully eliminate all risks to the Group and its future well-being.

# Risk Management System

Increasingly diversified business supports globalization of ADVA Optical Networking

Since ADVA Optical Networking was founded in 1994, its business has become more diversified. The Group's global market is split into three focus areas (enterprise networks, carrier infrastructure, Carrier Ethernet access), all with drivers somewhat independent of each other. ADVA Optical Networking markets its products and solutions in part via a variety of distribution partners but has become less dependent on these partners over the years due to continued investment in a direct distribution model in core geographies. Beyond focusing on enhancing revenue predictability, a comprehensive risk management system has been established, enabling the Group to detect risks in a timely manner and to take appropriate preventive and corrective actions. The risk management system is subject to scheduled reviews by the Group's internal audit function. The Management Board rec-

ognizes that however good a risk management system may be, it cannot in all cases prevent the occurrence of events that may cause material damage to the Group.

ADVA Optical Networking is organized according to functional areas across all international locations. This is also reflected in the Management Board's split of responsibilities, in particular as related to risk management. The Management Board continuously analyzes the potential risks and implements the necessary measures to guard against them to the greatest extent possible. In recent years, ADVA Optical Networking has significantly improved its results-driven decision support and reporting system. The Group has established an appropriate risk management system across all departments with the purpose of quickly uncovering potential risks and taking corrective actions in a timely manner. These measures allow the Management Board to evaluate the present and future situation of the Group at all times. A combination of regular and ad-hoc reports present a thorough picture of current and future business developments.

Effective decision support and reporting system

ADVA Optical Networking's strategic goals are the basis for this risk management system. These goals are growth and profitability, innovation, operational excellence and employees. The strategic goals are reviewed by both the Management Board and the Supervisory Board on a yearly basis and amended where appropriate. They also constitute the basis for the Group's three-year business plan, which is reviewed and updated annually. Each of these goals is defined in detail and then broken down into specific departmental and individual targets. The strategic goals are traced to each individual employee, so that each employee can focus and be evaluated on his/her individual performance and contribution to ADVA Optical Networking's overall performance.

The risk management system is based on strategic goals

Key performance indicators include financial metrics and customer satisfaction

ADVA Optical Networking measures the accomplishment of its strategic goals against revenues, pro forma operating income<sup>1</sup>, net liquidity<sup>2</sup> and as a non-financial criterion customer satisfaction as measured by the Net Promoter Score<sup>3</sup>. These metrics represent the Group's key performance indicators. The Management Board sets target values for all four metrics for the year to come and measures actual values against the target values: revenues and pro forma operating income on a monthly basis, net liquidity on a quarterly basis and the Net Promoter Score on an annual basis. Corrective action is taken quickly should a deviation from the plan occur or be reasonably predicted to occur. This information is summarized and communicated to the Management Board in monthly, quarterly and yearly reports.

Monthly budget reviews with tight controls

Moreover, budgets are reviewed on a monthly basis and adjustments are made if necessary. The Group's accounting, controlling and treasury departments provide globally consolidated reports on available cash funds and the development of margins and current assets (e.g. inventories and receivables) on a monthly and quarterly basis. These reports also include budgeted/forecasted and actual revenues and expenditures. Structure and content of these reports must be adapted continuously to meet information requirements. ADVA Optical Networking regularly monitors the credit worthiness of all customers and updates credit limits as needed. Material expenditures and investments must be approved in advance through an electronic purchase order system. In conjunction with continuously updated revenue and cash forecasts, a detailed monthly preview of anticipated Group developments within the next three to twelve months is regularly produced and communicated to the Management Board. Moreover, the Group's accounting, controlling and legal departments review potential legal and litigation risks on a quarterly basis in order to obtain a reliable estimate of the potential loss taking into account all relevant information and expectations. In addition, ADVA Optical Networking's Management Board regularly analyzes the financial position and profitability of the Group, as well as potential

legal and litigation risks, discusses all significant business transactions with the Supervisory Board and obtains its approval if necessary.

In order to ensure observance of all applicable laws and regulations, ADVA Optical Networking has a code of conduct and a range of Group-wide policies in place which govern the Group's business operations and are mandatory for all employees to follow. The code is an extension of the Group's core values, and employees are actively encouraged to report suspected incidents of non-compliance and to seek support when having questions or suggestions. An external ombudsman (this role is currently covered by Frank Fischer, tax lawyer and former member of ADVA Optical Networking's Supervisory Board) and an externally operated ethics and compliance helpline enable confidential and anonymous reporting. Enforcement of compliance with all applicable laws and regulations and deriving internal policies is coordinated by ADVA Optical Networking's Chief Compliance Officer who reports to the Chief Executive Officer and the Supervisory Board.

The analytical tools and processes described above secure a constant and transparent reporting system across the Group. In regular monthly reports and multiple webinars per year, the Management Board informs the extended worldwide management team about the current business development, business outlook, Group and departmental goals.

In addition, ADVA Optical Networking systematically describes all major risks which may cause material harm to the Group or may even threaten its existence, as well as the internal controls, processes and tools that are used to mitigate these risks. A risk is classified as major if its severity and its probability of occurrence on a high-medium-low scale is each ranked "medium" at least. The list of major risks is subject to change, driven by input from within the organization and at least annual reviews by the Management Board. For each major risk identified, the Group assigns a dedicated

Comprehensive compliance management and

Risk awareness

and methodical

mitigation

code of conduct

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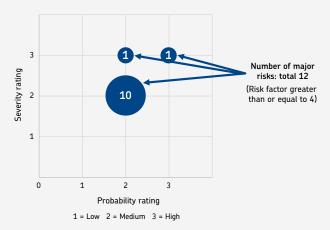
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risk owner who is responsible to report risk-related information periodically and to inform the Management Board immediately should the risk materialize. Compliance with this process is monitored by the Group's treasury department. Group treasury conducts at least quarterly risk reviews with each risk owner. Independent of specific risk ownership, all employees of ADVA Optical Networking are asked to escalate additional obvious risk items directly and informally to the Chief Financial Officer and the Group Treasurer.

12 risks were ranked as major risks at the end of 2015

At the end of 2015, ADVA Optical Networking ranked 12 risks as major risks (end of 2014: 12), which are discussed in detail below. The rating of those risks is based on probability and severity (p;s).



# Competitive and Product Risks

# Technology Leadership Risk (2;2)

The market for innovative connectivity solutions for cloud and mobile services is highly competitive and subject to rapid technological change. Competition in this market is characterized by various factors, such as price, functionality, service, scalability and the ability of systems to meet customers' immediate and future network requirements. Should ADVA Optical Networking be unable to adapt to changing market conditions, customer requirements or industry standards, the Group's development would be impacted negatively. Since most of the Group's competitors operate in a broader market and have considerably more resources available due to their greater size, ADVA Optical Networking must continue to leverage its competitive advantage in terms of functionality and efficiency of its solutions, as well as in terms of total cost for the customer. Preventive actions to achieve this include running advanced technology projects, running the navigator team to decide on strategic direction, industry and competitor analysis, keeping the Group's development roadmap up-to-date, testing product visions with customers, driving the evolution of intellectual property rights, monitoring and influencing standardization, minimizing dependency on legacy products, maximizing R&D efficiency and staying close to customers in order to identify differentiating technology opportunities.

#### Cost Leadership Risk (2;2)

ADVA Optical Networking achieves cost leadership by its ability to scale economically and through the optimization of product design. The loss of cost leadership would drastically reduce the Group's success in winning new business and would have a negative effect on gross and operating margins. The significant pricing pressure for innovative connectivity solutions must be met strategically by improving processes, controls and technology as well as updating existing products, while maintaining adequate R&D budgets. Preventive actions to achieve this include running focused

cost reduction programs on existing products by redesign of product parts or by improving the component price versus efficiency ratio. A dedicated team identifies competitive price and cost targets for new products, monitors product cost development throughout the development process, negotiates, tracks and forecasts product and related component costs. Additionally, the Group seeks to transfer manufacturing and distribution to the most efficient location around the world.

# **Product Quality Risk (2;2)**

The deterioration of the quality of ADVA Optical Networking's products could lead to delays in installation, return of products or cancellation of orders, and could result in additional costs for warranty and repair services. In addition, the Group could face penalties and lawsuits, contract terminations and liability claims, which ultimately could lead to lower market shares and harm ADVA Optical Networking's overall reputation. Preventive actions to avoid quality deterioration include continuously improving the Group's development processes, enhancing product testing, closely monitoring product return and customer complaint rates as well as analyzing respective root causes, optimizing complaint handling and supplier quality and measuring and analyzing customer satisfaction on a regular basis.

# Major Dependency on a few Suppliers or a Single-Source Supplier (2;2)

A single source supplier is a risky environment. This may happen due to many reasons but the Group has a detailed action plan to mitigate this risk. Otherwise, the consequences can be huge – longer time to market, customer dissatisfaction, loss of customers and a negative impact on ADVA Optical Networking's reputation as high tech company.

# Cyber Security Risks (2;2)

Stolen credit card information, personal data as well as business data from major companies have become frequent business headlines these days. No matter how the Group secures and protects its data and system with the latest tools & technology, there is no guarantee that ADVA Optical Networking will be free from cyber security risk. To protect against reputational, financial and legal risks, ADVA Optical Networking purchased a Cyber Security Insurance policy to cover damages to a significant amount. The integrity and availability of the internal IT-systems is assured through the careful implementation of a so called "business continuity" solution.

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## **Financial Risks**

# Foreign Currency Risks (2;2)

Due to a major portion of the Group's revenues and costs being generated in foreign currencies, ADVA Optical Networking's margin is particularly subject to fluctuations in the EUR/USD, EUR/GBP, GBP/USD, EUR/CHF and USD/CHF exchange rates.

In 2015, on a net basis, the Group saw significant GBP inflows and USD outflows. To combat fluctuations, the USD and GBP net cash flows in part are hedged against EUR using forward exchange agreements, based on the Group's forecasted EUR/USD and EUR/GBP exposure for the current year and the next year, and taking into account ongoing fundamental analysis provided by a bank-independent foreign currency consultancy.

ADVA Optical Networking targets to achieve a natural hedge scenario for the CHF cash flows but expansion in non-EUR regions of the world is likely to raise the Group's foreign exchange cash flow exposure as well.

Information on the sensitivity of the Group's net income to fluctuations in foreign exchange rates is provided in note (28) to the consolidated financial statements.

As part of a consolidation effort, ADVA Optical Networking reduced relationships to seven banks by the end of 2015 versus nine banks in 2014, for hedging purposes.

# **Customer Payment Terms Risk (2;2)**

In ADVA Optical Networking's competitive market for innovative connectivity solutions, customers may ask to extend payment terms. The extension of the Group's weighted-average payment terms would have an adverse impact on working capital and cash levels. In order to mitigate this risk, there is a three-step process in place governing the escalation of payment terms extension requests. In addition,

at the end of 2015, the Group had frame contracts in place to sell receivables from one customer (at the end of 2014: from three customers) to financial institutions.

# Loss of Key Customers (2;3)

The loss of key customers will have significant impact on ADVA Optical Networking's business especially key customer with a strategic value. This risk may originate to some extent from changes in customer demands and the Group's ability to meet these requirements reliably and in a timely manner. For key customers, the Group constantly ensure performance and customer satisfaction through a dedicated team of professionals.

# Intensifying Price Pressure Resulting in Lower Margins (3;3)

The extended economic downturn has created a tight spending environment. Today's customers are squeezing every purchase for maximum savings and therefore looking for lower pricing. Customers are conditioned to paying less and less for high tech products each year, especially when there are too many vendors vying for their business. Large customers will negotiate a scheduled price reduction into long term agreements. Parts of ADVA Optical Networking's product line are essentially commoditized, further eroding pricing power. The Group has many preventive action plans in place. To successfully defend higher prices, the Group communicate value, reliability, scalability, cost-effectiveness and performance to all of its customers.

# Operational Risks

# Poor Inventory Management Resulting in Either Lack of Material Availability or Obsolescence (2;2)

Technological obsolescence, as well as short-term changes in customer demand and manufacturing processes may trigger significant inventory depreciation. Preventive measures to minimize inventory depreciation include an integrated sales and operations planning process and quarterly reviews of inventory depreciation at item levels involving the Finance and Operations departments. In 2015, inventory depreciation and cost related to scrapping amounted to EUR 3.0 million versus EUR 3.5 million in 2014.

## Warranty Liability or Epidemic Failures (2;2)

Mass field recalls due to epidemic failures can cause a significant strain on operational and financial functions. Therefore ADVA Optical Networking monitors field defects for alarming trends, watches for supplier defects and problems with their components and watches internal factory yields for unusual occurrences.

# Legal Risks

# Intellectual Property Risk (2;2)

ADVA Optical Networking currently relies on a combination of copyright and trademark laws, contractual rights, patents and trade secrecy laws to protect its intellectual property. Unauthorized parties may attempt to copy or otherwise obtain and use the Group's products or technology. Monitoring unauthorized use of products and technology is difficult, and the Group cannot be certain that steps taken will prevent unauthorized use of products and technology. If competitors are able to use the Group's products and technology, ADVA Optical Networking's ability to compete effectively could be harmed. Counter measures may prove insufficient in the future and result in conflicts regarding the usage of property rights and technologies. In particular, the continued expansion of the Group's presence in China carries the risk that less stringent regulations for intellectual property rights could lead to an infringement on ADVA Optical Networking's patents and other intellectual property. Such infringement of intellectual property rights could take the form of the production of illegal copies of the Group's products and solutions, and could cause considerable damage to the Group. Third parties may also assert that ADVA Optical Networking has violated their own intellectual property rights and copyright laws, and may claim license fees, indemnities or discontinuation of production and marketing of the relevant products. Related disputes could result in considerable cost to ADVA Optical Networking in its efforts to protect intellectual property, while also diverting considerable management resources. This could result in a negative impact on the Group's business activities. In order to mitigate the intellectual property risk, the Group uses a systematic approach to document inventions and to decide which of these inventions are filed with the relevant authorities in order to obtain intellectual property rights.

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# Major Risk Classification Changes During 2015

During 2015, there were several changes of classifications for risks considered as major compared to 2014. On the one hand, five risks that were considered major in 2014 are no longer classified in that category. The probability rating of these risks declined. On the other hand, five new risks have been added. The total number of major risks remains unchanged at twelve.

## Minor Risks

Beyond the 12 risks discussed above, there is a broad range of minor risks which can also have a negative impact on ADVA Optical Networking. These uncertainties include financial risks such as the inability to secure financing, impairment of intangible assets and changes in interest rate levels, time risks related to carrier investment cycles and to distribution partnerships, legal risks pertaining to potential claims under product and warranty liabilities, risk from unauthorized access to confidential data, customer concentration risk, general macro-economic risk and risks related to acquisitions. However, the Management Board of ADVA Optical Networking does not consider any of these or other uncertainties to be likely or to have a major impact on the Group.

# Opportunity Identification

The identification of opportunities results from applying the same analytical tools and processes as described in the "risk management system" section above. Group Management has regular discussions with key customers and industry thought leaders to identify new opportunities and technological trends. Throughout the Group agile processes have been introduced to maximize the Group's opportunity to take advantage on newly identified trends. Current opportunities have been identified as follows:

- The demand for cloud and mobile services continues to accelerate, leading to a permanent expansion of the target market for innovative transmission technology. Internet content providers build new and larger data centers of unprecedented scale to offer their digital content and services at a global level. Optical transmission technology is strategically important for coupling these data centers as well as for access to the cloud. Without additional bandwidth in the connectivity networks, Internet content providers' business models will not scale. ADVA Optical Networking introduced new product generations in 2015 that improve the competitiveness of its solution portfolio. The Group expects additional growth from this application space.
- Large companies worry about the security of their data and business processes, and build new data protection and storage solutions. These require transmission technology for connecting geographically dispersed locations. The security package ConnectGuard™ brings competitive advantage and increased customer loyalty. ADVA Optical Networking expects solid growth in this segment with good profitability.

Additional growth potential via Internet content providers

Encryption solutions are becoming increasingly important Carrier infrastructure investment is shifting towards the metro  Carrier infrastructure upgrades will proceed with different focal points in 2016. The introduction of 100Gbit/s technology in long-haul networks has been largely completed. The investment focus now shifts towards metro networks, where the large-scale use of 100G is just at the beginning. ADVA Optical Networking has good performance and a strong reputation in this area of infrastructure. The Group expects additional growth here.

Europe as a region has underinvested for several years and is poised for a comeback In recent years, growth in Europe had been lagging behind the North American lead market. As of 2015, there are intensified signs of revived investment behavior in Europe. ADVA Optical Networking is well positioned in this region, and the resulting backlog of European network operators should have a positive effect on the development of the business.

Virtualization creates new opportunities in the market for cloud access solutions The virtualization of network functions changes the market of fiber-based access solutions for the cloud. Both the connection of business customers as well as the connection of mobile base stations will rely on a combination of Carrier Ethernet and NFV as the basis of future networks. The NFV functions on the ADVA FSP 150, which were introduced in 2015, combined with the acquisition of Overture in January 2016, strengthen the visibility and the scope of ADVA Optical Networking in this future market. The company expects first commercial success with this technology by the second half of 2016.

Strategic importance of synchronization continues to increase There are additional market opportunities driven by LTE-Advanced rollouts and the build-out of mobile networks. The ongoing ramp of the Group's development activities for the delivery and assurance of highly accurate timing, accelerated through the acquisition of Time4 Systems, has further strengthened its technology positioning and product quality, reducing ADVA Optical Networking's competitive and product risks.

# Overall Opportunity and Risk Assessment

Based on careful inspection of the Group's opportunity and risk profile at the time of the preparation of the Group management report, the Management Board of ADVA Optical Networking believes that the Group's opportunities in the market for innovative connectivity solutions for cloud and mobile services clearly outweigh the risks identified. The Management Board has not identified any risks that pose a danger to ADVA Optical Networking's survival, and to the Management Board there are no risks evident that may endanger the future existence of the Group. ADVA Optical Networking's overall opportunity and risk balance net is at about the same level as it was at the time of the publication of the 2014 Group Management Report. The Group's global, diversified customer base helps offset continued volatility in the global markets. On the other hand, there is still a highly competitive environment in most of the Group's markets and a level of uncertainty about the timing of capital investments by certain customer segments. The general macro-economic risk is viewed somewhat lower than it was in 2014.

Opportunities outweigh the identified risks; no current risks for going concern of the Group

Internal controls related to financial

reporting designed

around COSO

framework

ed risks; ent risks concern e Group

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# Internal Controls Related to Financial Reporting

The Management Board of ADVA Optical Networking is responsible for establishing and maintaining an adequate system of internal controls. It has implemented an internal control system that enables the Management Board to ensure completeness, accuracy and reliability of financial reporting at Group and legal entity level. When designing its internal control system, ADVA Optical Networking used the COSO framework 6 as a key reference and source of guidance. The internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting. No system of internal control over financial

Five major accounting organizations formed a group known as COSO (Committee of Sponsoring Organizations of the Treadway Commission) to provide guidance on evaluating internal control. They issued this guidance as the COSO Internal Control Framework.



reporting, including one determined to be effective, may prevent or detect all misstatements.

#### **Control Environment**

Leadership principles built on integrity, honesty, decisiveness and respect The control environment is the foundation of the internal control system in every organization. ADVA Optical Networking fosters an environment of openness and integrity with a clear commitment to excellence, competence and the development of its employees. The Group's leadership principles of integrity/honesty, decisiveness and respect are based on this philosophy, and the culture is reflected in the overall tone set by the Management Board. ADVA Optical Networking has a clear organizational structure with well-defined authorities and responsibilities. The bodies charged with the governance and control of the Group (Management Board, Supervisory Board) actively participate in the running and steering of the business. The business is managed on a global basis and run via functional areas. Financial steering of the Group and financial stewardship for individual legal entities is handled by the Chief Financial Officer, under the Audit Committee's control.

#### **Risk Assessment**

As part of the internal controls related to financial reporting, the risk assessment follows the process described in the "risk management system" section.

#### **Control Activities**

At an individual entity level, ADVA Optical Networking's larger and more complex business units use an integrated enterprise resource planning solution, which also serves as general ledger system. Information technology controls have been implemented to restrict user access, ensure proper authorization of changes to the system and efficient handling of user help desk requests. Specific processes are defined and applied for the following reporting cycles in these business units: cash reporting, revenue recognition, accounts payable, capitalization of development expenses and recognition of subsidies for research, inventory reporting, fixed assets, payroll and provisions. ADVA Optical Networking carries out monthly analytical reviews and quarterly balance sheet reviews based on a four-eye principle between the local accounting and the consolidation functions.

For the consolidated financial statements, the balance sheet and income statement positions requiring a significant degree of judgment and estimation when being valued are determined and analyzed with the involvement of management. This is the case for impairment testing reviews (annual or when a triggering event occurs), capitalization of development projects (when the industrialization stage is reached) and tax reporting and review, specifically deferred taxes (quarterly). ADVA Optical Networking additionally carries out monthly intercompany reconciliations as part of the consolidation process and analytical reviews of actual vs. expected results based on a four-eye principle between the financial planning and the consolidation functions.

All business units follow a set of global accounting policies and reporting guidelines. The financial statements preparation process is monitored globally via a calendar that is communicated to all involved parties on a monthly basis. Checklists are completed both in the individual business units as well as at the consolidation level to ensure completeness of all closing steps. Periodic reviews by Group management are conducted to detect errors and omissions.

Information technology controls

Global accounting policies and reporting guidelines for all business units Fast and effective communication with Management Board

#### **Information and Communication Tools**

The internal control system at ADVA Optical Networking is supported by tools to store and exchange information, enabling the Management Board to make informed business decisions about financial reports and disclosures. The following components ensure proper information and communication for financial reporting:

- Accounting systems for individual entities are matched to the degree of complexity of the business unit. For most entities, an integrated enterprise resource planning system which also serves as general ledger system is in place. All local accounts are mapped to the Group chart of accounts, which is used Group-wide.
- The Group consolidation is supported by a database tool
  which is linked to the enterprise resource planning and financial planning systems via interfaces. The global financial planning system is used extensively in analyzing actual vs. expected results and thus monitoring the results
  of the consolidation.
- There are global accounting policies for the more complex financial statement positions of the Group and a Group chart of accounts for all other financial guidance. Accounting policies are updated regularly and are implemented only after a thorough internal review and training.

#### Internal Monitoring

Transparent reporting and corrective action

As part of the ongoing monitoring, the Chief Financial Officer is informed about all material misstatements and control breakdowns at Group and business unit level on a quarterly basis in the executive summary to the financial statements. The reporting of deficiencies follows the principles of open and transparent communication, and follow-up is ensured through regular calls where corrective actions are presented.

## Internal Financial Audit

In order to monitor significant activities, to identify and minimize risks, to improve efficiency of financial processes and to support decision-making, ADVA Optical Networking maintains an internal audit function to review financial processes. Financial processes are globally harmonized in so far as a global process does not contravene local regulations. The internal audit review encompasses global financial processes as well as business-unit specific processes where necessary to satisfy local requirements.

Based on an annual risk assessment for key financial processes, the internal audit function proposes an audit program for the year which is discussed with and ratified by the Chief Financial Officer and the Audit Committee. The internal audit function performs appropriate internal audit procedures throughout the year, and presents the standardized internal audit reports to the Audit Committee.

Actions to adjust processes or enhance internal controls are initiated based on the recommendations included in the internal audit reports. The internal audit function regularly tracks actual implementation of these recommendations.

Internal audit function for financial processes

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# Events After the Balance Sheet Date

On January 13, 2016, ADVA Optical Networking acquired 100% of the shares of Overture group, headquartered in Raleigh, North Carolina, USA. The acquisition expands ADVA Optical Networking's portfolio of Ethernet and cloud access solutions and increases its presence in North America including the local customer base. The Overture corporate group consists of two US companies and two subsidiaries in India and the UK. A large part of its revenue is generated in North America. The group currently employs 178 people worldwide. The purchase price totaled USD 40.0 million (EUR 36.9 million translated at the exchange rate of January 13, 2016: USD 1.0839 per EUR). USD 35.0 million (EUR 32.3 million) was payable in cash on the date of acquisition. In addition, a revenue-based earn-out component of USD 5.0 million was agreed. The purchase price has been financed through two bank loans totaling EUR 35.0 million. Both loans have a term of five years and a fixed interest rate of 1.4% per annum. The audited opening balance sheet on January 15, 2016, following IFRS and the results of the purchase price allocation, were not available at the time the preparation of the 2015 consolidated financial statement was finalized.

In January 2016, ADVA Optical Networking submitted all documents for the legal liquidation of ADVA Optical Networking AS i.l. in Oslo, Norway. After completion of the liquidation, ADVA Optical Networking AS will be deconsolidated.

On February 1, 2016, ADVA Optical Networking submitted all required documents to court in order to appoint Prof. Dr.-Ing. Hans-Joachim Grallert to the Supervisory Board. Prof. Dr.-Ing. Hans-Joachim Grallert was lastly Head of the Department of Communications Engineering at the Technical University of Berlin. The appointment by the court was effective February 17, 2016.

# Outlook

Based on the macroeconomic framework described above, ADVA Optical Networking anticipates a compound annual growth rate of 9%<sup>4</sup> for the Group's addressable market between the years 2015–2018. The greatest growth potential is forecast for enterprise networks.

The global megatrends cloud and mobility still drive sustainable growth for the Group's addressable market. The demand for cloud and mobile services is driving demand for more bandwidth, and thus also the demand for more transmission technology.

Cloud and mobility continue to drive the demand for more bandwidth and additional transmission technology

Detailed further explanations for the forecast market environment up to 2018 as well as the resulting opportunities can be found in the section "General Economic and Market Conditions" and in the section "Business Overview".

In order to ensure sustainable corporate success, ADVA Optical Networking focuses on the following long-term strategic objectives:

Four strategic long-term goals

- Grow global revenues profitably through continued strong direct sales and marketing efforts with a solid focus on key accounts, new customer wins, optimized distribution partnerships, service and software business.
- Expand the Group's proven innovation leadership and increase footprint by meeting strategic customers' demand for innovative connectivity solutions quickly and comprehensively.
- Maintain operational excellence by further focusing on industry-leading processes and best-in-class execution, which will result in product and service quality leadership, improved efficiency and increased overall customer satisfaction.

 Recruit, retain, motivate, educate and nurture the Group's employees to sustainably achieve high levels of performance, personal growth and job satisfaction, while keeping employee turnover low.

Looking back at 2015, ADVA Optical Networking made significant progress in meeting all of these strategic elements:

Very strong revenue growth

2015 revenues were up 30.3% compared to 2014. This exceeded the Management Board's expectations of moderately growing revenues as announced in the 2014 management report. The strong revenue growth was mainly driven by Internet content providers and the overall demand for more bandwidth from communication service providers. The Group's pro forma operating income¹ increased by EUR 20.5 million to EUR 30.0 million or 6.8% of revenues in 2015 after EUR 9.5 million or 2.8% of revenues in 2014. This result also exceeded the Management Board's expectations of slightly increasing pro forma operating income, as announced in the 2014 management report. Operating income at EUR 26.8 million or 6.1% of revenues in 2015 improved as well, after EUR 8.4 million or 2.5% of revenues in 2014. The strong increase is closely tied to the strong revenue growth.

Introduction of a new generation of products As for innovation leadership, ADVA Optical Networking was able to expand its position in 2015. The Group has again brought new features and capabilities to the market and differentiated itself from its competitors with innovative technology. ADVA Optical Networking introduced in 2015 a new generation of transmission technology for data center interconnect. The ADVA FSP 3000 CloudConnect™ further enhances fiber utilization and scales to a capacity of more than 25Tbit/s per fiber. The ADVA FSP 3000 CloudConnect™ also dwarfs other solutions in terms of space and power efficiency. The platform delivers a highly compelling feature set for interconnecting hyper-scale data centers for Internet content providers. In the field of data security, ADVA Optical Networking extended its ConnectGuard™ solution to the FSP 150 platform, providing highest available levels

of security. In addition, the ADVA FSP 150 has evolved to become a programmable, universal network demarcation device that can take over the functions of other networking appliances. Through the introduction of network function virtualization (NFV), more and more network functions are defined as software applications and developed in isolation from the supporting hardware. These software applications can be deployed centrally in a data center, or alternatively on a device with an integrated server functionality. In addition, ADVA Optical Networking introduced a new generation of the ADVA FSP 150, which is fully aligned with this trend. The ADVA FSP 150 Pro Series supports both centralized and decentralized NFV concepts and significantly expands the addressable market for these Carrier Ethernet access devices. With its portfolio of innovative connectivity solutions, the Group is well positioned to serve all networking demands driven by cloud and mobile services and capitalize on these mega trends.

Furthermore, ADVA Optical Networking boosted operational excellence in 2015. In an environment of continued price pressure, the Group remained disciplined in controlling its operational costs, thereby enabling it to significantly grow revenues whilst maintaining a strong focus on profitability. With strict controls in place and tight working capital management, ADVA Optical Networking maintained a strong cash position throughout the year and reached a record high net liquidity 2 position of EUR 51.2 million at the end of 2015, up EUR 2.3 million from the EUR 48.9 million recorded at the end of 2014. This was in line with the 2014 projection that net liquidity will grow moderately.

As for customer satisfaction, ADVA Optical Networking uses the Net Promoter Score<sup>3</sup> metric to track progress. For 2015, the Group was able to further improve the record levels of 2014 by another point. This development exceeded the expectations of the Management Board announced in the 2014 management report, targeting to achieve in 2015 the same high level of the NPS-score as in the previous year. The fur-

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Net liquidity at record high



ther increase was due to a strong improvement in the sub-category technology and innovation.

Expansion of R&D team through acquisitions

On the employee side, ADVA Optical Networking selectively expanded its talent pool in 2015, mostly in its research & development organizations. The acquisition of Time4 Systems and a development division of FiSEC GmbH contributed to this expansion. Based on competitive compensation programs and a rewarding work environment with comprehensive education opportunities, the Group maintained the high motivation of its employees and moderate turnover rates in 2015.

ADVA Optical Networking aims to further improve profitability and achieve revenue growth above average market growth in 2016. The following factors, which have been discussed in the "Risk Report" under "Opportunity Identification", will play a major role:

Additional growth potential via Internet content providers

Internet content providers build new and larger data centers that need to be connected with optical transmission technology. The FSP 3000 CloudConnect™ has been specifically designed for this target group and ADVA Optical Networking expects additional growth from this application.

Encryption solutions are becoming increasingly important Large companies build geographically dispersed data protection and storage solutions, requiring optical transmission technology. The security package ConnectGuard™ brings competitive advantage and increased customer loyalty. ADVA Optical Networking expects solid growth in this segment with good profitability.

Carrier infrastructure investment is shifting towards the metro  Carrier infrastructure upgrades will continue in 2016. The investment focus is shifting towards metro networks, where ADVA Optical Networking is particularly well positioned.

- As of 2015, there are intensified signs of revived investment behavior from European network operators. This should have a positive effect on the business development.
- The NFV functions on the ADVA FSP 150, which were introduced in 2015, combined with the acquisition of Overture in January 2016, strengthen the visibility and the scope of ADVA Optical Networking in the future market for cloud access solutions. The company expects first commercial success with this technology by the second half of 2016.

Despite the current political and global economic turmoil, the global megatrends cloud and mobility continue to fuel growth of the network equipment industry and support ADVA Optical Networking's strategy to be a reliable partner for open network solutions. The combination of application-optimized innovation, short development and delivery times, a broad and growing customer base and a well-balanced distribution model differentiates ADVA Optical Networking from its peers and leads to a profitable business model.

Europe as a region has underinvested for several years and is poised for a comeback Positive outlook for 2016

Based on these factors, and taking into account planning parameters such as personnel and currency exchange rates, the Management Board of ADVA Optical Networking expects the Group to grow faster than the average market and increase revenues in a moderate double digit percentage range. Under this assumption, the Management Board also expects its 2016 pro forma operating income<sup>1</sup> to further increase moderately. Net liquidity<sup>2</sup> was reduced through the acquisition of Overture, completed in January 2016. The Management Board expects an increase from the new level in the lower double digit million Euro range by the end of the year. The Group will continue to selectively invest in product development, technology and revenue-generating opportunities. In addition, the Management Board of ADVA Optical Networking expects, due to the continued focus on innovation, quality and service, that customer satisfaction in 2016 will also be maintained at the record levels of the 2015 Net Promoter Score<sup>3</sup>. Actual results may differ materially from expectations if risks materialize or the underlying assumptions prove unrealistic. The major risks facing ADVA Optical Networking are discussed in the "Risk Report" section.

Meiningen, February 23, 2016

Brian Protiva

Christoph Glingener Ulrich Dopfer

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Every moment of every day, we're working to be the best we can possibly be, to add a little extra, to shine a light in the dark.

Marcello Forti, Sales

# Consolidated Statement of Financial Position

(in thousands of EUR)		Dec. 31,	Dec. 31,
Assets	Note	2015	2014
Current assets			
Cash and cash equivalents	(8)	93,850	83,877
Trade accounts receivable	(9)	70,379	54,030
Inventories	(10)	72,950	46,982
Tax assets	(22)	1,092	451
Other current assets	(11)	8,747	6,964
Total current assets		247,018	192,304
Non-current assets			
Finance leases	(12)	-	11
Property, plant and equipment	(12)	19,955	20,950
Goodwill	(12)	24,881	23,581
Capitalized development projects	(12)	62,439	56,438
Intangible assets acquired in business combinations	(12)	2,316	655
Other intangible assets	(12)	1,922	2,206
Deferred tax assets	(22)	29,133	25,677
Other non-current assets	(11)	3,871	3,015
Total non-current assets		144,517	132,533
Total assets		391,535	324,837

(in thousands of EUR)		Dec. 31,	Dec. 31,
Equity and liabilities	Note	2015	2014
Current liabilities			
Finance lease obligations		-	9
Financial liabilities	(13)	18,220	7,293
Trade accounts payable	(14)	43,721	33,028
Advance payments received		314	23
Other provisions	(16)	9,891	10,031
Tax liabilities	(22)	2,227	1,354
Deferred revenues		10,802	11,146
Other current liabilities	(14)	26,859	21,098
Total current liabilities		112,034	83,982
Non-current liabilities			
Financial liabilities	(13)	24,449	27,690
Provisions for pensions and similar employee benefits	(15)	4,048	5,684
Other provisions	(16)	1,632	828
Deferred tax liabilities	(22)	22,026	20,384
Deferred revenues		7,721	6,188
Other non-current liabilities	(14)	3,704	2,967
Total non-current liabilities		63,580	63,741
Total liabilities		175,614	147,723
Stockholders' equity entitled to the owners of the parent company	(17)		
Share capital		49,374	48,096
Capital reserve		310,645	307,914
Accumulated deficit		-175,350	-183,725
Net income		26,848	8,375
Accumulated other comprehensive loss		4,404	-3,546
Total stockholders' equity		215,921	177,114
Total equity and liabilities		391,535	324,837



# Consolidated Income Statement

(in thousands of EUR, except earnings per share and number of shares)	Note	2015	2014
Revenues	(18)	441,938	339,168
Cost of goods sold		-285,027	-221,092
Gross profit		156,911	118,076
Selling and marketing expenses		-56,493	-48,252
General and administrative expenses		-30,398	-27,139
Research and development expenses		-47,657	-40,547
Other operating income	(19)	5,000	6,736
Other operating expenses	(19)	-608	-522
Operating income		26,755	8,352
Interest income	(20)	49	89
Interest expenses	(15), (20)	-887	-1,356
Other financial gains and losses, net	(21)	2,159	1,142
Income before tax		28,076	8,227
Income tax (expense) benefit, net	(22)	-1,228	148
Net income entitled to the owners of the parent company		26,848	8,375
Earnings per share in EUR	(25)		
basic		0.55	0.17
diluted		0.55	0.17
Weighted average number of shares for calculation of earnings per share			
basic		48,567,501	48,041,233
diluted		49,199,331	48,368,438

# Consolidated Statement of Comprehensive Income

(in thousands of EUR)	Note	2015	2014
Net income entitled to the owners of the parent company		26,848	8,375
Items that possibly get reclassified to profit or loss in future periods			
Exchange differences on translation of foreign operations		9,959	6,705
Items that will not get reclassified to profit or loss in future periods			
Remeasurement of defined benefit plans	(15)	-2,009	-2,770
Total comprehensive income entitled to the owners of the parent company	(17)	34,798	12,310

Items in the statement above are disclosed net of tax. The income tax relating to each component of other comprehensive income is disclosed in note (17).

In 2015 and 2014, no items were reclassified (recycled) from comprehensive income to profit or loss.

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# Consolidated Cash Flow Statement

(in thousands of EUR)	Note	2015	2014
Cash flow from operating activities			
Income before tax		28,076	8,227
Adjustments to reconcile income before tax to net cash provided by operating activities			
Non-cash adjustments			
Amortization of non-current assets	(12)	37,309	33,572
Loss from disposal of property, plant and equipment and intangible assets	(12)	332	129
Stock compensation expenses	(33)	2,876	382
Other non-cash expenses		911	122
Foreign currency exchange differences		1,066	-3,058
Changes in assets and liabilities			
Decrease (increase) in trade accounts receivable		-16,349	950
Decrease (increase in inventories		-25,963	-4,497
Decrease (increase) in other assets		-2,659	-1,984
Increase (decrease) in trade accounts payable		10,693	6,513
Increase (decrease) in provisions		-1,418	7,303
Increase (decrease) in other liabilities		5,637	69
Income tax paid		-1,096	-1,542
Net cash provided by operating activities		39,415	46,186

Details on the preparation of the consolidated cash flow statement are included in note (24).

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# Consolidated Statement of Changes in Stockholders' Equity

	Share ca	apital				
(in thousands of EUR, except number of shares)	Number of shares	Par value	Capital reserve	Net income and accumulated deficit	Accumulated other comprehensive loss	Total stockholders' equity entitled to the owners of the parent company
Balance on January 1, 2014	48,022,827	48,023	307,131	-183,725	-7,481	163,948
Capital increase, including exercise of stock options	73,604	73	47			120
Stock options outstanding			736			736
Net income				8,375		8,375
Exchange differences on translation of foreign operations					6,705	6,705
Remeasurement of defined benefit plans					-2,770	-2,770
Total comprehensive income				8,375	3,935	12,310
Balance on December 31, 2014	48,096,431	48,096	307,914	-175,350	-3,546	177,114
Capital increase, including exercise of stock options	1,278,053	1,278	1,939			3,217
Stock options outstanding			792			792
Net income				26,848		26,848
Exchange differences on translation of foreign operations					9,959	9,959
Remeasurement of defined benefit plans					-2,009	-2,009
Total comprehensive income				26,848	7,950	34,798
Balance on December 31, 2015	49,374,484	49,374	310,645	-148,502	4,404	215,921

Details on changes in stockholders' equity are presented in note (17).

# Notes to the Consolidated Financial Statements

#### General Information

# (1) Information about the Company and the Group

ADVA Optical Networking SE (hereinafter referred to as "the Company"), Märzenquelle 1-3, 98617 Meiningen, Germany is a Societas Europaea. The Management Board authorized the consolidated financial statements for the year ended December 31, 2015 for issuance on February 23, 2016.

The ADVA Optical Networking Group (hereinafter referred to as "ADVA Optical Networking" or "the Group") develops, manufactures and sells optical and Ethernet-based networking solutions to telecommunications carriers and enterprises to deliver data, storage, voice and video services.

Telecommunications service providers, private companies, universities and government agencies worldwide use the Group's systems. ADVA Optical Networking sells its product portfolio both directly and through an international network of distribution partners.

# Significant Accounting Policies

# (2) Basic Principles for the Preparation of the Consolidated Annual Financial Statements

The Group's consolidated annual financial statements for the financial years ended December 31, 2015, and December 31, 2014, are prepared in accordance with the International Financial Reporting Standards (IFRS) published by the International Accounting Standards Board (IASB), as applicable in the European Union (EU) in consideration of Interpretations of the Financial Reporting Interpretations Committee (IFRIC) and the applicable additional German statutory regulations according to § 315a Abs. 1. The consolidated financial statements have been prepared under the historical cost convention, as modified by the valuation of certain derivative financial instruments and share-based compensation transactions at fair value through profit and loss.

The financial year correlates with the calendar year. The consolidated annual financial statements are presented in EUR. Unless otherwise stated, all amounts quoted are in thousands of EUR. The balance sheet is separated into current and non-current assets and liabilities. The classification of income and expenses in the income statement is based on their function within the entity. When items on the balance sheet and in the income statement are summarized in the interest of clarity, this is explained in the notes to the consolidated financial statements.

The annual financial statements of the individual subsidiaries of the holding company ADVA Optical Networking SE, as subsumed in the consolidated annual financial statements, are all prepared using the same accounting and valuation policies and the same balance sheet date.

# (3) Effects of New Standards and Interpretations

The accounting policies followed are consistent with these of the prior financial year, except for the adoption of new and amended IFRSs and interpretations (IFRICs) during the year.

# Standards, Interpretations and Amendments Applicable for the First Time in the Financial Year

In 2015, no new or amended IFRSs and IFRICs had to be applied.

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## Published, but not yet Applicable Standards, Interpretations and Amendments

The IASB and the IFRIC have issued further Standards and Interpretations in 2015 and previous years. Even though the first time application is partly mandatory for the financial year 2015 and following financial periods it is still subject to the adoption by the EU.

Standard	Торіс	First-time adoption*	Expected impact on the financial position and performance
IFRS 14	Regulatory Deferral Accounts (new standard)	Jan. 1, 2016	none
Amendments to IAS 1	Disclosure Initiative	Jan. 1, 2016	under review
Amendments to IAS 16 and IAS 38	Clarification of acceptable methods of depreciation and amortization	Jan. 1, 2016	under review
Amendments to IAS 28 and IFRS 10	Sale or Contribution of Assets between an Investor and its Associate or Joint Venture	not yet defined	none
Amendments to IFRS 11	Accounting for Acquisitions of Interests in Joint Operations	Jan. 1, 2016	none
Annual improvements 2014	The improvements include changes to: IFRS 5 – Non-current assets held for sale and discontinued operations IFRS 7 – Financial Instruments: Disclosure IAS 19 – Employee Benefits IAS 34 – Interim Financial Reporting	Jan. 1, 2016	under review
IFRS 15	Revenue from Contracts with Customers	Jan. 1, 2018	under review
IFRS 9 (2014)	Financial Instruments (new standard and amendments)	Jan. 1, 2018	under review
IFRS 16	Leases	Jan. 1, 2019	under review
Amendments to IAS 12	Recognition of deferred tax assets for unrealized losses	Jan. 1, 2017	under review
Amendments to IAS 7	Disclosure Initiative	Jan. 1, 2017	under review

<sup>\*</sup> To be applied in the first reporting period of a financial year beginning on or after this date.

The IASB completed the first step in its Disclosure Initiative with the publication of amendments to IAS 1 Presentation of Financial Statements. The amendments predominantly clarify existing IAS 1 requirements and interpretations.

The requirements of IAS 16 are amended to clarify that a depreciation method that is based on revenue generated by an activity that includes the use of an asset is not appropriate. The requirements of IAS 38 are amended to introduce a rebuttable presumption that a revenue-based amortization method for intangible assets is inap-

propriate for the same reasons as in IAS 16. In addition, guidance is introduced into both standards to explain that expected future reductions in selling prices could be indicative of a higher rate of consumption of the future economic benefits embodied in an asset.

The amendments to IAS 28 and IFRS 10 address an acknowledged inconsistency between the requirements in IFRS 10 and those in IAS 28, in dealing with the sale or contribution of assets between an investor and its associate or joint venture.

The amendments to IFRS 11 clarify the accounting for acquisitions of an interest in a joint operation in which the activity constitutes a business.

IFRS 15 specifies how and when revenues will be recognized based on a single principle based five-step model to be applied to all contracts with customers. Additionally, the standard defines comprehensive disclosure requirements. In 2015, the initial date for first-time adoption has been postponed by one year to January 1, 2018.

IFRS 9 (2014) in its final version replaces regulations formerly included in IAS 39 Financial Instruments: Recognition and Measurement and supersedes all regulations published previously. The Standard includes requirements for recognition and measurement, impairment, de-recognition and general hedge accounting. The regulations of IAS 39 for macro hedge accounting have not been replaced and will be dealt with by the IASB in a separate project.

On January 13, 2016, the IASB published the new IFRS 16 Leases. The new standards will replace IAS 17 and related Interpretations.

The IASB published amendments to IAS 12 and IAS 7 on January 19 and January 29, 2016, respectively.

Besides the described standards, the adoption of new or revised standards and interpretations – from today's perspective – will not have a material impact on the financial position and performance of the Company or the Group. The Group does not plan an early adoption of these standards.

# (4) Recognition and Measurement

### Cash and Cash Equivalents

Cash and cash equivalents as reported in the consolidated cash flow statement include short-term liquidity, i.e. cash and cash equivalents and short-term investments and securities with an initial time to maturity not exceeding three months. Bank overdrafts are disclosed in financial liabilities.

#### **Inventories**

Inventories are valued at the lower of cost or net realizable value. The cost of purchase is determined by the average method. Production costs include direct unit costs, an appropriate portion of necessary manufacturing overheads and production-related depreciation that can be directly assigned to the production process. Administrative and social insurance charges that can be assigned to production are also taken into account. Financing charges are not classified as part of the at-cost base. The net realizable value is the estimated selling price that could be realized on the closing date in the context of ordinary business activity, less estimated costs of completion and costs necessary to make the sale.

Inventory depreciation covers risks relating to slow-moving items or technical obsolescence. Where the reasons for previous writedowns no longer apply, these write-downs are reversed.

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## **Property, Plant and Equipment**

Property, plant and equipment is stated at historic cost less accumulated depreciation and accumulated impairment losses, if any. The present value of the expected cost for the decommissioning of the asset after its use is included in the cost of the respective asset if the recognition criteria for a provision are met.

Subsequent costs are included in the asset's carrying amount or recognized as separate asset only when it is probable that future economic benefits associated with this item will flow to the group and the cost can be measured reliably. All other repairs and maintenance are charged to the income statement during the financial period in which they are incurred.

Depreciation on property, plant and equipment is calculated on a straight-line basis over the estimated useful economic lives of the assets as follows:

Buildings	20 to 25 years
<ul> <li>Technical equipment and machinery</li> </ul>	3 to 4 years
<ul> <li>Factory and office equipment</li> </ul>	3 to 10 years

No regular depreciation applies for land and similar rights.

Leasehold improvements and other subsidies received under new or renewed operating lease contracts are accounted for according to SIC 15 (Operating leases – incentives). The benefit is recognized as a reduction of the rental expense over the contractual lease term. Leasehold improvements are capitalized as tangible assets and depreciated over the term of the lease on a straight-line basis.

An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in the income statement when the asset is derecognized.

The assets' residual values, useful economic lives and methods of depreciation are reviewed at each financial year-end and adjusted prospectively, if appropriate.

# **Intangible Assets**

Intangible assets acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is their fair value on the date of acquisition. Following initial recognition, intangible assets are carried at cost less any accumulated amortization and any accumulated impairment losses. Internally generated intangible assets, excluding capitalized development costs, are not capitalized, and expenditure is reflected in profit or loss in the year in which the expenditure is incurred.

The useful economic lives of intangible assets are assessed to be either finite or indefinite.

Intangible assets with finite lives are amortized on a straight-line basis over the expected useful economic lives of the assets as follows:

<ul> <li>Capitalized development projects</li> </ul>	3 to 5 years
<ul> <li>Intangible assets acquired in</li> </ul>	
business combinations	4 to 9 years
<ul> <li>Software and other intangible assets</li> </ul>	3 to 6 years

The amortization period and the amortization method for an intangible asset with a finite useful life are reviewed at each financial year-end. The amortization expense on intangible assets with finite lives is recognized in profit or loss in the expense category consistent with the function of the intangible asset. Amortization of purchased intangible assets and amortization of capitalized development projects is recognized in profit or loss in the positions stated in note (12).

Intangible assets with an indefinite useful life are not amortized. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal and value in use. The useful life of an intangible asset with an indefinite life is reviewed at least annually to determine whether the indefinite life assessment continues to be applicable. If not, the change in the useful life assessment from indefinite to finite is made on a prospective basis. There are no intangible assets with indefinite lives other than goodwill and development projects in progress.

Gains or losses arising from derecognition of an intangible asset are measured as the difference between the fair value less costs to sell and the carrying amount of the asset, and they are recognized in the income statement when the asset is derecognized.

### Goodwill

An unlimited useful life is assumed for goodwill acquired in the context of business combinations. Impairment reviews are performed at the cash generating unit level on the balance sheet date or when there is an indication that the goodwill may be impaired in accordance with IAS 36. Impairment losses on goodwill recognized in prior periods are not reversed. See note (12).

## Intangible assets acquired in business combinations

Intangible assets acquired in business combinations have a finite useful life. They are recognized at cost and amortized on a straight-line basis over estimated useful economic lives of five to nine years. They are tested for impairment if an indication exists that the recoverable amount of the asset may have decreased.

## Capitalized development projects

Development expenses for new products are capitalized as development projects if

- · they can be unambiguously assigned to these products,
- the products under development are technically feasible and can be marketed,
- there is reasonable certainty that the development activity will result in future cash inflows.
- ADVA Optical Networking intends and is able to complete and use the development project and
- there is the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset.

Capitalized development projects include all costs that can be directly assigned to the development process. Financing charges are capitalized if the development project represents a qualifying asset in the sense of IAS 23.

After initial recognition of a development project as an asset, measurement is at historical cost, less accumulated amortization and impairment. The straight-line method of amortization is used from the start of production through the estimated selling periods for the products developed (generally between three and five years). Completed as well as ongoing development projects are tested for impairment on the balance sheet date or when there is an indication of potential impairment. Impairment losses are recognized if appropriate.

Research costs are expensed as incurred according to IAS 38.

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#### **Impairment Test for Non-Financial Assets**

Intangible assets with indefinite useful economic lives are tested for impairment annually and whenever there is an indication for potential impairment, either individually or at the cash generating unit level. Intangible assets with finite useful economic lives are tested for impairment if an indication exists that the assets may have been impaired. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal and value in use. Prior impairments of non-financial assets (other than goodwill) are reviewed for possible reversal at each reporting date.

#### **Government Grants**

Government grants are recognized where there is reasonable assurance that the grant will be received and all related conditions will be met. When the grant relates to an expense item, it is recognized as income over the period necessary to match the grant on a systematic basis to the costs that it is intended to compensate. Where the grant relates to an asset, it is recognized as a reduction of purchase costs and released as a reduction of depreciation expense over the expected useful life of the related asset.

## **Borrowing Costs**

Borrowing costs directly attributable to the acquisition, construction or production of an asset that necessarily takes a substantial period to get ready for its intended use or sale (qualifying asset) are capitalized as part of the cost of the respective assets. If borrowing costs cannot be directly attributed to the acquisition, construction or production of an asset, an assessment is made on whether general borrowing costs should be recognized that would have been avoided if the asset was not acquired, constructed or produced. All other borrowing costs are expensed in the period they occur. Borrowing costs consist of interest and other costs that an entity incurs in connection with the borrowing of funds.

#### Leasing

Leasing contracts are classified as finance leases if substantially all risks and rewards, and with it the economic ownership, are transferred to the lessee. All other leasing transactions are classified as operating leases.

Property, plant and equipment acquired by ADVA Optical Networking through finance lease contracts is stated at the fair value of the leased property or, if lower, the present value of the future minimum lease payments when the contract commences. Finance lease contracts are then amortized using the straight-line method over the shorter of the leasing period or the estimated useful life of the assets. The correspondent liability is shown as finance lease obligation. The lease payment to the lessor is apportioned between finance charge and the reduction of the outstanding liability. The finance charge is allocated to each period during the lease term to produce a constant periodic rate of interest on the remaining liability.

Operating lease payments are recognized as an expense in the income statement on a straight-line basis over the lease term.

## **Employee Benefits**

ADVA Optical Networking maintains defined benefit plans in two countries based on the pensionable compensation of its employees and their length of service. Some of these pension plans are financed through external pension funds. Provisions for pensions are actuarially measured using the projected unit credit method for defined benefit pension plans, taking into account not only the pension obligations and vested pension rights known at the reporting date, but also expected future salary and benefit increases. The interest rate used to determine the present value of the obligations is generally set based on the yields on high-quality corporate bonds in the respective currency area. The return on existing plan assets and expenses for interest added to obligations are reported in finance costs. Service cost is classified as operating expenses. Past service cost not recognized due to a change in the pension plan shall immediately be recognized in the period in which the change took effect. Gains and losses arising from adjustments and changes in actuarial assumptions are recognized immediately and full in the period in which they occur within other comprehensive income. Further details on recognition and measurement of employee benefits is included in note (15).

In addition, ADVA Optical Networking grants defined contribution plans to employees of some Group entities in accordance with statutory or contractual requirements. The payments are made to state or private pension insurance funds. Under defined contribution plans, the employer does not assume any other obligations beyond the payment of contributions to an external fund. The amount of the future pension payments will exclusively depend on the contribution made by the employer (and their employees, if applicable) to the external fund, including income from the investment of such contributions. The amounts payable are expensed when the obligation to pay the amounts is established, and classified as operating expenses.

#### **Share-Based Compensation Transactions**

Employees (including senior executives) of ADVA Optical Networking receive remuneration in the form of share-based compensation transactions, whereby employees render services as consideration for equity instruments (equity-settled transactions) or they are granted stock appreciation rights, which are settled in cash (cash-settled transactions). Share-based compensation transactions are reported and valued in accordance with IFRS 2.

Share-based compensation transactions between different entities of ADVA Optical Networking are considered as either equity-settled or cash-settled share-based compensation transactions in the individual financial statements of ADVA Optical Networking SE. The Group entities employing the beneficiaries measure the received services as an equity-settled share-based compensation transaction. No repayment arrangements have been set up between the entities of ADVA Group.

# Equity-settled transactions

The cost of equity-settled transactions with employees is measured by reference to the fair value on the grant date. The fair value is determined by an external expert using an appropriate pricing model. See note (33) for further details.

The cost of equity-settled transactions is recognized, together with the corresponding increase in equity, straight-line over the period in which the relevant employees become fully entitled to the award (vesting date). Vesting date ends with the first exercise possibility. From that day, the employee is entitled to benefit. No expense is recognized for awards that do not ultimately vest, except for awards where vesting is conditional upon market condition, which are treated as vesting irrespective of whether or not market condition is satisfied, if all other performance conditions are satisfied.

Where the terms of an equity-settled transaction award are modified, the minimum expense recognized is the expense as if the terms had not been modified, if the original terms of the award are met. An additional expense is recognized for any modification that increases the total fair value of the share-based compensation transaction, or is otherwise beneficial to the employee as measured on the date of modification.

Where an equity-settled award is cancelled, it is treated as if it vested on the date of cancellation, and any expense not yet recognized for the award is recognized immediately. This includes any award where non-vesting conditions within the control of either the entity or the employee are not met. However, if a new award is substituted for the cancelled award, and designated as a replacement award on the date that it is granted, the cancelled and new awards are treated as if they were a modification of the original award, as described in the previous paragraph. All cancellations of equity-settled transactions are treated equally.

The dilutive effect of outstanding options is reflected in the computation of earnings per share. See note (25).

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#### Cash-settled transactions

The cost of cash-settled transactions is measured initially at fair value on the grant date. The fair value is expensed straight-line over the vesting period with recognition of a corresponding provision. The provision is re-measured on each balance sheet date up to and including the settlement date, with changes in the fair value recognized in profit or loss.

#### **Provisions**

Provisions are recognized when the Group has a present obligation (legal or constructive) as a result of a past event, when it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. The amount recognized as a provision represents the best estimate of the expenditure required to settle the present obligation.

Where the Group expects some or all of a provision to be reimbursed, for example under an insurance contract, the reimbursement is recognized as a separate asset but only when the reimbursement is virtually certain. The expense relating to any provision is presented in profit or loss, net of any reimbursement. If the effect of the time value of money is material, provisions are discounted using a current pre-tax rate that reflects, where appropriate, the risks specific to the liability. Where discounting is used, the increase in the provision over time is recognized in other financial gains and losses, net.

#### **Common Stock**

Common stock is disclosed in stockholder's equity.

Incremental costs directly attributable to the issuance of new ordinary shares or options are shown in equity as a deduction, net of tax, from the proceeds.

Where any Group company purchases the Company's equity share capital (treasury shares), the consideration paid, including any directly attributable incremental costs, is deducted from equity until the shares are cancelled or reissued. Where such shares are subsequently reissued, any consideration received, net of any directly attributable incremental transaction costs, is included in equity.

# Financial Instruments Financial Assets

Financial assets within the scope of IAS 39 are either classified as financial assets at fair value, affecting the income statement, loans and receivables, investments held to maturity, financial assets available for sale or as derivatives designated as hedging instruments in an effective hedge, as appropriate. The Group determines the classification of its financial assets at initial recognition.

All regular purchases and sales of financial assets are recognized on the trade date, i.e., the date ADVA Optical Networking committed to purchase the asset. Investments recognized at fair value are initially recognized at fair value plus transaction costs for all financial assets not carried at fair value through profit or loss. Financial assets carried at fair value through profit or loss are initially recognized at fair value, and transaction costs are expensed in the income statement.

The Group's financial assets include cash and short-term deposits, trade and other receivables, investments and derivative financial instruments.

#### Subsequent measurement

The subsequent measurement of financial assets depends on their classification as follows:

## Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss include financial assets designated upon initial recognition at fair value through profit or loss. This category includes derivative financial instruments entered into by the Group that are not designated as hedging instruments in hedge relationships as defined by IAS 39. Derivatives, including separated embedded derivatives, are also classified as held for trading unless they are designated as effective hedging instruments. Financial assets at fair value through profit or loss are carried in the statement of financial position at fair value with changes in fair value recognized in other financial gains and losses, net, in the income statement.

For its financial assets at fair value through profit or loss, ADVA Optical Networking evaluates whether the intention to sell them in the near-term is still appropriate or not. When the Group is unable to trade these financial assets due to inactive markets and management's intention to sell them in the foreseeable future significantly changes, in rare circumstances the Group may elect to reclassify these financial assets. The reclassification to loans and receivables, available-for-sale or held to maturity depends on the nature of the asset. This reclassification does not affect the evaluation of financial assets designated at fair value through profit or loss using the fair value option at designation.

## Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. After initial measurement, loans and receivables are subsequently carried at amortized cost using the effective interest rate method less allowances for impairment. Amortized cost is calculated considering any discount or premium at the time of the purchase. The amortized cost includes any fees that are an integral part of the effective interest rate and of the transaction costs. Gains and losses are recognized in the income statement at the time the loans and receivables are written off or impaired.

## Held-to-maturity investments

Non-derivative financial assets with fixed or determinable payments and fixed maturities are classified as held-to-maturity when the Group has the positive intention and ability to hold them to maturity. After initial measurement, held-to-maturity investments are measured at amortized cost using the effective interest method, less impairment. Amortized cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the effective interest rate. The effective interest rate amortization and losses arising from impairment are recognized in the income statement in other financial gains and losses, net.

#### Available-for-sale assets

The category available-for-sales assets includes all non-derivative financial assets that are not classified as "loans and receivables" or "held-to-maturity investments" or as items measured "at fair value through profit or loss".

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## Derecognition

ADVA Optical Networking derecognizes a financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) when:

- The rights to receive cash flows from the asset have expired.
- The Group has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a "pass-through" arrangement; and either (a) the Group has transferred substantially all the risks and rewards of the asset, or (b) the Group has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset.

When the Group has transferred its rights to receive cash flows from an asset or has entered into a "pass-through" arrangement, and has neither transferred nor retained substantially all the risks and rewards of the asset nor transferred control of the asset, the asset is recognized to the extent of the Group's continuing involvement in the asset. In that case, the Group also recognizes an associated liability. The transferred asset and the associated liability are measured on a basis that reflects the rights and obligations that the Group has retained. Continuing involvement that takes the form of a guarantee over the transferred asset is measured at the lower of the original carrying amount of the asset and the maximum amount of consideration that the Group could be required to repay.

# Impairment of financial assets

On each balance sheet date, ADVA Optical Networking assesses whether a financial asset is impaired. If there is objective evidence that an impairment loss on loans and receivables has been incurred, the amount of the loss is determined as the difference between the carrying amount of the financial asset and the present value of expected future cash flows. Impairment losses are recognized in the income statement. No financial assets were impaired in 2015 und 2014, respectively.

If the amount of the impairment loss decreases in subsequent periods, and if the decrease can be related to an event that had occurred after the impairment was recognized, the previously recognized impairment loss is reversed. The loss can only be reversed to the extent that the carrying value of the asset does not exceed its amortized cost on the date of impairment. Any subsequent reversal of an impairment loss affects the income statement.

For trade accounts receivable, a provision for impairment is made if there is objective evidence that ADVA Optical Networking will not be able to collect the full amount due under the original terms of the invoice. The carrying amount of the receivable is reduced through use of an allowance account. Impaired trade receivables are derecognized when they are assessed as uncollectible.

## **Financial Liabilities**

## Initial recognition and measurement

Financial liabilities within the scope of IAS 39 are classified as financial liabilities at fair value through profit or loss, loans and borrowings, or as derivatives designated as hedging instruments in an effective hedge, as appropriate. The Group determines the classification of its financial liabilities at initial recognition. All financial liabilities are recognized initially at fair value. Loans and borrowings are recognized net of directly attributable transaction costs.

ADVA Optical Networking's financial liabilities include trade and other payables, bank overdrafts, loans and borrowings and derivative financial instruments.

#### Subsequent measurement

The measurement of financial liabilities depends on their classification as follows:

# Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss include financial liabilities designated as at fair value through profit or loss upon initial recognition. Financial liabilities are classified as held for trading if they are acquired for selling in the near-term. This category includes derivative financial instruments entered into by the Group that are not designated as hedging instruments in hedge relationships as defined by IAS 39. Separated embedded derivatives are also classified as held for trading unless they are designated as effective hedging instruments. Gains or losses on liabilities held for trading are recognized in the income statement. ADVA Optical Networking has not designated any financial liabilities upon initial recognition as at fair value through profit or loss.

## Loans and borrowings

After initial recognition, interest-bearing loans and borrowings are subsequently measured at amortized cost using the effective interest rate method. Gains and losses are recognized in the income statement when the liabilities are derecognized as well as through the effective interest rate method (EIR) amortization process. Amortized cost is calculated by taking into account any discount or pre-

mium on acquisition and fees or costs that are an integral part of the EIR. The EIR amortization is included in interest expenses in the income statement.

#### Derecognition

A financial liability is derecognized when the obligation under the liability is discharged, cancelled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a derecognition of the original liability and the recognition of a new liability. The difference in the respective carrying amounts is recognized in the income statement.

# **Derivative Financial Instruments and Hedging Activities**

The Group entered into forward rate agreements to hedge foreign currency exposure of expected future cash flows. These derivatives are initially recognized at fair value on the date a derivative contract is entered into and are subsequently re-measured at their fair value through profit or loss.

The Group did not apply hedge accounting rules according to IAS 39 during the years ended December 31, 2015 and 2014.

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## **Revenue Recognition**

Revenue is recognized to the extent that it is probable that the economic benefits will flow to the Group and the revenue can be reliably measured. Revenue is measured at the fair value of the consideration received or receivable, net of discounts, rebates and other sales taxes or duty. The following specific recognition criteria must also be met before revenue is recognized:

# Sale of goods

Revenue from the sale of goods is recognized when the significant risks and rewards of ownership of the goods have passed to the buyer, usually on delivery of the goods.

Product returns that are estimated according to contractual obligations and past revenues statistics are recognized as a reduction of revenues.

#### Rendering of services

Revenues arising from the sale of services primarily derive from training, maintenance and installation services and are recognized when these services have been rendered. Installation services are recognized as revenue if the customer has approved the final installation. Generally, maintenance services are reported as deferred revenue and recognized as revenue straight-line over the contract period. Training is recognized as revenue immediately after rendering of the service.

In arrangements with a customer that include delivery of goods as well as rendering of services, the shipment of the goods is separated from the rendering of the services if the goods have a standalone value for the customer and the fair value of the service can be reliably determined. Both components of the transaction are measured at their respective fair value.

#### Cost of Goods Sold

The cost of goods sold comprises the costs incurred in the production and rendering of services. This item subsumes both the direct cost of materials and production directly assignable to a product and indirect (overhead) costs, including the depreciation of production equipment, amortization of production related intangible assets and write-downs on inventories. The cost of goods sold also includes appropriation to the warranty provision. Income from the reversal of write-downs on inventories reduces the cost of goods sold, which also includes amortization of purchased technologies.

# **Interest Income and Expenses**

For all financial instruments measured at amortized cost and interest-bearing financial assets classified as available-for-sale, interest income or expenses are recorded using the effective interest rate, which is the rate that exactly discounts the estimated future cash payments or receipts through the expected life of the financial instrument or a shorter period, where appropriate, to the net carrying amount of the financial asset or liability.

#### **Taxes**

## Current income tax

Current income tax assets and liabilities for the current and prior periods are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are these that are enacted or substantively enacted on the respective balance sheet date.

#### Deferred income tax

Deferred tax is provided using the liability method on temporary differences at the balance sheet date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes.

Deferred tax liabilities are recognized for all taxable temporary differences, except:

- where the deferred income tax liability arises from the initial recognition of goodwill or of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss; and
- in respect to taxable temporary differences associated with investments in subsidiaries, where the timing of the reversal of the temporary differences can be controlled and it is probable that the temporary differences will not reverse in the near future.

Deferred tax assets are recognized for all deductible temporary differences, carry forward of unused tax credits and unused tax losses, to the extent that it is probable that taxable profit will be available against which the deductible temporary differences, and the carry forward of unused tax credits and unused tax losses can be utilized, except:

- where the deferred tax asset relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss; and
- in respect of deductible temporary differences associated with investments in subsidiaries, deferred tax assets are recognized only to the extent that it is probable that the temporary differences will reverse in the foreseeable future and taxable profit will be available against which the temporary differences can be utilized.

The carrying amount of deferred tax assets is reviewed on each balance sheet date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilized. Unrecognized deferred tax assets are reassessed on each balance sheet date and are recognized to the extent that it has become probable that future taxable profit will allow the deferred tax asset to be utilized.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the year when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted on the balance sheet date. Future changes in tax rates are recognized on the balance sheet date if their impact is materially certain as part of the tax legislation process.

Deferred tax assets and deferred tax liabilities are offset, if a legally enforceable right exists to set off current tax assets against current income tax liabilities and the deferred taxes relate to the same taxable entity and the same taxation authority.

#### Earnings per Share

The Group calculates basic and diluted earnings per share in accordance with IAS 33. Basic earnings per share are calculated based on the weighted average number of no-par value shares outstanding during the reporting period. Diluted earnings per share are calculated based on the weighted average number of no-par value shares outstanding during the reporting period, but also including the number of no-par value shares that could come into existence if all stock options were exercised on the balance sheet date.

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## (5) Significant Accounting Judgments, Estimates and Assumptions

The preparation of the Group's financial statements requires management to make judgments, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities and the disclosure of contingent liabilities on the reporting date. However, uncertainty about these assumptions and estimates could result in outcomes that could require a material adjustment to the carrying amount of the asset or liability affected in the future. Assumptions used to make estimates are regularly reviewed. Changes in estimates only affecting one accounting period are only taken into account in that accounting period. In the case of changes in estimates that affect the current and future accounting periods, these are taken into account appropriately in the current and subsequent accounting periods.

Discussed below are the key judgments and assumptions concerning the future and other key sources of estimation and uncertainty on the balance sheet date that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year.

#### **Development Expenses**

Development expenses are capitalized in accordance with the accounting policy described in note (4). Initial capitalization of costs is based on management's judgment that technological and economic feasibility is confirmed, usually when a product development project has reached a defined milestone according to an established project management model. In determining the amounts to be capitalized, management makes assumptions regarding the expected future cash generation of the assets, discount rates to be applied and the expected period of benefits. See note (12) for the carrying amounts involved.

## **Impairment of Non-Financial Assets**

The Group assesses whether there are any indicators of impairment for all non-financial assets on each reporting date. Goodwill and other indefinite life intangibles are tested for impairment annually and at other times when such indicators exist. Other non-financial assets are tested for impairment when there are indicators that the carrying amounts may not be recoverable. When value-in-use calculations are undertaken, management must estimate the expected future cash flows from the asset or cash generating unit and choose a suitable discount rate in order to calculate the present value of these cash flows. See note (12) for the carrying amounts involved.

## **Pension Obligations**

Pension and similar post-employment obligations as well as the related expenses are recognized based on actuarial calculations. The actuarial valuation of the present value of pension obligations depends on a number of assumptions regarding the discount rate, the expected salary increase rate, the expected pension trend, and life expectancy. In the event that changes in the assumptions regarding the valuation parameters are required, the future amounts of the pension obligations as well as the pension benefit costs may be affected materially. For further details on the valuation of pension obligations, see note (15).

#### **Share-Based Compensation Transactions**

The Group measures the cost of equity-settled and cash-settled transactions with employees by reference to the fair value of the equity instruments on the date at which they are granted or on the balance sheet date. Estimating fair value requires determining the most appropriate valuation model for a grant of equity instruments, which is dependent on the terms and conditions of the grant. This also requires determining the expected life of the option, volatility and dividend yield, as well as further assumptions. See note (33) for the carrying amounts involved.

#### **Provisions**

Significant estimates are involved in the determination of provisions related to warranty costs and legal proceedings. The estimate of warranty claims is based on historic data and is extrapolated into the future. Legal proceedings often involve complex legal issues and are subject to substantial uncertainties. Accordingly, management exercises considerable judgment in determining whether there is a present obligation as a result of a past event at the end of the reporting period, whether it is more likely than not that such a proceeding will result in an outflow of resources and whether the amount of the obligation can be reliably estimated. Other provisions are described in note (16).

#### **Taxes**

Uncertainties exist with respect to the interpretation of complex tax regulations and the amount and timing of future taxable income. Given the wide range of international business relationships and the long-term nature and complexity of existing contractual agreements, differences arising between the actual results and the assumptions made, or future changes to such assumptions, could necessitate future adjustments to tax income and expenses already recorded. The Group establishes provisions, based on reasonable estimates, for possible consequences of audits by the tax authorities of the respective countries in which it operates. The amount of such provisions is based on various factors, such as experience of previous tax audits and differing interpretations of tax regulations by the taxable entity and the responsible tax authority. Such differences of interpretation may arise on a wide variety of issues depending on the conditions prevailing in the respective Group company's domicile.

Deferred tax assets are recognized for all unused tax losses to the extent that it is probable that taxable profit will be available to utilize these losses. Significant management judgment is required to determine the amount of deferred tax assets that can be recognized, based upon the likely timing and level of future taxable profits together with future tax planning strategies. See note (22) for the carrying amounts involved.

## (6) Principles of Consolidation, Scope of Consolidation and Shareholdings

Subsidiaries are all entities over which ADVA Optical Networking SE directly or indirectly has control. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. ADVA Optical Networking SE controls an entity when it is exposed to or has the rights to variable returns from its involvement and has the ability to affect those returns through its power to direct the activities of the entity.

Intercompany revenues, expenses, income, receivables and payables within the Group are netted.

Intercompany profits that arise from deliveries of products and services provided within the Group are eliminated.

## Business combinations

Business combinations from January 1, 2010 are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, measured at acquisition date fair value and the amount of any non-controlling interest in the acquiree. For each business combination, the acquirer measures the non-controlling interest in the acquiree either at fair value or at the proportionate share of the acquiree's identifiable net assets. Acquisition costs incurred are expensed.

When a Group company acquires a business, it assesses the financial assets and liabilities acquired for appropriate classification and designation in accordance with the contractual terms, economic circumstances and relevant conditions on the acquisition date. This includes the separation of embedded derivatives in host contracts by the acquiree.

If the business combination is achieved in stages, the acquisition date fair value of the acquirer's previously held equity interest in the acquiree is re-measured to fair value on the acquisition date through profit and loss.

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Any contingent consideration to be transferred by the acquirer will be recognized at fair value on the acquisition date. Subsequent changes to the fair value of the contingent consideration that is deemed an asset or liability will be recognized in accordance with IAS 39 either in profit or loss or as a change to other comprehensive income. If the contingent consideration is classified as equity, it shall not be re-measured until it is finally settled within equity.

Goodwill is initially measured at cost being the excess of the consideration transferred over the Group's net identifiable assets acquired and liabilities assumed. If this consideration is lower than the fair value of the net assets of the company acquired, the difference is recognized in profit or loss after reassessment.

After initial recognition, goodwill is measured at cost less any accumulated impairment losses. For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to each of the Group's cash generating units that are expected to benefit from the combination, irrespective of whether other assets or liabilities of the acquiree are assigned to those units.

Where goodwill forms part of a cash-generating unit and where part of the operation within that unit is disposed of, the goodwill associated with the operation disposed of is included in the carrying amount of the operation when determining the gain or loss on disposal of the operation. Goodwill disposed of in this circumstance is measured based on the relative values of the operation disposed of and the portion of the cash-generating unit retained.

## Investments in associates and in joint ventures

The equity method according to IAS 28 (Investments in Associates) is used to account for investments in entities in which ADVA Optical Networking SE holds 20% to 50% of the voting rights, either directly or indirectly, and over whose operating and financial policy decisions ADVA Optical Networking SE exercises significant influence (associated companies). The investment is initially recognized at cost, and the carrying amount is increased or decreased to recognize the investor's share of the profit or loss generated. The Group share of the profit or loss of investments accounted for by the equity method is recognized in the consolidated income statement, whereas the share of changes in the equity of investments accounted for by the equity method that has not been recognized in profit or loss is shown in the reserves of the consolidated equity. In case the Group share of losses exceeds the carrying amount of the investment accounted for by the equity method, no further losses are recognized at Group level. Goodwill relating to an investment accounted for by the equity method is included in the carrying amount of the investment. Upon loss of significant influence over an associate, the Group measures and recognizes any retaining investment at its fair value. Upon loss of significant influence, any difference between the carrying amount of the associate and the fair value of the retaining investment and proceeds from disposal are recognized in profit or loss.

## Scope of consolidation

The consolidated financial statements for the year ended on December 31, 2015, include the financial statements of ADVA Optical Networking SE plus all of the 15 (15 on December 31, 2014) wholly-owned subsidiaries listed below (hereafter collectively referred to as "the Group companies"):

					Share in equity			
(in thousands)			Equity	Net income (loss)	owned directly	owned in-directly		
ADVA Optical Networking North America, Inc., Norcross/Atlanta (Georgia), USA	USD	*	54,235	7,320	100%	-		
ADVA Optical Networking Ltd., York, United Kingdom	GBP	**	4,414	221	100%	-		
Oscilloquartz SA, Saint-Blaise, Switzerland	CHF	*	7,786	8,694	100%	-		
ADVA Optical Networking sp. z o.o., Gdynia, Poland	PLN	**	10,244	-2,264	100%	-		
ADVA Optical Networking Israel Ltd., Ra'anana/Tel Aviv, Israel	ILS	*	1,359	-7,912	100%	-		
ADVA Optical Networking (Shenzhen) Ltd., Shenzhen, China	CNY	**	42,777	5,758	100%	-		
Oscilloquartz Finland Oy, Espoo, Finland	EUR	****	-31	17	100%	-		
ADVA Optical Networking Trading (Shenzhen) Ltd., Shenzhen, China	USD	*	646	-33	-	100%		
ADVA Optical Networking Singapore Pte. Ltd., Singapore	SGD	**	2,670	105	100%	-		
ADVA Optical Networking Hong Kong Ltd., Hong Kong, China	HKD	**	1,540	728	-	100%		
ADVA Optical Networking (India) Private Ltd., Gurgaon, India	INR	***	10,382	6,631	1%	99%		
ADVA Optical Networking Serviços Brazil Ltda., São Paulo, Brazil	BRL	*	973	229	99%	1%		
ADVA Optical Networking Corp., Tokyo, Japan	JPY	*	79,348	2,946	100%	-		
ADVA Optical Networking AB, Kista/Stockholm, Sweden	SEK	**	1,362	184	100%	-		
ADVA Optical Networking AS i.l., Oslo, Norway	NOK	**	7,000	-1,228	100%	-		

<sup>\*</sup> Prepared in accordance with the International Financial Reporting Standards (IFRS) for the financial year ended December 31, 2015.

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<sup>\*\*</sup> Prepared in accordance with local commercial law for the financial year ended December 31, 2014.

<sup>\*\*\*</sup> Prepared in accordance with local commercial law for the financial year ended March 31, 2015.

<sup>\*\*\*\*</sup> Prepared in accordance with the International Financial Reporting Standards (IFRS) for the incomplete financial period starting July 23, 2015, and ended December 31, 2015.

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ADVA Optical Networking North America, Inc. (ADVA Optical Networking North America) is a R&D, production, sales and administration site with locations in Norcross (Georgia), Paramus (New Jersey) and Richardson (Texas), USA.

ADVA Optical Networking Ltd. (ADVA Optical Networking York) is a logistics and sales site in York, United Kingdom.

Oscilloquartz SA, Saint-Blaise, Switzerland (OSA Switzerland) is a R&D, production, sales and administration site in Saint-Blaise, Switzerland.

ADVA Optical Networking sp. z o.o. (ADVA Optical Networking Gdynia) is a R&D and administration site in Poland.

ADVA Optical Networking Israel Ltd., Ra'anana/Tel Aviv, Israel (ADVA Optical Networking Tel Aviv) is a R&D and administration entity in Israel.

ADVA Optical Networking (Shenzhen) Ltd. (ADVA Optical Networking Shenzhen) is a R&D and administration site in Shenzhen, China.

Oscilloquartz Finland Oy, Espoo, Finland (OSA Finland) is a R&D entity nearby Helsinki. In July 2015, ADVA Optical Networking SE acquired 100% of shares of this entity.

ADVA Optical Networking Trading (Shenzhen) Ltd. (ADVA Optical Networking Trading) is a logistics site in Shenzhen, China.

ADVA Optical Networking Singapore Pte. Ltd. (ADVA Optical Networking Singapore) is a sales office for the Asia-Pacific region, excluding Japan and South Korea. ADVA Optical Networking Singapore has three subsidiaries: in Gurgaon, India, ADVA Optical Networking (India) Private Ltd., in Hong Kong, China, ADVA Optical Networking Hong Kong Ltd. and in Shenzhen, China, ADVA Optical Networking Trading (Shenzhen) Ltd.

ADVA Optical Networking Hong Kong Ltd. (ADVA Optical Networking Hong Kong) in Hong Kong, China, is responsible for sales in Hong Kong.

ADVA Optical Networking (India) Private Ltd., Gurgaon, India (ADVA Optical Networking Gurgaon) is responsible for sales in the Indian sub-continent.

ADVA Optical Networking Serviços Brazil Ltda., São Paulo, Brazil (ADVA Optical Networking São Paulo) is a sales office for the Latin America region.

ADVA Optical Networking Corp. (ADVA Optical Networking Tokyo) is a sales site responsible for Japan and South Korea.

ADVA Optical Networking AB, Kista/Stockholm, Sweden (ADVA Optical Networking Stockholm) is a sales site operating in the Scandinavian region.

ADVA Optical Networking AS i.l. (ADVA Optical Networking Oslo) is a R&D site in Oslo, Norway. The entity stands in liquidation. Further information is included in note (36).

Changes in the scope of consolidation

#### **Acquisition of Time4 Systems Oy**

On July 23, 2015, ADVA Optical Networking SE acquired 100% of the share capital of Time4 Systems Oy, Espoo, Finland, for a purchase price of EUR 550 thousand. An amount of EUR 350 thousand of the purchase price was due in cash on the effective date of the acquisition. The remaining amount of EUR 200 thousand will become due in cash in two tranches if specified sales volumes are reached. Furthermore, additional expenses of the acquisition immediately recognized in general and administrative expenses amounted to EUR 69 thousand.

At the date of the acquisition, Time4 Systems Oy employed five employees, focused on the development of ultra-compact synchronization solutions. The underlying technology will further strengthen the Group's position in the market for synchronization and timing solutions.

The purchase price allocation according to IFRS 3 performed on July 23, 2015, included in the consolidated financial statements for 2015 incorporates the total purchase price as well as opening balance sheet according to IFRS. During the course of the consolidation, a technology was recognized. The remaining excess purchase price is classified as goodwill and mainly represents the fair value of the assembled workforce of Time4 Systems Oy. No further fair value adjustments of assets, liabilities and contingent assets acquired applied.

The expected remaining useful life of the purchased technology is 5 years.

The fair values of acquired assets and liabilities at the date of the acquisition and carrying amounts immediately prior to the date of the acquisition comprise as follows:

(in thousands of EUR)	Carrying amount	Fair value at the date of the acquisition
Cash and cash equivalents	0	0
Purchased technology	-	636
Other current and non-current assets	58	58
Deferred tax liability	-	-127
Other current and non-current liabilities	-106	-106
Net assets	-48	461
Goodwill	-	89
Total purchase price	-	550

The net cash outflow from the acquisition in 2015 comprises as follows:

Net cash outflow from acquisition	-350
Cash paid in acquisition	-350
Cash and cash equivalents acquired from Time4 Systems Oy	0
(in thousands of EUR)	

From the date of acquisition, Time4 Systems Oy has not contributed to revenues and contributed negative EUR 501 thousand to the net income of the Group. If the acquisition of Time4 Systems Oy had been effective on January 1, 2015, the Group's net income would have been EUR 563 thousand lower while revenues would have been unchanged.

On September 24, 2015, the company has been renamed to Oscilloquartz Finland Oy (OSA Finland).

## Acquisition of a Development Division of FiSEC GmbH

On December 1, 2015, ADVA Optical Networking SE acquired materially all assets of a development division of FiSEC GmbH, Meiningen, Germany (asset deal) at a total purchase price of EUR 1,365 thousand. An amount of EUR 255 thousand of the purchase price was due in cash on the effective date of the acquisition and has been paid out accordingly. Two remaining tranches of EUR 455 thousand and EUR 290 thousand are due in cash beginning of January 2016 and latest in January 2017, respectively. The remaining amount of EUR 365 thousand will become due in cash if specified sales volumes are reached in quarterly tranches until end of 2017. The contingent part of the purchase price amounts to 15% of the margin achieved by ADVA Optical Networking in 2016 and 2017 from expected sales of specific products. Furthermore, additional expenses of the acquisition immediately recognized in general and administrative expenses amounted to EUR 55 thousand.

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At the date of the acquisition, the development division employed seven employees, focused on the development of optical monitoring units for fiber networks. The underlying technology will further strengthen the Group's position in the market for monitoring solutions for optical data transport technology. The employees were transferred to ADVA Optical Networking SE effective December 1, 2015.

The purchase price allocation according to IFRS 3 performed on December 1, 2015, included in the consolidated financial statements for 2015 incorporates the total purchase price. During the course of the consolidation, a technology was recognized. The remaining excess purchase price is classified as goodwill and mainly represents the fair value of the assembled workforce transferred to ADVA Optical Networking SE. No further fair value adjustments of assets, liabilities and contingent assets acquired applied.

The expected remaining useful life of the purchased technology is 4.5 years.

The fair values of acquired assets and liabilities at the date of the acquisition and carrying amounts immediately prior to the date of the acquisition comprise as follows:

(in thousands of EUR)	Carrying amount	Fair value at the date of the acquisition
Property, plant and equipment	30	30
Purchased technology	-	1,307
Net assets	30	1,337
Goodwill	-	28
Total purchase price	-	1,365

ADVA Optical Networking assumes that the acquisition of FiSEC GmbH did not have a significant impact on the consolidated net income in 2015 as the omission of expenses for several prior existing agreements will be compensated by additional personnel expenses for the employees that have been transferred to ADVA Optical Networking SE.

## **ADVA Optical Networking Riyadh Liquidation**

In 2015, the liquidation of ADVA Optical Networking LLC. i.l., Riyadh, Saudi Arabia (ADVA Optical Networking Riyadh) has been finalized. The company has been deconsolidated. The relevant deconsolidation result of positive EUR 1 thousand is included in other operating income.

#### Investments in associates and joint ventures

ADVA Optical Networking North America has a 44.5% share in OptXCon Inc., Raleigh (North Carolina), USA. The Company concluded operations in 2002 but has not yet been deregistered. The investment is fully depreciated. There are no local financial statements available.

## (7) Foreign Currency Translation

The functional currency of each Group company is the currency of the main economic environment in which the company operates. The reporting currency of ADVA Optical Networking's consolidated financial statements is the functional currency of the parent company, ADVA Optical Networking SE (EUR).

Transactions in foreign currencies are initially recorded by the Group entities at their respective functional currency rates prevailing on the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are retranslated at the functional currency spot rate of exchange ruling on the reporting date. Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rates on the dates of the initial transactions. Non-monetary items measured at fair value in a foreign currency are translated using the exchange rates on the date when the fair value is determined.

The assets and liabilities of foreign operations are translated into EUR at the rate of exchange prevailing on the reporting date, and their income statements are translated at the average rate for the reporting period. The exchange differences arising from the translation are recognized in accumulated other comprehensive income. On disposal of a foreign operation, the component of accumulated

other comprehensive income relating to that particular foreign operation is recognized in the income statement.

Any goodwill arising on the acquisition of a foreign operation and any fair value adjustments to the carrying amount of assets and liabilities arising on acquisition are treated as assets and liabilities of the foreign operation and translated at the closing rate.

## The relevant currency translation rates to EUR are listed below:

			Average rate for the period	Average rate for the period
	Closing rate on Dec. 31, 2015	Closing rate on Dec. 31, 2014	Jan. 1 to Dec. 31, 2015	Jan. 1 to Dec. 31, 2014
USD	1.0926	1.2160	1.1113	1.3290
GBP	0.7380	0.7823	0.7268	0.8064
CHF	1.0814	1.2028	1.0742	1.2116*
PLN	4.2400	4.3103	4.1824	4.1855
ILS	4.2606	4.7520	4.3191	4.7452
CNY	7.0912	7.5443	6.9808	8.1893
SGD	1.5449	1.6085	1.5267	1.6830
HKD	8.4688	9.4340	8.6155	10.3072
INR	72.5163	77.1605	71.2758	81.1030
BRL	4.2589	3.2394	3.6919	3.1232
JPY	131.5790	145.3488	134.4086	140.4494
SEK	9.1878	9.4742	9.3580	9.1000
NOK	9.6163	9.0416	8.9486	8.3584

<sup>\*</sup> Oscilloquartz SA was acquired on April 4, 2014. The average exchange rate for 2014 considers the period from April 1 to December 31, 2014.

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# Notes to the Consolidated Statement of Financial Position

## (8) Cash and Cash Equivalents

Cash and cash equivalents on December 31 include the following amounts to which ADVA Optical Networking has only limited access:

(in thousands of EUR)	2015	2014
Amounts pledged as security	148	121

On December 31, 2015, cash of EUR 2,841 thousand (December 31, 2014: EUR 4,519 thousand) is held in China and is subject to local exchange control regulations. These local exchange control regulations provide for restrictions on exporting capital from the country, other than through normal dividends.

Cash at banks earns interest at floating rates based on daily bank deposit rates.

Cash equivalents are invested for varying periods of between one day and three months, depending on the immediate cash requirements of the Group, and earn interest at the respective short-term deposit rates.

On December 31, 2015, the Group had EUR 8,000 thousand (on December 31, 2014: EUR 8,000 thousand) of undrawn committed borrowing facilities available in respect of which all conditions had been met.

## (9) Trade Accounts Receivable

Trade accounts receivable are non-interest-bearing and are due within 30 to 120 days in general. For specific projects, other payment terms may be agreed.

Gross trade accounts receivable and depreciation of trade accounts receivable have developed as follows:

(in thousands of EUR)	2015	2014
Gross trade accounts receivable	71,962	55,816
Depreciation		
On January 1	1,786	672
Increase	607	2,026
Usage	-16	-347
Release	-937	-608
Exchange rate differences	143	43
On December 31	1,583	1,786
Net trade accounts receivable	70,379	54,030

On December 31, 2015 and 2014, there was no material off balance sheet credit risk.

Depreciation of trade accounts receivable is based on an assessment of balances past their due date. On December 31, trade accounts receivable past due analyzes as follows:

(in thousands of EUR)	2015 gross value	2015 depreciation	2014 gross value	2014 depreciation
Less than 3 months	9,954	-	5,815	-
3 to 6 months	633	55	1,837	77
6 to 12 months	864	433	623	469
More than 1 year	1,095	1,095	1,240	1,240
	12,546	1,583	9,515	1,786

On December 31, 2015, EUR 10,963 thousand of trade receivables are past due but not impaired (prior year: EUR 7,729 thousand). Trade accounts receivable that are not overdue were not impaired in 2015 and 2014, respectively.

A Group company entered into a supplier finance agreement, whereby it can finance receivables from a specific customer for a period of up to 120 days. Credit risks and settlement risks are transferred to the financing institution. The Group paid an annual fee amounting to LIBOR plus 0.92% for transactions until August 31, 2014 and LIBOR plus 0.75% from September 1, 2014 on the volume of receivables transferred. In 2015, the Group incurred interest expenses of EUR 230 thousand pertaining to this arrangement (prior year: EUR 207 thousand).

Another Group company entered into three supplier finance agreements. The agreements entitle the Group company to finance receivables from a specific customer with a maturity of minimum 45 days. ADVA Optical Networking pays annual interest amounting to EURIBOR plus 3% on the volume of the receivables transferred. In addition, a service charge of EUR 500 per transaction applies. These agreements expired on April 30, 2015. In 2015, ADVA Optical Networking incurred no interest expenses (prior year: EUR 90 thousand) pertaining to this agreement.

On September 24, 2014, the Group entered into a new agreement on the sale of accounts receivable. The agreements entitle the Group company to finance receivables from specific customers for a period of up to 45 or 60 days. ADVA Optical Networking pays annual interest amounting to EURIBOR plus 3% on the volume of the receivables transferred. In addition, a service charge of EUR 500 per transaction applies. The agreement applies to receivables that are due latest on December 31, 2015. In 2015, ADVA Optical Networking incurred interest expenses of EUR 2 thousand (prior year: EUR 7 thousand).

#### (10) Inventories

The table below summarizes the composition of inventories on December 31:

	72,950	46,982
Finished goods	53,165	32,530
Work in progress	5,306	3,653
Raw materials and supplies	14,479	10,799
(in thousands of EUR)	2015	2014

In 2015, depreciation of inventories amounting to EUR 3,028 thousand (prior year: EUR 3,450 thousand) was recognized as an expense within cost of goods sold. This amount includes reversals of earlier write-downs in the amount of EUR 475 thousand (prior year: EUR 642 thousand) due to higher selling and input prices.

In 2015 and 2014, material costs of EUR 217,718 thousand and EUR 154,073 thousand, respectively, have been recognized.

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## (11) Other Current and Non-Current Assets

On December 31, other current assets can be analyzed as follows:

	8,747	6,964
Total current financial assets	4,075	3,263
Other	442	241
Positive fair values of derivative financial instruments	1,833	825
Government grant allowances for research projects	1,800	2,197
Financial assets		
Total current non-financial assets	4,672	3,701
Other	1,459	1,465
Receivables due from tax authorities	1,617	869
Prepaid expenses	1,596	1,367
Non-financial assets		
(in thousands of EUR)	2015	2014

Other current assets are non-interest-bearing and are generally due within 0 to 60 days.

Further disclosures on derivative financial instruments are given in note (21).

On December 31, other non-current assets can be analyzed as follows:

(in thousands of EUR)	2015	2014
Non-financial assets		
Other	-	131
Total non-current non-financial assets	-	131
Financial assets		
Investments	1,198	1,198
Government grant allowances for research projects	1,453	862
Other	1,220	824
Total non-current financial assets	3,871	2,884
	3,871	3,015

On December 31, 2015, government grants for twelve research projects are recognized (December 31, 2014: fifteen research projects). These public grants relate to programs promoted by the EU and national governments.

Investments relate to 11% of the shares of Saguna Networks Ltd. Nesher, Israel, held by ADVA Optical Networking SE (prior year: 11% of the shares).

The classification of financial instruments according to IAS 39 is included in note (27).

## (12) Fixed Assets

The following changes in fixed assets were recorded in 2015 and 2014:

(in thousands of EUR)		Historical cost							Accumulated depreciation						Net bo	ok values
	Jan. 1, 2015	Addi- tions	Disposals/ retire- ments	Reclas- sifica- tions	Currency translation adjustments	Change in scope of consolidation	Dec. 31, 2015	Jan. 1, 2015	Depreciation of the period	Depreciation on disposals/ retirements	Reclas- sifications	Currency translation adjustments	Change in scope of consolidation	Dec. 31, 2015	Dec. 31, 2015	Dec. 31, 2014
Finance leases	2,583	_	-37	-	3	-	2,549	2,572	2	-28	-	3	-	2,549	_	11
Property, plant and equipment																
Land and buildings	12,795	1,018	-48	-	302	-	14,067	6,303	804	-35	-	172	-	7,244	6,823	6,492
Technical equipment and machinery	63,084	4,985	-2,122	48	2,673	27	68,695	50,744	7,220	-1,957	11	2,079	-	58,097	10,598	12,340
Factory and office equipment	11,978	1,426	-1,414	-6	502	3	12,489	10,008	1,190	-1,401	-13	389	-	10,173	2,316	1,970
Assets under construction	148	369	-259	-53	13	-	218	-	-	-	-	-	-	-	218	148
	88,005	7,798	-3,843	-11	3,490	30	95,469	67,055	9,214	-3,393	-2	2,640	-	75,514	19,955	20,950
Intangible assets																
Goodwill	73,720	-	-	-	3,340	117	77,177	50,139	-	-	-	2,157	-	52,296	24,881	23,581
Capitalized development projects	156,143	32,071	-	-	1,421	-	189,635	99,705	26,396	-	-	1,095	-	127,196	62,439	56,438
Intangible assets acquired in business combinations	34,858	_	_	_	2,795	1,943	39,596	34,203	346	_	_	2,731	_	37,280	2,316	655
			-		·	·										
Other intangible assets	54,420	1,038	-6	11	174	2.060	55,637	52,214	1,351	-6	2 <b>2</b>	154	-	53,715	1,922	2,206
Financial investments  Investments in associates and	319,141	33,109	-6	11	7,730	2,060	362,045	236,261	28,093	-6	2	6,137	-	270,487	91,558	82,880
joint ventures	1,047	-	-	-	118	-	1,165	1,047	-	-	-	118	-	1,165	-	-
	1,047 410,776	40,907	-3,886		118	2,090	1,165 461,228	1,047 306,935	37,309	-3,427	<u>-</u>	8,898	<u>-</u>	1,165 349,715	111.513	103,841



(in thousands of EUR)				Histori	cal cost					Accur	nulated depi	eciation			Net book values	
	Jan. 1, 2014	Addi- tions	Disposals/ retire- ments	Reclas- sifica- tions	Currency translation adjustments	Change in scope of consolidation	Dec. 31, 2014	Jan. 1, 2014	Depreciation of the period	Depreciation on disposals/ retirements	Reclas- sifications	Currency translation adjustments	Change in scope of consolidation	Dec. 31, 2014	Dec. 31, 2014	Dec. 31, 2013
Finance leases	2,601	_	-21	-	3	-	2,583	2,585	5	-21	-	3	_	2,572	11	16
Property, plant and equipment																
Land and buildings	12,148	326	-	-	321	-	12,795	5,329	800	-	-	174	-	6,303	6,492	6,819
Technical equipment and machinery	56,363	5,393	-9,481	136	2,372	8,301	63,084	43,246	6,617	-9,283	-	1,958	8,206	50,744	12,340	13,117
Factory and office equipment	10,615	1,072	-3,072	4	449	2,910	11,978	8,779	1,018	-3,063	-	387	2,887	10,008	1,970	1,836
Assets under construction	94	175	-	-130	9	-	148	-	-	-	-	-	-	-	148	94
	79,220	6,966	-12,553	10	3,151	11,211	88,005	57,354	8,435	-12,346	-	2,519	11,093	67,055	20,950	21,866
Intangible assets																
Goodwill	73,505	-	-5,430	-	2,844	2,801	73,720	53,630	-	-5,430	-	1,939	-	50,139	23,581	19,875
Capitalized development projects	127,668	27,193	-	-	1,282	-	156,143	75,588	22,968	-	-	1,149	-	99,705	56,438	52,080
Intangible assets acquired in business combinations	31,706	-	-	-	2,826	326	34,858	30,694	691	-	-	2,818	-	34,203	655	1,012
Other intangible assets	53,887	1,988	-1,984	-10	155	384	54,420	52,200	1,473	-1,983	-	140	384	52,214	2,206	1,687
	286,766	29,181	-7,414	-10	7,107	3,511	319,141	212,112	25,132	-7,413	-	6,046	384	236,261	82,880	74,654
Financial investments																
Investments in associates and joint ventures	924			_	123	_	1,047	924			_	123	_	1,047		
Joint Ventures	924				123		1,047	924	_	_		123		1,047	_	_
		36,147	-19,988	-	10,384	14,722	410,776		33,572	-19,780	-	8,691		306,935	103,841	96,536

#### **Finance Leases**

The Group has no financial obligations arising from finance lease agreements for factory and office equipment (prior year: EUR 9 thousand).

#### Property, Plant and Equipment

The classification and changes in property, plant and equipment are shown in the analysis of changes in fixed assets.

In 2015 and 2014, there were neither impairments nor write-backs of property, plant and equipment impaired in prior years.

In 2015, the Group received government grants for property, plant and equipment amounting to EUR 126 thousand (prior year: nil). Based on grant allowances EUR 94 thousand (prior year: EUR 126 thousand) allowances have been deducted from historical costs in 2015.

#### Goodwill

The table below shows the composition of goodwill on December 31, as well as the cash-generating unit to which the goodwill is allocated for impairment testing:

(in thousands of EUR)	2015	2014
FirstFibre Ltd. (ADVA Optical Networking York)	6,841	6,841
Cellware GmbH (ADVA Optical Networking SE plus)	481	481
Covaro Networks Inc. (ADVA Optical Networking SE plus)	10,150	10,150
Movaz Networks Inc. (ADVA Optical Networking North America)	4,448	4,448
Gryfsoft sp. z o.o. (ADVA Optical Networking SE plus)	130	130
Biran High-Tech Advisors Ltd. (ADVA Optical Networking SE plus)	277	277
Oscilloquartz SA (OSA Switzerland)	2,801	2,801
Time4 Systems Oy (ADVA Optical Networking SE plus)	89	-
FiSEC GmbH (ADVA Optical Networking SE plus)	28	-
Effect of foreign currency translation	-364	-1,547
	24,881	23,581

## Impairment of goodwill

In 2015 and 2014, no impairment of goodwill was recognized.

## Key assumptions used in impairment testing

Due to the pooling of all technologies in ADVA Optical Networking SE and the related adjustment of the tax transfer pricing agreements, the definition of the relevant cash-generating units and corresponding allocation of goodwill was revised in 2015. All entities, which are largely capable to generate revenues independently based on own customer relationships and own distribution channels are considered as separate cash-generating units. All dependent development service providing and sales service providing en-

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tities are considered together with the ADVA Optical Networking SE in one combined cash-generating unit going forward (ADVA Optical Networking SE plus) as ADVA Optical Networking as owner of all technologies is responsible for future developments and utilization. For impairment test purposes goodwill is generally allocated to the cash-generating unit in which the subsidiary is included, on which acquisition the goodwill has been recognized. The cash-generating units are ADVA Optical Networking SE plus, ADVA Optical Networking York, ADVA Optical Networking North America and OSA Switzerland.

On December 31, 2015 and 2014, the value in use of the good-will was calculated based on future cash flows (discounted-cash-flow-method). The calculation is most sensitive to the following assumptions:

- Gross margins
- Discount rates
- Raw material prices
- · Market share expected

Cash flows include the projected cash flows for the three subsequent years as per the approved budget and three-year planning for gross margins, market share and raw material prices. For further periods, a perpetual income is estimated based on nil growth with inflation offset. The discount rate used for the calculation is a pre-tax rate. It considers the specific risk of each Group company and is calculated according to the Capital Asset Pricing Model (CAPM). The cost of equity is composed of a risk-free interest rate and a specific risk mark-up calculated as the difference of the average market rate of return and the risk-free interest rate multiplied with the specific risk related to the Company (beta coefficient). The beta coefficient is calculated on a peer group basis. The calculation uses pre-tax discount rates depending on the different cash generating units.

Pre-tax discount rate	7.7% to 9.7%
Risk-free interest rate	1.14% on average
Risk mark-up	6.0%
Re-levered Beta coefficient	
(weighted average of the peer group)	1.06

#### Sensitivity analysis

The implications of adverse changes on the key assumptions for the recoverable amount are discussed below. Each key assumption is considered in turn, even though there are dependencies between the assumptions:

- Gross margin a reduction of more than 5.7 percentage points of the expected average gross margin over the planning period would result in an impairment loss in the unit ADVA Optical Networking SE plus.
- Discount rate an increased pre-tax discount rate of more than 12.3 percentage points would result in an impairment loss in the unit OSA.
- Growth rate a growth reduction of more than 68.6% would result in an impairment loss in the unit ADVA Optical Networking SE plus.

## Capitalized Development Projects, Intangible Assets Acquired in Business Combinations and Other Intangible Assets

In 2015 borrowing costs of EUR 360 thousand (2014: EUR 100 thousand) were capitalized related to development projects with an expected duration of more than 12 months. Borrowing costs were capitalized at the weighted average rate of the financial liabilities of 2.9%

Intangible assets acquired in business combinations includes the capitalized technologies from the acquisitions of Biran amounting to EUR 210 thousand (prior year: EUR 283 thousand), Time4 Systems amounting to EUR 584 thousand (prior year: nil) and FiSEC amounting to EUR 1.283 thousand (prior year: nil) as well as an acquired customer relationship asset from Oscilloquartz amounting to EUR 239 thousand (prior year: EUR 281 thousand). The net book value of Covaro technology has been fully amortized in 2015 (prior year: EUR 91 thousand). The net book value of Biran technology will be fully amortized in two years. The net book values of Time4 Systems technology and FiSEC technology will both be fully amortized in 4.5 years. The net book value of acquired customer relationship asset of Oscilloquartz will be fully amortized in three years.

Other intangibles assets mainly include licenses and software. In the income statement, amortization of capitalized development projects and amortization of purchased technology is included in cost of goods sold. Amortization of purchased customer relationship assets is included in selling and marketing expenses.

The amortization of intangible assets acquired in business combinations is related to Covaro, Biran, Time4 Systems and FiSEC amounting to EUR 91 thousand, EUR 104 thousand, EUR 53 thousand and EUR 24 thousand respectively, (prior year: Covaro EUR 547 thousand and Biran EUR 95 thousand, respectively) as well as acquired customer relationship asset of Oscilloquartz amounting to EUR 74 thousand (prior year: EUR 49 thousand).

In 2015 and 2014, no impairment of intangible assets with finite useful economic lives was recognized.

The methodology for calculating impairment is the same as the one used for goodwill impairment testing. The key assumptions and key sensitivities are also the same.

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## (13) Financial Liabilities

The tables below detail financial liabilities and their maturity:

				Maturity						Maturity	
(in thousands of EUR)	Dec. 31, 2015	Interest terms	≤12 months	13 to 36 months	> 36 months	(in thousands of EUR)	Dec. 31, 2014	Interest terms	≤12 months	13 to 36 months	> 36 months
IKB Deutsche Industriebank loans*	156**	Fixed rate, subsidized***	156	-	-	IKB Deutsche Industriebank loans*	469**	Fixed rate, subsidized ***	313	156	-
	417	Fixed rate, subsidized***	417	-	-		1,250	Fixed rate, subsidized ***	833	417	-
	15,596	Fixed rate, subsidized***	6,147	9,449	-		21,821	Fixed rate, subsidized ***	6,147	12,539	3,135
HSBC loan*	15,000	Fixed rate, subsidized***	-	7,500	7,500						
Portigon AG bonded loan*	11,500	Floating rate based on 3M EURIBOR	11,500	-	-	Portigon AG bonded loan*	11,443	Floating rate based on 3M EURIBOR	-	11,443	-
Total financial liabilities	42,669		18,220	16,949	7,500	Total financial liabilities	34,983		7,293	24,555	3,135

<sup>\*</sup> Key covenants refer to the Group's year-end debt/equity ratio and to the quarter-end net liquidity.

<sup>\*\*</sup> At the end of 2015, the IKB Deutsche Industriebank loan is secured by a registered land charge without certificate amounting to EUR 5,581 thousand (end of 2014: EUR 5,581 thousand) on the production and development site in Meiningen.

<sup>\*\*\*</sup> Subsidized by the German Reconstruction Loan Company (Kreditanstalt für Wiederaufbau, KfW).

The interest rate charged for interest-bearing financial liabilities during 2015 ranged between 1.40% and 2.75% p.a. on average.

In December 2015, ADVA Optical Networking SE entered into a EUR 15,000 thousand loan agreement with HSBC. The loan has a 5-year maturity and a fixed interest rate of 1.40% per annum. The loan principal will be repaid in 16 equal instalments of EUR 938 thousand per guarter commencing Q1 2017.

In December 2015, ADVA Optical Networking SE terminated the bonded loan of Portigon AG prior to maturity. The loan will be repaid in January 2016.

The fair value of the financial liabilities is stated in note (27).

## (14) Trade Accounts Payable and Other Current and Non-Current Liabilities

The trade accounts payable are non-interest-bearing and generally due within 30 to 90 days.

Other current liabilities on December 31 analyze as follows:

(in thousands of EUR)	2015	2014
Non-financial liabilities		
Liabilities to employees for vacation	1,093	841
Liabilities due to withheld wage income tax and social security contribution	2,220	1,656
Liabilities due to tax authorities	2,385	2,107
Obligations from subsidized research projects	1,714	1,997
Other	1,562	1,003
Total current non-financial liabilities	8,974	7,604
Financial liabilities		
Liabilities to employees for variable compensation and payroll	16,133	12,833
Liabilities related to other share-based compensation instruments	-	76
Negative fair values of derivative financial instruments	41	-
Other	1,711	585
Total current financial liabilities	17,885	13,494
	26,859	21,098

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On December 31, other non-current liabilities include:

(in thousands of EUR)	2015	2014
Non-financial liabilities		
Obligations from subsidized research projects	1,681	950
Other	1,265	1,753
Total non-current non-financial liabilities	2,946	2,703
Financial liabilities		
Other	758	264
Total non-current financial liabilities	758	264
	3,704	2,967

On December 31, 2015, other non-current non-financial liabilities primarily include deferred rental expense of EUR 1,247 thousand (prior year: EUR 1,193 thousand).

The classification of financial instruments according to IAS 39 is included in note (27).

## (15) Provisions for Pensions and Similar Employee Benefits

Post-employment benefit plans are classified as either defined contribution or defined benefit plans.

Plan assets related to defined contribution plans are managed separately from the assets of the relevant company by a trustee. For such plans, the company pays fixed contributions into a separate entity or a fund and does not assume any other obligations. Payment obligations to defined contribution plans are recognized in profit or loss when they occur. Payment to government managed pension plans with fixed contributions are considered as defined contribution plans. ADVA Optical Networking maintains defined contribution plans in different Group companies. In 2015, total expenses related to defined contribution plans amount to EUR 1,133 thousand (prior year: EUR 984 thousand).

Under defined benefit plans the company is required to pay agreed benefits granted to present and past employees. Defined benefit plans may be funded or unfunded. The Group maintains defined benefit plans in Switzerland and Italy.

The defined benefit plans in Switzerland are final salary related plans with a guaranteed minimum rate of return. Benefits paid in conjunction with these plans comprise old-age retirement pensions as well as invalidity and surviving dependents' benefits. The assets of these pension plans are administered by trustees according to local statutory regulations. The Italian defined benefit plan is unfunded and considers final salary assumptions.

On December 31, 2015, ADVA Optical Networking reports provisions for pensions amounting to EUR 4,048 thousand (December 31, 2014: EUR 5,684 thousand). At year-end, the carrying amount can be analyzed as follows:

(in thousands of EUR)	2015	2014
Present value of defined benefit obligations	14,529	14,379
Fair value of plan assets	-10,481	-8,695
Provisions for pensions and similar employee benefits	4,048	5,684

## The change in the net defined benefit liability for pension plans derives as follows:

(in thousands of EUR)	Defined benefit obligations	Fair value of plan assets	Total
Jan. 1, 2015	14,379	-8,695	5,684
Expenses and income			
Current service cost	568	-	568
Interest expense (+)/income (-)	192	-118	74
Past service cost	-1,588	-	-1,588
Remeasurements			
Gains (-)/losses (+) arising from changes in financial assumptions	-165	-	-165
Gains (-)/losses (+) arising from changes in empirical assumptions	-39	-	-39
Gains (-)/losses (+) on plan assets, excluding amounts included in interest income	-	-629	-629
Employee contributions	342	-342	-
Transfers to funds	-	-470	-470
Benefits paid through plan assets for employees leaving the company	-717	717	-
Disbursements of ADVA Optical Networking	-7	-	-7
Exchange rate differences and other changes	1,564	-944	620
Dec. 31, 2015	14,529	-10,481	4,048



On December 31, 2015, EUR 13,834 thousand of the defined benefit obligations relate to active employees and EUR 694 thousand relate to pensioners. The average remaining period of service for employees in Switzerland and Italy is 11.2 and 19.2 years, respectively. In general, the monthly payment of pensions starts if an employee in Switzerland reaches the retirement age, while in Italy a lump sum payment of the relevant accrued amount applies with retirement or resignation of an employee.

Employer contributions in 2016 are expected to amount to EUR 476 thousand.

The defined benefit obligations are calculated on actuarial basis considering the following material assumptions for valuation parameters:

	2015		2014	
	Switzerland	Italy	Switzerland	Italy
Discount rate	1.05%	2.19%	1.20%	2.10%
Inflation rate	0.75%	1.75%	1.00%	1.75%
Salary level trend	1.00%	2.00%	1.00%	2.00%

Discount rates have been determined considering the weighted average duration of the obligations. The evaluation for Switzerland and Italy is based on high-quality corporate bonds with AA-rating.

The weighted average duration of the obligations in Switzerland and Italy on December 31, 2015, is 21.2 and 16.4 years, respectively.

ADVA Optical Networking is exposed to risks arising from defined benefit plans. Changes in actuarial parameters, especially in discount rates, may have significant influence on the pension obligations. The sensitivity analysis provided below shows the extent to which the defined benefit obligation would have been affected by changes in the relevant assumptions:

(in thousands of EUR)		Change in defined benefit obligation
Discount rate	Increase by 0.25%	-634
	Decrease by 0.25%	+678
Salary level trend	Increase by 0.25%	+81
	Decrease by 0.25%	-90

Sensitivities for discount rate and salary level trend have been considered in turn disregarding any potential dependencies between these assumptions. Separate actuarial computations have been performed for increase and decrease of the assumptions.

ADVA Optical Networking assumes inflation rate and pension entitlement trend to have minor impact on the amount of defined benefit obligations.

On December 31, 2015, plan assets split to major asset categories as follows:

	Quoted market prices	Other than quoted market prices
Equity instruments	23.37%	-
Bonds	26.85%	-
Real estate	19.94%	-
Qualified insurance policies	-	17.04%
Cash and cash equivalents	-	2.10%
Other	-	10.70%

Pension fund assets are monitored continuously and managed from a risk-and-yield perspective by the external trustee.

## (16) Other Provisions

The table below lists changes in the composition of the Group's other provisions in the reporting period:

				Currency	
Jan. 1, 2015	Usage	Release	Appropriation	translation difference	Dec. 31, 2015
2,846	-2,832	-	806	-5	815
664	-599	-21	418	-1	461
6,521	-3,154	-640	5,790	98	8,615
10,031	-6,585	-661	7,014	92	9,891
-	-	-	883	-1	882
436	-204	-142	645	-	735
392	-280	-101	4	-	15
828	-484	-243	1,532	-1	1,632
10,859	-7,069	-904	8,546	91	11,523
	2,846 664 6,521 10,031 - 436 392 828	2,846 -2,832 664 -599 6,521 -3,154 10,031 -6,585  436 -204 392 -280 828 -484	2,846 -2,832 - 664 -599 -21 6,521 -3,154 -640 10,031 -6,585 -661  436 -204 -142 392 -280 -101 828 -484 -243	2,846     -2,832     -     806       664     -599     -21     418       6,521     -3,154     -640     5,790       10,031     -6,585     -661     7,014       -     -     -     883       436     -204     -142     645       392     -280     -101     4       828     -484     -243     1,532	Jan. 1, 2015         Usage         Release         Appropriation         translation difference           2,846         -2,832         -         806         -5           664         -599         -21         418         -1           6,521         -3,154         -640         5,790         98           10,031         -6,585         -661         7,014         92           -         -         -         883         -1           436         -204         -142         645         -           392         -280         -101         4         -           828         -484         -243         1,532         -1

The estimated expenses related to warranty claims reflect both past experience and current developments and are based on a percentage of sales revenues. Any differences between actual amounts and anticipated amounts are treated as changes in accounting estimates and affect earnings in the period in which the change occurs.

Due to changed customer contract conditions the calculation of warranty provision was adjusted and split into current- and non-current portion in 2015.

Current personnel provisions mainly include expenses for severance payments as well as employee's accident insurance and other expenses resulting from legal requirements.

Other current provisions primarily include provisions for outstanding invoices of uncertain amount and timing and provisions for potential obligations from existing contracts.

Non-current personnel provisions mainly include liabilities from share-based compensation transactions.

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## (17) Stockholders' Equity

## **Common Stock and Share Capital**

On December 31, 2015, ADVA Optical Networking SE had issued 49,374,484 (prior year: 48,096,431) no par value bearer shares (hereinafter "common shares"), each representing a notional amount of share capital of EUR 1.00.

The common shares entitle the holder to vote at the Annual Share-holders' Meeting and to receive dividends in case of a distribution. No restrictions are attached to the common shares.

#### **Capital Transactions**

In connection with the exercise of stock options, 1,278,053 shares were issued to employees of the Company and its affiliates out of conditional capital in 2015 (in 2014 in connection with the exercise of stock options 73,604 shares). The par value of EUR 1,278 thousand (prior year: EUR 73 thousand) was appropriated to share capital, whereas the premium resulting from the exercise of stock options as well as the exercise of option bonds in prior periods of EUR 1.939 thousand (prior year: EUR 47 thousand) was recognized within capital reserve.

Other information on the share option programs is included in note (33).

#### **Authorized Capital**

The authorized capital I has been completely canceled during the Annual Shareholders' Meeting on May 20, 2015, and replaced by a new authorized capital 2015/I. According to the Company's articles of association, the Management Board is authorized, subject to the consent of the Supervisory Board, to increase subscribed capital until May 19, 2020, only once or in successive tranches by a maximum of EUR 24,048 thousand by issuing new common shares in return for cash or non-cash contributions. Subject to the consent of the Supervisory Board, the Management Board is further authorized to decide whether to exclude stockholders' subscription rights. Stockholders' subscription rights can be excluded for capital increases for cash contributions as well as contributions in kind

if during the term of this authorization and in exclusion of shareholder subscription rights, the shares issued against contributions in cash or in kind do not exceed 20% of the share capital.

## **Conditional Capital**

The Annual Shareholders' Meeting on May 20, 2015, resolved to decrease the conditional capital 2003/2008 by EUR 438 thousand to EUR 1,297 thousand. In addition, the conditional capital 2011/I has been increased by EUR 518 thousand to EUR 3,512 thousand. The resolutions were registered in the commercial register on June 3, 2015.

Considering the above described capital transactions, the total conditional capital on December 31, 2015 amounts to EUR 3,531 thousand.

The changes in share capital, authorized and conditional capital are summarized below:

(in thousands of EUR)	Share capital	Autho- rized capital 2014/I	Autho- rized capital 2015/I	Condi- tional capital 2003/2008	Condi- tional capital 2011/I
Jan. 1, 2015	48,096	23,911	-	1,735	2,994
Changes due to Annual Share- holders' Meeting resolutions	-	-23,911	24,048	-438	518
Stock options exercised	1,278	-	-	-1,014	-264
Dec. 31, 2015	49,374	_	24,048	283	3,248

## **Capital Reserve**

The capital reserve includes premium payments from the issuance of shares, as well as additional contributions to the Company's equity associated with the exercise of stock options. Additionally, the capital reserve contains the correspondent accumulated compensation expenses related to stock option rights issued amounting to EUR 17,171 thousand (prior year: EUR 16,379 thousand).

## **Accumulated Other Comprehensive Income or Loss**

Accumulated other comprehensive income or loss is used to record exchange differences arising from the translation of the financial statements of foreign operations. In addition, the result from remeasurement of defined benefit obligations is included in this line item.

The tax effect related to components of other comprehensive income or loss is as follows:

2015

(in thousands of EUR)	pre tax	tax effect	after tax
Remeasurement of defined benefit obligations	-2,091	82	-2,009
	-2,091	82	-2,009
		2014	
(in thousands of EUR)	pre tax	tax effect	after tax
Remeasurement of defined benefit obligations	-2,918	148	-2,770

Changes in stockholders' equity are summarized in the consolidated statement of changes in stockholders' equity.

## **Voting Rights**

According to section 21 paragraph 1, section 25 paragraph 1 and section 26 of the German Securities Trading Law (Wertpapier-Handelsgesetz, WpHG) the Company published the following information on the ADVA Optical Networking homepage in 2015:

Date of change in investment	Name of investment owner	Threshold limit	Share of voting rights
Nov. 25, 2015	DNB Asset Management AS, Oslo, Norway	below 3%	2.88%
Nov. 24, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	3.73%
Nov. 19, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	5.68%
Nov. 18, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	4.62%
Nov. 17, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	5.84%
Nov. 16, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	4.46%
Nov. 11, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	5.05%
Nov. 10, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	4.98%
Nov. 9, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	5.01%
Nov. 6, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	0.00%
Nov. 6, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	4.91%
Nov. 5, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	5.05%
Nov. 5, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	5.01%
Nov. 2, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	3.75%
Sep. 7, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	5.36%
Sep. 4, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	4.90%

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Date of change in investment	Name of investment owner	Threshold limit	Share of voting rights
Aug. 31, 2015	Dimensional Fund Advisors LP, Dimensional Holdings Inc.,	below 3%	2.99%
Aug. 26, 2015	Austin, Texas, USA  Source Markets PLC, Dublin 2, Ireland/Source Holdings Limited, Georgetown, Grand Cayman, Cayman Islands/Source Investment Management Limited, Dublin 2, Ireland	below 3%	1.13%
Aug. 25, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	5.86%
Aug. 25, 2015	Source Markets PLC, Dublin 2, Ireland/Source Holdings Limited, Georgetown, Grand Cayman, Cayman Islands/Source Investment Management Limited, Dublin 2, Ireland	above 3%	3.05%
Aug. 25, 2015	DNB Asset Management AS, Oslo, Norway	below 5%	4.88%
Aug. 20, 2015	Norwegian Ministry of Finance/Norges Bank, (the Central Bank of Norway), Oslo, Norway	below 3%	3.00%
Aug. 5, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	4.07%
Aug. 4, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	5.82%
Jul. 29, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	4.39%

Date of change in investment	Name of investment owner	Threshold limit	Share of voting rights
Jul. 23, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	5.71%
Jul. 20, 2015	Norwegian Ministry of Finance/ Norges Bank, (the Central Bank of Norway), Oslo, Norway	above 3%	3.26%
Jul. 16, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	3.82%
Jul. 16, 2015	Dimensional Fund Advisors LP, Dimensional Holdings Inc., Austin, Texas, USA	above 3%	3.00%
Jul. 15, 2015	Norwegian Ministry of Finance/ Norges Bank, (the Central Bank of Norway), Oslo, Norway	below 3%	2.63%
Jul. 10, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	5.60%
Jun. 29, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	4.63%
Jun. 25, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	6.28%
Jun. 24, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	below 5%	4.48%
Jun. 23, 2015	UBS AG, UBS Group AG, Zurich, Switzerland	above 5%	5.03%

## Notes to the Consolidated Income Statement

## (18) Revenues

In 2015 and 2014, revenues included EUR 54,005 thousand and EUR 43,541 thousand for services, respectively. The remaining revenues relate mainly to product sales.

A segmentation of revenues by geographic region is provided in the section on segment reporting under note (26).

## (19) Other Operating Income and Expenses

Other operating income and expenses analyze as follows:

(in thousands of EUR)	2015	2014
Other operating income		
Government grants received	1,869	2,531
Reimbursement for joint development by a strategic partner	229	391
Release of bad debt allowances	942	608
Release of provisions	904	939
Other	1,056	2,267
	5,000	6,736
Other operating expenses		
Impairments on trade accounts receivable	-350	-2
Other	-258	-520
	-608	-522
Other operating income and expenses, net	4,392	6,214

## (20) Interest Income and Expenses

Interest income primarily includes interest from daily bank deposits and from other short-term deposits with maturities between one day and three months.

Interest expenses are primarily incurred on financial liabilities and on the sale of receivables. In addition, net interest expenses from valuation of defined benefit plans are included. For further details, refer to notes (9), (13) and (15).

## (21) Other Financial Gains and Losses, net, and Derivative Financial Instruments

Other financial gains and losses, net, comprise the following:

(in thousands of EUR)	2015	2014
Foreign currency exchange gains	13,799	7,352
thereof: gains from forward rate agreements	3,872	3,051
Foreign currency exchange losses	-11,640	-6,210
thereof: losses from forward rate agreements	-506	-488
	2,159	1,142

## **Forward Rate Agreements**

The Group entered into nine forward rate agreements to hedge foreign currency exposure of expected future cash flows between June 18 and December 4, 2015. These agreements mature between March 29 and December 27, 2016. In 2015, unrealized profits and losses amounted to EUR 1,833 thousand and EUR -41 thousand, respectively.

Between May 7, 2014, and August 12, 2015, the Group entered into eleven forward rate agreements that matured in 2015. A net result of positive EUR 1,574 thousand was realized on these transactions.

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#### **Fair Value Disclosures**

On December 31, the Group held the following financial instruments measured at fair value through profit or loss:

	Fair	value	Nomina	al value
(in thousands of EUR)	2015	2014	2015	2014
Forward rate agreements	1,792	825	66,590	5,749

The nominal value is the accounting value from which payments are derived (underlying transaction). Since the nominal value itself is not at risk, it is the potential for changes in foreign exchange rates, interest rates and prices that is hedged.

The fair value reflects the credit risk of the instrument. Since the Group only uses standard instruments for its hedges, the fair value is determined using market prices and is not netted against any contrary trend in the value of underlying transactions.

The fair value of these transactions is presented within other current assets and other current liabilities in the statement of financial position.

## (22) Income Taxes

Income taxes in Germany consist of corporate income tax, the solidarity surcharge and trade taxes. The tax calculation in foreign countries is based on the applicable local tax rates. They vary between 15% and 37% (prior year: between 15% and 38%).

The table below shows the components of the Group's total income tax expenses:

(in thousands of EUR)	2015	2014
Current taxes		
Current income tax charge	-2,097	-904
Adjustments in respect of current income tax for prior years	167	34
	-1,930	-870
Deferred taxes		
Temporary differences and tax loss carry-forwards	679	1,640
Adjustment of deferred taxes on tax loss carry-forwards	-	-608
Changes in tax rates	23	-14
	702	1,018
Income tax benefit (expense), net	-1,228	148

A reconciliation of income taxes based on the accounting profit and the expected domestic income tax rate for the parent company of 27.73% (prior year: 27.73%) to effective income tax (expense) benefit, net, is presented below:

(in thousands of EUR)	2015	2014
Accounting profit before tax	28,076	8,227
Expected statutory tax expense	-7,785	-2,281
Tax rate adjustments	23	-14
Tax for prior periods	167	34
Foreign tax rate differential	418	-327
Non-tax-deductible stock option expenses	-3	-37
Differences from foreign branch offices	-39	85
Other non-tax-deductible expenses	-194	-352
Other adjustments to recognition of deferred tax assets	1,600	108
Activation previously unrecognized losses carried forward	4,657	3,532
Not capitalized deferred tax assets for tax losses	-74	-608
Other differences	2	8
Income tax benefit (expense), net	-1,228	148
Effective tax rate	4.4%	-1.8%

The net income effect from the recognition of previously unrecognized losses carried forward is mainly related to the increase of deferred tax assets for tax losses in ADVA Optical Networking SE by EUR 1,818 thousand (prior year: EUR 1,011 thousand), Oscilloquartz SA by EUR 1,055 thousand (prior year: nil) and ADVA Optical Networking North America EUR 1,988 thousand for recognition before 2015 (prior year: increase by EUR 1,728 thousand).

In 2014 and 2015, the tax authorities in Munich conducted a tax audit for fiscal years 2007 to 2010 of ADVA Optical Networking SE. The tax audit report is not yet available.

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The deferred tax assets and deferred tax liabilities on December 31, 2015 and 2014 relate to the following:

	2015		2014	
(in thousands of EUR)	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
Current assets				
Trade accounts receivable	50	-15	24	-31
Inventories	2,557	-1,052	2,377	-909
Other current assets	2	-511	1	-228
Total current assets	2,609	-1,578	2,402	-1,168
Non-current assets				
Property, plant and equipment	506	-284	396	-603
Capitalized development projects	709	-17,743	-	-15,266
Intangible assets acquired in business combinations	743	-2,209	-	-25
Other intangible assets	22	-	17	-3,136
Other non-current assets	600	-92	590	-4
Total non-current assets	2,580	-20,328	1,003	-19,034

	20	2015		2014	
(in thousands of EUR)	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities	
Current liabilities					
Trade accounts payable	495	-77	246	-	
Provisions	2,044	-11	902	-27	
Deferred revenues	1,110	-	1,138	-7	
Other current liabilities	521	-	269	-	
Total current liabilities	4,170	-88	2,555	-34	
Non-current liabilities					
Other non-current liabilities	1,803	-32	1,807	-148	
Total non-current liabilities	1,803	-32	1,807	-148	
Tax loss carry-forwards					
German tax loss carry-forward	11,990	-	11,094	-	
thereof: current	-	-	-	-	
thereof: non-current	11,990	-	11,094	-	
Foreign tax loss carry-forwards	5,981	-	6,816	-	
thereof: current	1,940	-	3,282	-	
thereof: non-current	4,041	-	3,534	-	
Total tax loss carry-forwards	17,971	-	17,910	-	
Deferred tax assets (liabilities)	29,133	-22,026	25,677	-20,384	
thereof: current	8,719	1,666	8,239	-1,202	
thereof: non-current	20,414	20,360	17,438	-19,182	

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Temporary differences are differences between the carrying amount of an asset or liability in the balance sheet according to IFRS and its tax base.

Deferred tax assets have been recognized for German and foreign tax loss carry-forwards since the Group determined a positive tax forecast due to projected positive market developments in the innovative connectivity solutions market and the leading market position of ADVA Optical Networking in the regional markets, which are relevant for the assessment of tax loss carry-forwards as reported.

The German and foreign tax loss carry-forwards on December 31 comprise:

(in thousands of EUR)	2015	2014
ADVA Optical Networking SE, Meiningen, Germany	130,515	131,628
ADVA Optical Networking North America, Inc., Norcross/Atlanta (Georgia), USA	129,104	125,138
ADVA Optical Networking Ltd., York, United Kingdom	-	6,495
Oscilloquartz SA, Saint-Blaise, Switzerland	16,551	-
ADVA Optical Networking Israel Ltd., Ra'anana/Tel Aviv, Israel	391	-
ADVA Optical Networking India Private Ltd., Gurgaon, India	7	-
ADVA Optical Networking AS i.l., Oslo, Norway	3,032	3,184
ADVA Optical Networking LLC. i.l., Riyadh, Kingdom of Saudi Arabia	-	52
	279,600	266,497

Deferred tax assets have been recognized in respect of tax losses in the amount of EUR 43,238 thousand (prior year: EUR 40,006 thousand) due to a reasonable assurance that taxable profits will be recognized in the near future that can be offset against tax loss carry-forwards.

The amount of tax loss carry-forwards of ADVA Optical Networking North America increased by the end of the year mainly because of foreign exchange rate. The company has not reported further tax losses over an aggregated four-year-period and taking into account the following considerations there is a reasonable assurance that taxable profits will be recognized in the near future that can be offset against tax loss carry-forwards.

Pursuant to the U.S. Tax Act, federal tax loss carry-forwards in the U.S. expire after twenty years. Furthermore, the utilization of a portion of tax loss carry-forwards is subject to annual limitations. Consequently, deferred tax assets have not been recognized in respect of tax loss carry-forwards in ADVA Optical Networking North America in the amount of EUR 112,790 thousand (prior year: EUR 105,306 thousand).

Furthermore, deferred tax assets for tax loss carry-forwards for state and local purposes expire in between five and twenty years. The utilization of these tax loss carry-forwards for state and local purposes is also subject to annual limitations. Consequently, deferred tax assets in the amount of EUR 3,349 thousand (prior year: EUR 3,242 thousand) have not been recognized in ADVA Optical Networking North America in respect of tax losses for state and local purposes.

Whether or not deferred tax assets are realized depends on the generation of future taxable income during periods in which these temporary differences are deductible. The Group has considered the scheduled reversal of deferred tax liabilities and projected future taxable income in making this assessment.

On December 31, 2015 and 2014, no deferred tax liabilities on retained earnings of group companies have been recognized. ADVA Optical Networking committed that there will be no distribution of currently undistributed earnings from the Company's major subsidiaries in the near future. The amount of temporary differences for which no deferred tax liabilities have been recognized totals EUR 5,786 thousand (prior year: EUR 5,147 thousand).

Deferred tax assets for pensions and similar employee benefits in the amount of EUR 82 thousand are recognized in accumulated other comprehensive loss (prior year: EUR 148 thousand).

## (23) Employees and Personnel Expenses

In 2015 and 2014, respectively, the ADVA Optical Networking Group had an average of 1,477 and 1,451 permanent employees and an average of 14 and 12 apprentices on its payroll, respectively. The breakdown of employees by department is as follows:

	2015	2014
Purchasing and Operations	335	352
Sales and Marketing	304	291
General and Administration	149	150
Research and Development	689	658
Apprentices	14	12
	1,491	1,463

Further 22 and 17 people were employed on a temporary basis effective December 31, 2015 and 2014, respectively.

Personnel expenses for 2015 and 2014 totaled EUR 135,328 thousand and EUR 118,291 thousand, respectively:

(in thousands of EUR)	2015	2014
Wages and salaries	113,241	100,247
Social security costs	19,133	16,675
Expenses for post-employment benefits	78	987
Share-based compensation expenses	2,876	382
	135,328	118,291

Expenses for retirement benefits include expenses related to defined contribution plans as well as service costs for defined obligation plans. The decrease of expenses for post-employment benefits in 2015 relates to a change of the defined benefit plan of OSA that resulted in a reduction of pension provision directly recognized in profit or loss.

Further details on expenses for post-employment benefits are included in note (15).

Details regarding share-based compensation expenses are shown in note (33).

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## Other Disclosures

## (24) Consolidated Cash Flow Statement

The consolidated cash flow statement has been prepared in accordance with IAS 7.

Cash and cash equivalents disclosed in the cash flow statement coincide with the position "cash and cash equivalents" presented in the statement of financial position. In addition to cash at banks, overnight deposits amounting to EUR 3,714 thousand are included in this item.

Cash flows from investing and financing activities are determined directly, whereas the cash flow from operating activities is derived indirectly from the consolidated income before tax. When cash flow from operating activities is calculated, the changes in assets and liabilities are adjusted for the effects of currency translation. As a result, it is not possible to reconcile the figures to the differences in the published consolidated statement of financial position.

Cash and cash equivalents to which the Group only has restricted access are explained in note (8).

#### (25) Earnings per Share

In accordance with IAS 33, basic earnings per share are calculated by dividing consolidated net income by the weighted average number of shares outstanding.

There were no material effects that diluted earnings per share in the current fiscal year. Diluted earnings per share are calculated by adjusting the weighted average number of shares outstanding by the number of potential shares arising from granted and exercisable stock options on the balance sheet date.

No effects of dilution had to be considered in net income in 2015 and 2014.

The following table reflects the number of shares used in the computation of basic and diluted earnings per share:

Weighted average number of shares (diluted)	49,199,331	48,368,438
Effect of dilution from stock options	631,830	327,205
Weighted average number of shares (basic)	48,567,501	48,041,233
	2015	2014

There have been no other material transactions involving ordinary shares or potential shares between the balance sheet date and the date of authorization for issue of these financial statements.

## (26) Segment Reporting

In accordance with IFRS 8, operating segments are identified based on the way information is reported internally to the chief operating decision maker, i.e. the Management Board, and regularly reviewed to make decisions about resources to be assigned to the segment and assess its performance. The internal organizational and management structure and the structure of internal financial reporting activities are the key factors in determining what information is reported. For making decisions about resource allocation and performance assessment, management does not monitor the operating results separately on the level of business units. The Group operates in one business segment only, namely the development, marketing and sale of optical networking solutions.

Within the ADVA Optical Networking Group, management decisions are based on pro forma operating income. Pro forma financial information excludes non-cash charges related to share-based compensation plans and amortization and impairment of goodwill and acquisition-related intangible assets. Income from capitalization of development expenses is shown as a separate line item and not deducted from research and development expenses.

## Segment information on December 31, 2015 is presented as follows:

(in thousands of EUR)	Pro forma financial information	Intangible assets from acquisitions	Goodwill	Compensation expenses	Disclosure of R&D expenses	Consolidated financial information
Revenues	441,938	-	-	-	-	441,938
Cost of goods sold	-284,521	-272	-	-234	-	-285,027
Gross profit	157,417	-272	-	-234	-	156,911
Gross margin	35.6%					35.5%
Selling and marketing expenses	-55,296	-74	-	-1,123	-	-56,493
General and administrative expenses	-30,114	-	-	-284	-	-30,398
Research and development expenses	-78,493	-	-	-1,235	32,071	-47,657
Income from capitalization of development expenses	32,071	-	-		-32,071	-
Other operating income	5,000	-	-	-	-	5,000
Other operating expenses	-608	-	-	-	-	-608
Operating income	29,977	-346	-	-2,876	-	26,755
Operating margin	6.8%					6.1%
Segment assets	364,338	2,316	24,881	-		391,535



## Segment information on December 31, 2014 is presented as follows:

(in thousands of EUR)	Pro forma financial information	Intangible assets from acquisitions	Goodwill	Compensation expenses	Disclosure of R&D expenses	Consolidated financial information
Revenues	339,168	-	-	-	-	339,168
Cost of goods sold	-220,408	-642	-	-42	-	-221,092
Gross profit	118,760	-642	-	-42	-	118,076
Gross margin	35.0%					34.8%
Selling and marketing expenses	-48,003	-91	-	-158		-48,252
General and administrative expenses	-27,151	-	-	12		-27,139
Research and development expenses	-67,461	-	-	-194	27,108	-40,547
Income from capitalization of development expenses	27,108	-	-	-	-27,108	-
Other operating income	6,736	-	-	-	-	6,736
Other operating expenses	-522	-	-	-	-	-522
Operating income	9,467	-733	-	-382	-	8,352
Operating margin	2.8%					2.5%
Segment assets	300,601	655	23,581	-	-	324,837

## Additional information by geographical regions:

(in thousands of EUR)	2015	2014
Revenues		
Germany	78,689	69,558
Rest of Europe, Middle East and Africa	183,731	133,855
Americas	143,937	110,203
Asia-Pacific	35,581	25,552
	441,938	339,168

Dec. 31, 2015	Dec. 31, 2014
82,068	74,597
18,626	17,656
9,473	9,996
1,346	1,592
111,513	103,841
14,303	74,597
2,173	17,656
12,389	9,996
268	1,592
29,133	25,677
	82,068 18,626 9,473 1,346 111,513 14,303 2,173 12,389 268

Revenue information is based on the shipment location of the customers.

In 2015, the share of revenues allocated to major customers was EUR 78,617 thousand (prior year: EUR 62,616 thousand). In 2015, revenues with one major customer exceeded 10% of total revenues (2014: revenues with one major customer).

Non-current assets and deferred tax assets are attributed based on the location of the respective Group company. Non-current assets for segment reporting consist of property, plant and equipment, intangible assets and finance lease equipment.

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## (27) Financial Instruments

The following tables analyze carrying amounts, amortized costs and fair values according to valuation categories. Only assets and liabilities, which fall into the categories defined by IFRS 7, are presented, so that the total amounts disclosed do not correspond to the balance sheet totals of each year.

			Amounts recognized according to IAS 39			
(in thousands of EUR, on Dec. 31, 2015)	Valuation category in accordance with IAS 39*	Carrying amount	Amortized cost	Fair value recognized in profit and loss	Fair value	Hierarchy
Assets						
Cash and cash equivalents	LaR	93,850	93,850	-	93,850	Level 2
Trade accounts receivable	LaR	70,379	70,379	-	70,379	Level 2
Other current and non-current financial assets	LaR	4,915	4,915	-	4,915	Level 2
Derivatives without a hedging relationship	FVTPL	1,833	-	1,833	1,833	Level 2
Investments	AfS	1,198	1,198	-	1,198	Level 2
Total active financial instruments		172,175	170,342	1,833	172,175	
Liabilities						
Current and non-current financial liabilities (bank loans)	FLAC	42,669	42,669	-	42,853	Level 2
Trade accounts payable	FLAC	43,515	43,515	-	43,515	Level 2
Derivatives without a hedging relationship	FVTPL	41	-	41	41	Level 2
Other current and non-current financial liabilities	FLAC	18,602	18,602		18,602	Level 2
Total passive financial instruments		104,827	104,786	41	105,011	
Of which aggregated by category in accordance with IAS 39:						
Loans and receivables (LaR)		169,144	169,144	-	169,144	
Financial assets at fair value through profit or loss (FVTPL)		1,833	-	1,833	1,833	
Financial liabilities at fair value through profit or loss (FVTPL)		41	-	41	41	
Financial assets available for sale (AfS)		1,198	1,198	-	1,198	
Financial liabilities at amortized cost (FLAC)		104,786	104,786	-	104,970	

Amounts recognize	ed according to IAS 39
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(in thousands of EUR, on Dec. 31, 2014)	Valuation category in accordance with IAS 39*	Carrying amount	Amortized cost	Fair value recognized in profit and loss	Fair value	Hierarchy
Assets						
Cash and cash equivalents	LaR	83,877	83,877	-	83,877	Level 2
Trade accounts receivable	LaR	54,030	54,030	-	54,030	Level 2
Other current and non-current financial assets	LaR	4,124	4,124	-	4,124	Level 2
Derivatives without a hedging relationship	FVTPL	825	-	825	825	Level 2
Investments	AfS	1,198	1,198	-	1,198	Level 2
Total active financial instruments		144,054	143,229	825	144,054	
Liabilities						
Current and non-current financial liabilities (bank loans)	FLAC	34,983	34,983	-	35,542	Level 2
Trade accounts payable	FLAC	33,028	33,028	-	33,028	Level 2
Other current and non-current financial liabilities	FLAC	13,494	13,494	-	13,494	Level 2
Total passive financial instruments		81,505	81,505		82,064	
Of which aggregated by category in accordance with IAS 39:						
Loans and receivables (LaR)	-	142,031	142,031	-	142,031	
Financial assets at fair value through profit or loss (FVTPL)		825	-	825	825	
Financial assets available for sale (AfS)		1,198	1,198		1,198	
Financial liabilities at amortized cost (FLAC)	-	81,505	81,505	-	82,064	

\* Abbreviations used for the IAS 39 categories:

- LaR: Loans and receivables
- FVTPL: Financial assets and liabilities at fair value through profit or loss
- AfS: Financial assets available for sale
- FLAC: Financial liabilities at amortized cost

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The fair value of financial liabilities has been calculated based on future cash flows by using arm's length interest rates. On December 31, 2015 and 2014, respectively, no financial instruments were measured at cost or at fair value through other comprehensive income.

Investments relate to equity instruments of Saguna Networks Ltd. with no quoted prices in active markets. This investment is accounted for at cost. On December 31, 2015, ADVA Optical Networking does not intend to sell the investment.

The Group uses the following hierarchy for determining the fair value of financial instruments:

Level 1: Quoted prices in active markets for identical assets or liabilities.

Level 2: Techniques for which all inputs that have a significant effect on the recorded fair value are observable, either directly or indirectly. Forward rate agreements are measured using quoted forward exchange rates and yield curves derived from quoted interest rates according to the maturities of the contract.

Level 3: Techniques, which use inputs that are not based on observable market data.

Fair values of assets and liabilities at fair value through profit or loss are calculated using level 2 valuation techniques. On December 31, 2015, no valuations were made according to levels 1 or 3. In 2015 and 2014, no transfers between hierarchy levels occurred.

The Group has not used the option to designate financial assets as "at fair value through profit or loss" on initial recognition of financial assets. The Group has neither used the option to designate financial liabilities as "at fair value through profit or loss" on initial recognition of these liabilities.

Gains and losses as well as interest income and expenses from financial instruments are analyzed in the table below:

(in thousands of EUR)	Note	2015	2014
Gains and losses			
Financial assets and liabilities at fair value through profit or loss	(21)	3,366	2,563
Loans and receivables	(9, 19)	-20	-1,420
Interest income and expenses	(20)		
Interest income from loans and receivables		49	89
Interest expense related to financial liabilities measured at amortized cost		-940	-1,091

## (28) Financial Risk Management

Due to ADVA Optical Networking's business activities financial risks arise in essence from fluctuations in international currencies, payment term extension and payment delay of customers as well as loss of key customers and intensifying price pressure resulting in lower margins. The positions with respect to these risks are analyzed below. Goals, guidelines and processes of the Group's risk management system are discussed in detail in the risk report within the Management Report. ADVA Optical Networking's capital management is described in note (29).

Global risk management is carried out by a central treasury department under policies approved by the Management Board.

## **Foreign Currency Risks**

Foreign currency risks arise from unfavorable changes in foreign currency exchange rates and according to IFRS affect monetary financial instruments denominated in currencies other than the functional currency of the respective Group entity.

Due to a major portion of the Group's revenues and costs being generated in foreign currencies, ADVA Optical Networking's margin is particularly subject to fluctuations in the EUR/USD, EUR/GBP, GBP/USD, EUR/CHF and USD/CHF exchange rates. In 2015, on a net basis, the Group saw significant GBP inflows and USD outflows. To combat fluctuations, the USD and GBP net cash flows in part are hedged against EUR using forward exchange agreements, based on the Group's forecasted EUR/USD and EUR/GBP exposure

for the current year and the next year, and taking into account ongoing fundamental analysis provided by a bank-independent foreign currency consultancy. ADVA Optical Networking targets to achieve a natural hedge scenario for the CHF cash flows but expansion in non-EUR regions of the world is likely to raise the Group's foreign exchange cash flow exposure as well. As part of a consolidation effort, ADVA reduced relationships to seven banks by the end of 2015 versus nine banks in 2014, for hedging purposes.

## Sensitivity analysis

The following table summarizes the foreign currency exposure on the net monetary positions and illustrates the effect on 2015 profit or loss of a 10% change in the relevant exchange rates:

(in thousands of EUR)	EUR/USD	EUR/GBP	USD/GBP	EUR/CHF	USD/CHF
ADVA Optical Networking SE	11,200	1,201	-	-363	-
ADVA Optical Networking York	-	426	2,639	-	-
ADVA Optical Networking North America	6,792	-	-	-	-
ADVA Optical Networking Hong Kong	110	-	-	-	-
OSA	-	-		-2,332	2,960
Net exposure in consolidated financial statements	18,102	1,627	2,639	-2,695	2,960
Appreciation of USD vs. EUR, of GBP vs. EUR and USD and of CHF vs. EUR and USD	10.0%	10.0%	10.0%	10.0%	10.0%
Total effect on net income	1,810	163	264	-270	296

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A depreciation of the currencies of 10% would have an equal and opposite effect.

In addition, a weakening of foreign currencies, especially of the USD and the GBP, can have a significant financial impact on the ability to price ADVA Optical Networking's products competitively.

## **Customer Payment Terms Risk**

In ADVA Optical Networking's competitive innovative connectivity solutions market, customers may request to extend payment terms. The extension of the Group's weighted-average payment terms would have a negative impact on working capital and cash levels. In order to mitigate this risk, there is a three-step process in place governing the escalation of payment terms extension requests. In addition, at the end of 2015, the Group had frame contracts in place to sell receivables from one customer (at the end of 2014: from three customers) to financial institutions.

## **Loss of Key Customers**

The loss of key customers will have significant impact on our business especially key customer with a strategic value. This risk may originate to some extent from changes in customer demands and the Group's ability to meet those requirements reliably and in a timely manner. For our key customers, we constantly ensure performance and customer satisfaction through a dedicated team of professionals.

## **Intensifying Price Pressure Resulting in Lower Margins**

The extended economic downturn has created a tight spending environment. Today's customers are squeezing every purchase for maximum savings and therefore looking for lower pricing. Customers are conditioned to paying less and less for high tech products each year, especially when there are too many vendors vying for their business. Large customers will negotiate a scheduled price reduction into long-term agreements. Aspects of our product line are essentially commoditized, further eroding pricing power.

We have many preventive action plans in place. To successfully defend higher prices, we communicate value, reliability, scalability, cost-effectiveness and performance to all of our customers.

The table below analyzes the Group's non-derivative financial liabilities according to their maturity based on the remaining time at the balance sheet date to the contractual maturity date:

			Future cash flows					
			≤12 months		13 - 36 n	nonths	> 36 mc	nths
(in thousands of EUR, on Dec. 31, 2015)	Note	Carrying value	Redemption	Interest	Redemption	Interest	Redemption	Interest
Financial liabilities	(13)	42,669	18,220	619	16,949	537	7,500	119
Trade accounts payable and other financial liabilities	(14)	62,158	61,400	-	758	-	-	-
		104,827	79,620	619	17,707	537	7,500	119

		Future cash flows					
		≤12 mc	≤12 months 13 - 36 months		> 36 mo	nths	
Note	Carrying value	Redemption	Interest	Redemption	Interest	Redemption	Interest
(13)	34,983	7,293	805	24,555	867	3,135	30
(12)	9	9	0	-	-	-	-
(14)	46,522	46,522	-	-	-	-	-
	81,514	53,824	805	24,555	867	3,135	30
	(13)	(13) 34,983 (12) 9 (14) 46,522	Note         Carrying value         Redemption           (13)         34,983         7,293           (12)         9         9           (14)         46,522         46,522	Note         Carrying value         Redemption         Interest           (13)         34,983         7,293         805           (12)         9         9         0           (14)         46,522         46,522         -	Note         Carrying value         Redemption         Interest         Redemption           (13)         34,983         7,293         805         24,555           (12)         9         9         0         -           (14)         46,522         46,522         -         -	Note         Carrying value         Redemption         Interest         Redemption         Interest           (13)         34,983         7,293         805         24,555         867           (12)         9         9         0         -         -           (14)         46,522         46,522         -         -         -	Note         Carrying value         Redemption         Interest         Redemption         Interest         Redemption         Interest         Redemption           (13)         34,983         7,293         805         24,555         867         3,135           (12)         9         9         0         -         -         -           (14)         46,522         46,522         -         -         -         -

## (29) Capital Management

The goal of ADVA Optical Networking's capital management is to provide sufficient funds to ensure ongoing operations and to support the Group's projected growth at any time. The Group defines capital as the total of stockholders' equity and financial liabilities. On December 31, 2015, stockholders' equity was at EUR 215,921 thousand or at 55.1% of the balance sheet total (prior year: EUR 177,114 thousand or 54.5% of the balance sheet total). Financial liabilities were at EUR 42,669 thousand on December 31, 2015 (prior year: EUR 34,983 thousand), with maturities typically exceeding the life of the assets being financed. The loan contracts require the compliance with specific key financial covenants. Financial covenants relate to the debt/equity-ratio and net liquidity per quarter-end. If financial covenants are not met, early redemption of financial liabilities may be requested. In 2015, ADVA Optical Networking complied with all financial covenants. In managing its capital, ADVA Optical Networking is focused on minimizing interest expenses, as long as access to funds is not at risk. Excess funds are used either to redeem debt, or they are invested in short-term interest-bearing term deposits or money market funds.

Cash pooling is implemented for USD bank accounts. The respective cash balances are transferred to a pooling account on a daily basis. Interest is calculated based on the consolidated balances.

## (30) Other Financial Obligations and Financial Commitments

#### **Lease Commitments**

The Group has non-cancellable operating leases, primarily for buildings and cars. There are no sub-lease agreements.

The future minimum lease payments due on operating leases are listed in the table below:

(in thousands of EUR)	Dec. 31, 2015	Dec. 31, 2014
Up to one year	6,125	4,400
One to five years	12,176	9,413
More than five years	795	681
	19,096	14,494

Lease payments for buildings including parking spaces amount to EUR 4,617 thousand and EUR 3,768 thousand in 2015 and 2014, respectively. Lease payments for cars consisting of monthly installments plus servicing charges and road tax totaled EUR 1,129 thousand and EUR 1,245 thousand in 2015 and 2014, respectively.

## Other Obligations

On December 31, 2015, the Group had purchase commitments totaling EUR 7,288 thousand (on December 31, 2014: EUR 10,013 thousand) in respect to suppliers.

## **Guarantees**

Group entities have issued guarantees in favor of customers. On December 31, 2015, performance bonds with a maximum guaranteed amount of EUR 4,102 thousand were issued. At year-end 2015, ADVA Optical Networking does not expect claims from these guarantees.

## (31) Contingent Liabilities

In the normal course of business, claims may be asserted or lawsuits filed against the Company and its subsidiaries from time to time. On December 31, 2015, ADVA Optical Networking does not expect that potential titles or litigations in detail or in total will have a material impact on its financial position or operating performance.

## (32) Auditor's Fees

In 2015 and 2014, the following fees charged by the legal auditor were recognized as expenses:

(in thousands of EUR)	2015	2014
Year-end audit	301	273
Other consulting services	3	43
	304	316

## 33) Stock Option Programs

To date, the Company has issued stock options (Plan IX and Plan XIV) and stock appreciation rights for employees (Plan XI, Plan XIII, Plan XV and Plan XVI). On December 31, 2015, three share-based compensation programs for the Management Board and employees of the Company and its subsidiaries were still in existence.

On October 1, 2008, stock options from Plan IX and stock appreciation rights from Plan XI were offered to be exchanged for new rights. All rights of these plans issued before January 1, 2008, were allowed for exchange on the due date, whereby three old rights were exchanged for two new rights of the respective option program. The calculation of the strike price and vesting period of the new options and stock appreciation rights is based on the latest contracts. The new options and stock appreciation rights are listed as Plan IXa and Plan XIa in this report.

In December 2010, the Supervisory Board approved a profit limitation for all options granted to members of the Management Board

out of Plan IX. The options issued with these changed conditions are referred to as Plan IXb.

In February 2011, the Management Board set up a stock appreciation rights program. These stock appreciation rights can be exercised until December 31, 2015. 50% of the option rights may not be exercised until 2012 and the remaining 50% until 2013. The agreements include a profit limit of EUR 20.00 per option. The new program is referred to as Plan XIII. Respective option rights were granted on March 1, 2011. There will be no further issuance of stock appreciation rights from Plan XIII.

In August 2011, the Management Board set up two new programs for the issuance of option rights and stock appreciation rights. Both contracts stipulate a four-year vesting period and a total contractual life of seven years for the respective rights issue. The rights may only be exercised if the volume weighted average of the Company share closing prices on the ten stock exchange trading days before the first day of each exercise period in which the option is exercised is at least 20% of the purchase price. In addition, the calculation of the maximum bonus for stock appreciation rights is based on the share price at the date of exercise, with the share price being capped at EUR 20.00. Consecutively, the new program for issuance of option rights is referred to as Plan XIV and the program for issuance of stock appreciation rights is referred to as Plan XV. In addition, options issued to the Management Board from Plan XIV include a profit limitation. They are referred to as Plan XIVa.

Due to legal reasons, the existing option bonds program (Plan X) has been revoked in 2013. All outstanding option bonds from this plan have been either exchanged into stock appreciation rights or settled in cash. A new stock appreciation rights plan (Plan XVI) has been established that includes contractual terms corresponding to Plan X. All stock appreciation rights from Plan XVI have already vested. No further benefits have been granted in the course of the exchange.

Due to legal reasons, the existing stock options and stock appreciation rights from Plans IX, XIV, XI, XIa, XIII, XVI, und XV were

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cash settled in the Chinese subsidiaries of ADVA Optical Networking SE in 2015. The related options are shown as forfeited in the following tables.

All option rights are non-transferable. They may only be exercised as long as the entitled person is employed on a permanent contract by the Company or by a company in which ADVA Optical Networking SE has direct or indirect interest. Option rights issued to apprentices may only be exercised if the apprentices are hired by the Company or by an affiliated company on a permanent contract. All option rights expire upon termination of the employment contract. In the event that the person entitled dies, becomes unable to work or retires, special provisions come into force.

The group of people to whom option rights can be issued is defined separately for each stock option program. According to the resolution on June 20, 2015, 25.34% of option rights authorized pursuant to Plan XIV can be issued to members of the Management Board, 4.78% to the management of affiliated companies, 29.54% to Company employees, and 40.34% to employees of affiliated companies. The Management Board specifies the exact group of people entitled to exercise rights and the scope of each offer.

Subject to the conditions under which option rights are issued, each option right entitles the individual to purchase one common share in the Company. The stock appreciation rights entitle the recipient to receive a bonus for difference between the defined strike price and the stock market price on the date of exercise (cash settlement). The Company may opt to replace the granted stock appreciation rights with other participation rights as long as such other participation right economically equals the replaced stock appreciation right. The conditions of issue specify the term, the exercise price (strike price), any qualifying periods and the defined exercise periods.

Apart from these rights referred to as Plan XIII all option rights can be exercised over a total period of seven years. One-third of the option rights granted pursuant to Plan IX and XI may not be exercised until two years after the grant date, another one-third three years after the grant date and the final one-third four years after the grant date. The new option plans XIV und XV comprise a uniform vesting period of four years for all options and stock appreciation rights issued. The strike price equals the average stock price of the last ten trading days prior to the grant date. The minimum strike price is defined as the final auction price on the day when the option rights are issued. To exercise the options, certain exercise hurdles per tranche are to be considered. Exercise hurdles comprise a surplus on the strike price of 10%, 20% and 30% for the first, second and third tranche of Plan IX, and of 10% and 20% for the first and second tranche of Plan X. The exercise hurdle on Plan XIV comprises a surplus on the strike price of 20%. Exercise periods are regularly linked to key business events in the Company's calendar and each have a defined term. Certain other business events can lead to blocking periods, during which option rights cannot be exercised. Insofar as regular exercise periods overlap with such blocking periods, the exercise deadline shall be extended by the corresponding number of exercise days immediately after the end of such a blocking period. Option rights may be exercised only on days on which commercial banks are open in Frankfurt am Main, Germany.

The fair value of stock options and stock appreciation rights is estimated by simulation (Monte Carlo method) using a program that was especially adjusted to the underlying plans and based on the assumed strategy for the exercise (earliest possible date).

The following computation parameters apply for option rights issued in 2015:

	Plan XIV	Plan XIVa
Weighted average share price (in EUR)	9.32	5.83
Weighted average strike price (in EUR)	9.26	5.15
Weighted expected volatility (in % per year)	45.84%	44.77%
Term (in years)	7	7
Weighted risk-free interest rate (in % per year)	-0.09%	-0.02%

The volatility is specified as fluctuation of the share price compared to the average share price of the period. In each case, expected volatility is calculated based on historic share prices (historic volatility). The risk-free interest rate is based on information on risk-free investments with corresponding terms.

For the calculation of the fair value of options, ADVA Optical Networking assumed that no dividends will be paid to stockholders.

Changes in the number of option rights outstanding are presented in the tables below.

## Stock Option Program 2003 (Plan IX)

	Number of options	Weighted average strike price (in EUR)
Options outstanding on Jan. 1, 2014	1,076,283	3.18
Granted options	-	-
Exercised options	-43,166	1.57
Forfeited options	-285,500	2.69
Expired options	-148,000	5.97
Options outstanding on Dec. 31, 2014	599,617	2.83
Granted options	-	-
Exercised options	-424,277	2.64
Forfeited options	-47,200	4.59
Expired options	-24,334	1.60
Options outstanding on Dec. 31, 2015	103,806	3.13
Of which exercisable	103,806	3.13

The weighted average remaining contractual life for option rights outstanding on December 31, 2015, was 1.23 years (December 31, 2014: 1.82 years). The strike price for these options is between EUR 2.26 und EUR 5.04 (in 2014: between EUR 1.00 und EUR 5.04).

Stock options exercised in 2015 had an average share price of EUR 8.51 on the exercise date (in 2014: EUR 2.88).

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## Stock Option Program 2003 (Plan IXa)

All options from this plan have been issued in the course of the stock option exchange offer on October 1, 2008.

	Number of options	Weighted average strike price (in EUR)
Options outstanding on Jan. 1, 2014	526,236	1.75
Granted options	-	-
Exercised options	-30,138	1.75
Forfeited options	-16,074	1.75
Expired options	-	-
Options outstanding on Dec. 31, 2014	480,024	1.75
Granted options	-	-
Exercised options	-444,753	1.75
Forfeited options	-2,867	1.75
Expired options	-32,404	1.75
Options outstanding on Dec. 31, 2015	-	-

Stock options exercised in 2015 had an average share price of EUR 7.78 on the exercise date (in 2014: EUR 3.01).

# Stock Option Program 2003 for the Management Board (Plan IXb)

	Number of options	Weighted average strike price (in EUR)
Options outstanding on Jan. 1, 2014	220,000	3.40
Granted options	-	-
Exercised options	-	-
Forfeited options	-	-
Expired options	-	-
Options outstanding on Dec. 31, 2014	220,000	3.40
Granted options	-	-
Exercised options	-145,000	2.55
Forfeited options	-	-
Expired options	-	-
Options outstanding on Dec. 31, 2015	75,000	5.04
Of which exercisable	75,000	5.04

The weighted average remaining contractual life for option rights outstanding on December 31, 2015, was 1.85 years (December 31, 2014: 2.36 years). The strike price for these options is EUR 5.04 (in 2014: EUR 2.55 and EUR 5.04).

Stock options exercised in 2015 had an average share price of EUR 10.34 on the exercise date.

## Stock Appreciation Rights (Plan XI)

	Number of stock appreciation rights	Weighted average strike price (in EUR)
Stock appreciation rights outstanding on Jan. 1, 2014	87,200	3.99
Granted stock appreciation rights	-	-
Exercised stock appreciation rights	-3,000	1.60
Forfeited stock appreciation rights	-13,000	2.93
Expired stock appreciation rights	-14,200	5.36
Stock appreciation rights outstanding on Dec. 31, 2014	57,000	4.02
Granted stock appreciation rights	-	-
Exercised stock appreciation rights	-28,000	2.70
Forfeited stock appreciation rights	-20,000	5.00
Expired stock appreciation rights	-	-
Stock appreciation rights outstanding on Dec. 31, 2015	9,000	5.96
Of which exercisable	9,000	5.96

The weighted average remaining contractual life for stock appreciation rights outstanding on December 31, 2015, was 1.97 years (December 31, 2014: 2.47 years). The strike price for these stock appreciation rights is between EUR 4.62 and EUR 6.13 (in 2014: between EUR 1.06 and EUR 6.13).

Stock appreciation rights exercised in 2015 had an average share price of EUR 8.17 on the exercise date (in 2014: EUR 2.86).

## Stock Appreciation Rights (Plan XIa)

All rights from this plan have been issued in the course of the stock option exchange offer on October 1, 2008.

	Number of stock appreciation rights	Weighted average strike price (in EUR)
Stock appreciation rights outstanding on Jan. 1, 2014	40,145	1.75
Granted stock appreciation rights	-	-
Exercised stock appreciation rights	-445	1.75
Forfeited stock appreciation rights	-	-
Expired stock appreciation rights	-	-
Stock appreciation rights outstanding on Dec. 31, 2014	39,700	1.75
Granted stock appreciation rights	-	-
Exercised stock appreciation rights	-24,203	1.75
Forfeited stock appreciation rights	-12,897	1.75
Expired stock appreciation rights	-2,600	1.75
Stock appreciation rights outstanding on Dec. 31, 2015	-	-

Stock appreciation rights exercised in 2015 had an average share price of EUR 7.26 on the exercise date (in 2014: EUR 3.13).

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## Stock Appreciation Rights (Plan XIII)

	Number of stock appreciation rights	Weighted average strike price (in EUR)
Stock appreciation rights outstanding on Jan. 1, 2014	100,400	2.60
Granted stock appreciation rights	-	-
Exercised stock appreciation rights	-4,500	2.55
Forfeited stock appreciation rights	-2,250	2.55
Expired stock appreciation rights	-	-
Stock appreciation rights outstanding on Dec. 31, 2014	93,650	2.60
Granted stock appreciation rights	-	-
Exercised stock appreciation rights	-91,550	2.59
Forfeited stock appreciation rights	-2,100	2.93
Expired stock appreciation rights	-	-
Stock appreciation rights outstanding on Dec. 31, 2015	-	-

Stock appreciation rights exercised in 2015 had an average share price of EUR 8.72 on the exercise date (in 2014: EUR 2.85).

## Stock Option Program 2011 (Plan XIV)

	Number of options	Weighted average strike price (in EUR)
Options outstanding on Jan. 1, 2014	1,142,200	4.16
Granted options	56,500	2.91
Exercised options	-	-
Forfeited options	-84,500	3.98
Expired options	-	-
Options outstanding on Dec. 31, 2014	1,114,200	4.11
Granted options	788,000	9.26
Exercised options	-264,023	3.59
Forfeited options	-79,500	4.31
Expired options	-	-
Options outstanding on Dec. 31, 2015	1,558,677	6.79
Of which exercisable	205,177	3.61

The average fair value of option rights granted in 2015 is EUR 3.79 (December 31, 2014: EUR 1.24).

The weighted average remaining contractual life for option rights outstanding on December 31, 2015, was 5.40 years (December 31, 2014: 4.56 years). The strike price for these options is between EUR 2.87 and EUR 10.16 (in 2014: between EUR 2.87 and EUR 5.05).

Stock appreciation rights exercised in 2015 had an average share price of EUR 9.92 on the exercise date.

# Stock Option Program 2011 for the Management Board (Plan XIVa)

	Number of options	Weighted average strike price (in EUR)
Options outstanding on Jan. 1, 2014	280,000	3.61
Granted options	60,000	3.19
Exercised options	-	-
Forfeited options	-50,000	5.05
Expired options	-	-
Options outstanding on Dec. 31, 2014	290,000	4.15
Granted options	150,000	5.15
Exercised options	-	-
Forfeited options	-	-
Expired options	-	-
Options outstanding on Dec. 31, 2015	440,000	4.49

The average fair value of option rights granted in 2015 is EUR 2.27 (December 31, 2014: EUR 1.25).

The weighted average remaining contractual life for option rights outstanding on December 31, 2015, was 5.27 years (December 31, 2014: 5.65 years). The strike price for these options is between EUR 3.19 and EUR 5.15 (in 2014: EUR 3.19 and EUR 5.05).

## Stock Appreciation Rights (Plan XV)

	Number of stock appreciation rights	Weighted average strike price (in EUR)
Stock appreciation rights outstanding on Jan. 1, 2014	144,800	3.57
Granted stock appreciation rights	-	-
Exercised stock appreciation rights	-	-
Forfeited stock appreciation rights	-8,000	3.57
Expired stock appreciation rights	-	-
Stock appreciation rights outstanding on Dec. 31, 2014	136,800	3.57
Granted stock appreciation rights	-	-
Exercised stock appreciation rights	-68,400	3.57
Forfeited stock appreciation rights	-9,000	3.57
Expired stock appreciation rights	-	-
Stock appreciation rights outstanding on Dec. 31, 2015	59,400	3.57
Of which exercisable	59,400	3.57

The weighted average remaining contractual life for stock appreciation rights outstanding on December 31, 2015, was 2.66 years (December 31, 2014: 3.73 years). The strike price for these stock appreciation rights is EUR 3.57 (in 2014: EUR 3.57).

Stock appreciation rights exercised in 2015 had an average share price of EUR 10.09 on the exercise date.

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## Stock Appreciation Rights (Plan XVI)

All stock appreciation rights in this plan arose from the revocation of option bonds on April 1, 2013.

	Number of stock appreciation rights	Weighted average strike price (in EUR)
Stock appreciation rights outstanding on Jan. 1, 2014	89,000	1.58
Granted stock appreciation rights	-12,000	1.60
Exercised stock appreciation rights	-1,000	1.06
Forfeited stock appreciation rights	-	-
Expired stock appreciation rights	-	-
Stock appreciation rights outstanding on Dec. 31, 2014	76,000	1.58
Granted stock appreciation rights	-	-
Exercised stock appreciation rights	-63,500	1.58
Forfeited stock appreciation rights	-1,000	1.06
Expired stock appreciation rights	-11,500	1.60
Stock appreciation rights outstanding on Dec. 31, 2015	-	-

Stock appreciation rights exercised in 2015 had an average share price of EUR 6.91 on the exercise date (in 2014: EUR 2.86).

Compensation expenses arising from share-based compensation programs included in operating income were as follows:

(in thousands of EUR)	2015	2014
Plan IX	-	23
Plan XI	191	-70
Plan XIa	88	-39
Plan XIII	510	-96
Plan XIV	756	642
Plan XIVa	105	69
Plan XV	861	-74
Plan XVI	245	-73
Expense from cash settlement of stock options and stock appreciation rights	120	-
	2,876	382

The liability arising from stock appreciation rights is included in non-current provisions and amounts to EUR 545 thousand and EUR 286 thousand on December 31, 2015 and 2014, respectively. The increase of the provision results from the revaluation of STARs at year-end 2015 and is mainly due to the increase in relevant share price compared to year-end 2014. The intrinsic value of these liabilities amounts to EUR 479 thousand on December 31, 2015 (prior year: EUR 211 thousand).

The expense from cash settlement of stock options and stock appreciation rights is due to the cancellation of the plans in 2015.

## (34) Related Party Transactions

EGORA Holding GmbH, Martinsried/Munich, and its subsidiaries (the EGORA Group), Saguna Networks Ltd. and all members of the Company's governing bodies and their relatives qualify as related parties to ADVA Optical Networking on December 31, 2015, in the sense of IAS 24.

All transactions with the related parties listed above are conducted on an arm's-length basis.

On December 31, 2015, the EGORA Group held a 15.5% equity stake in ADVA Optical Networking.

In 2015 and 2014, ADVA Optical Networking acquired no components from the EGORA Group. In 2015 and 2014, ADVA Optical Networking did not sell any products to the EGORA Group.

ADVA Optical Networking has entered into several agreements with the EGORA Group under which ADVA Optical Networking is entitled to make use of certain facilities and services of the EGORA Group. In 2015 and 2014, these agreements were not utilized.

ADVA Optical Networking SE holds 11% of the shares of Saguna Networks Ltd., Nesher, Israel. A service agreement with Saguna Networks Ltd. exists regarding the provision of development services for the companies of ADVA Optical Networking Group. In 2015, Saguna Networks Ltd. did not perform any development services for the Group (2014: EUR 12 thousand).

On December 31, 2015 and 2014, respectively, no trade receivables, provisions and trade payables in respect to related parties existed.

See note (35) for detailed information about compensation of the Management Board and the Supervisory Board.

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## (35) Governing Boards and Compensation

## **Management Board**

	Resident in	External mandates
Brian Protiva Chief Executive Officer	Berg, Germany	Member of the Board of Directors of AMS Technologies AG, Martinsried, Germany
Christoph Glingener Chief Technology Officer & Chief Operating Officer	Jade, Germany	Member of the Board of Trustees of Fraunhofer Heinrich Hertz Institute, Berlin, Germany
Ulrich Dopfer Chief Financial Officer (since January 1, 2015)	Alpharetta (Georgia), USA	-

## **Supervisory Board**

	Resident in Occupation		External mandates				
Nikos Theodosopoulos Chairman (since December 29, 2014)	Manhasset (New York), USA	Founder and Managing Member, NT Advisors LLC, Manhasset, New York, USA	Member of the Board of Directors of Arista Networks, Inc., Santa Clara, CA, USA				
( , , , , , , , , , , , , , , , , , , ,		,	Member of the Advisory Board of Columbia Engineering Entrepreneurship, New York, NY, USA				
			Member of the Board of Directors of Harmonic, Inc., San Jose, CA, USA				
			Member of the Board of Directors of Gadget Software, Inc., Newark, New Jersey, USA				
Johanna Hey Vice Chairwoman	Cologne, Germany	Professor for Tax Law, University of Cologne,	Director of the Institut Finanzen und Steuern e.V., Berlin, Germany				
vice sites nome.		Cologne, Germany	Member of the Supervisory Board of Gothaer Lebensversicherung AG, Cologne, Germany				
			Member of the Supervisory Board of Cologne Executive School GmbH, Cologne, Germany				
Eric Protiva (until July 27, 2015)	Palo Alto (California), USA	Managing Director, EGORA Holding GmbH, Martinsried/Munich,	Member of the Supervisory Board of AMS Technologies AG, Martinsried/Munich, Germany				
		Germany	Member of the Board of Directors of Elforlight Ltd., Daventry, United Kingdom				

## **Compensation of the Management Board**

The total Management Board compensation was EUR 3,732 thousand in 2015 and EUR 1,943 thousand in 2014. This amount is analyzed across the individual Board members as follows:

(in thousands of EUR)	Fixed	Variable	Total 2015	Total 2014
Brian Protiva Chief Executive Officer	275	1,586	1,861	538
Christoph Glingener Chief Technology Officer & Chief Operating Officer	272	1,166	1,438	451
Ulrich Dopfer Chief Financial Officer (since January 1, 2015)	247	186	433	-
Jaswir Singh Chief Financial Officer & Chief Operating Officer (until December 31, 2014)	-	-	-	954

Jaswir Singh left the Company at the end of 2014. From January 1, 2015, Ulrich Dopfer took over the responsibility as Chief Financial Officer. Operations responsibility has been transferred to Christoph Glingener effective January 1, 2015. A compensation of EUR 490 thousand (USD 660 thousand) has been agreed with Jaswir Singh. The amount not yet paid out is included in other liabilities.

The fixed compensation includes contributions to unemployment insurance, statutory pension insurance and company car allowances.

The variable compensation relates to the short-term performance-based bonus for 2015, which is included in other current liabilities on December 31, 2015, as well as the relevant part of the long-term performance based bonus accrued in 2015, which is included in non-current personnel provisions at year-end 2015. In addition, the variable compensation includes income from exercises of stock options in 2015.

The Group paid pecuniary damage liability insurance premiums on behalf of members of the Management Board totaling EUR 12 thousand both in 2015 and 2014 (in equal amounts for each Management Board member), respectively.

In 2015 and 2014, no loans were granted to the members of the Management Board. At December 31, 2015, ADVA Optical Networking had a receivable of EUR 62 thousand outstanding from Brian Protiva regarding payroll tax related to stock option exercises. The receivable has been offset against the remuneration paid in January and February 2016.

On December 31, the members of the Management Board held the following shares and stock options:

	Sha	ares	Stock options			
	2015	2014	2015	2014		
Brian Protiva Chief Executive Officer	401,030	401,030	185,000	335,000		
Christoph Glingener Chief Technology Officer & Chief Operating Officer	-	-	180,000	325,000		
Ulrich Dopfer Chief Financial Officer (since January 1, 2015)	500	500	153,000	9,667		

The options to members of the Management Board were granted out of Plan IXb, Plan XIV and Plan XIVa. These option rights authorize the Management Board to purchase the said number of common shares in the Company once the qualifying period has elapsed. Plan IXb and Plan XIVa include a profit limit of EUR 20.00 per option, whereas Plan XIV has no profit limitations.

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The strike price for these option rights is

- EUR 5.04 for 75,000 options granted on October 1, 2010,
- EUR 5.05 for 103,000 options granted on August 15, 2012,
- EUR 3.90 for 130,000 options granted on November 15, 2013,
- EUR 3.19 for 60,000 options granted on May 15, 2014,
- EUR 5.15 for 150,000 options granted on May 15, 2015, respectively.

Further information on compensation of the Management Board is included in the remuneration report in the Group Management Report.

## **Compensation of the Supervisory Board**

The fixed compensation to be paid to the Supervisory Board for 2015 and 2014 totaled EUR 215 thousand and EUR 224 thousand, respectively. This amount analyzes across the individual Board members as follows:

(in thousands of EUR)	2015	2014
Nikos Theodosopoulos Chairman (since December 29, 2014)	100	-
Johanna Hey Vice Chairwoman	90	90
Eric Protiva (until July 27, 2015)	25	45
Anthony Maher† Chairman (until November 22, 2014)	-	89

The compensation for the Supervisory Board of ADVA Optical Networking SE for 2015 amounting to EUR 215 thousand is paid out in quarterly installments. The fixed compensation for Q4 2015 amounting to EUR 48 thousand was paid out in January 2016. In the consolidated financial statements, this amount is recognized in other current liabilities.

The Group paid pecuniary damage liability insurance premiums on behalf of members of the Supervisory Board totaling EUR 12 thousand in both 2015 and 2014, respectively.

On December 31, members of the Supervisory Board held the following shares:

	Shares		
(in thousands of EUR)	2015	2014	
Nikos Theodosopoulos Chairman (since December 29, 2014)	-	-	
Johanna Hey Vice Chairwoman	-	-	
Eric Protiva (until July 27, 2015)	-	320,000	

Further information on compensation of the Supervisory Board is included in the remuneration report in the Group Management Report.

## (36) Events after the Balance Sheet Date

On January 13, 2016, ADVA Optical Networking acquired 100% of the shares of Overture group, headquartered in Raleigh, North Carolina, USA. The acquisition expands ADVA Optical Networking's portfolio of Ethernet and cloud access solutions and increases its presence in North America including the local customer base. The Overture corporate group consists of two US companies and two subsidiaries in India and the UK. A large part of its revenue was generated in North America. The group currently employs 178 people worldwide. The purchase price totaled USD 40.0 million (EUR 36.9 million translated at the exchange rate of January 13, 2016: USD 1.0839 per EUR). USD 35.0 million (EUR 32.3 million) was payable in cash on the date of acquisition. In addition, a revenue-based earn-out component of USD 5.0 million was agreed. The purchase price has been financed through two bank loans totaling EUR 35.0 million. Both loans have a term of five years and a fixed interest rate of 1.4% per annum. The audited opening balance sheet on January 15, 2016, following IFRS and the results of the purchase price allocation were not available at the time the preparation of the 2015 consolidated financial statements was finalized.

In January 2016, ADVA Optical Networking submitted all documents for the legal liquidation of ADVA Optical Networking AS i.l. in Oslo, Norway. After completion of the liquidation, ADVA Optical Networking AS will be deconsolidated.

On February 1, 2016, ADVA Optical Networking submitted all required documents to court in order to appoint Prof. Dr.-Ing. Hans-Joachim Grallert to the Supervisory Board. Prof. Dr.-Ing. Hans-Joachim Grallert was lastly Head of the Department of Communications Engineering at the Technical University of Berlin. The appointment by the court was effective on February 17, 2016.

# Declaration of Compliance with the German Corporate Governance Code

Pursuant to Section 161 of the German Stock Corporation Law (AktG), the Management Board and the Supervisory Board have issued a declaration of compliance with the German Corporate Governance Code. This declaration is published on the Group's website (www.advaoptical.com).

Meiningen, February 23, 2016

Brian Protiva

Christoph Glingener Ulrich Dopfer

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# Affirmative Declaration of the Legal Representatives

We, the members of the Management Board of ADVA Optical Networking SE, to the best of our knowledge affirm that, in accordance with the applicable reporting principles, the management report and the consolidated financial statements of the ADVA Optical Networking Group represent a true and fair view of the net assets, financial position and performance of the Group, together with a description of the principal opportunities and risks associated with the expected development of the Group.

Meiningen, February 23, 2016

Brian Protiva

Christoph Glingener Ulrich Dopfer

## Auditors' Report

We have audited the consolidated financial statements prepared by the ADVA Optical Networking SE, Meiningen, comprising the consolidated statement of financial position, the consolidated income statement, the consolidated statement of comprehensive income, consolidated statement of changes in equity, consolidated cash flow statement and the notes to the consolidated financial statements, together with the group management report for the business year from January 1 to December 31, 2015. The preparation of the consolidated financial statements and the group management report in accordance with the IFRSs, as adopted by the EU, and the additional requirements of German commercial law pursuant to § (Article) 315a Abs. (paragraph) 1 HGB ("Handelsgesetzbuch": German Commercial Code) is the responsibility of the parent Company's Board of Managing Directors. Our responsibility is to express an opinion on the consolidated financial statements and on the group management report based on our audit.

We conducted our audit of the consolidated financial statements in accordance with § 317 HGB and German generally accepted standards for the audit of financial statements promulgated by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany) (IDW). Those standards require that we plan and perform the audit such that misstatements materially affecting the presentation of the net assets, financial position and results of operations in the consolidated financial statements in accordance with the applicable financial reporting framework and in the group management report are detected with reasonable assurance. Knowledge of the business activities and the economic and legal environment of the Group and expectations as to possible misstatements are taken into account in the determination of audit procedures. The effectiveness of the accounting-related internal control system and the evidence supporting the disclosures in the consolidated financial statements and the group management report are examined primarily on a test basis within the framework of the audit. The audit includes assessing the annual financial statements of those entities included in consolidation, the determination of the entities to be included in consolidation, the accounting and consolidation principles used and significant estimates made by the Company's Board of Managing Directors, as well as evaluating the overall presentation of the consolidated financial statements and the group management report. We believe that our audit provides a reasonable basis for our opinion.

Our audit has not led to any reservations.

In our opinion based on the findings of our audit the consolidated financial statements comply with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to § 315a Abs. 1 and give a true and fair view of the net assets, financial position and results of operations of the Group in accordance with these requirements. The group management report is consistent with the consolidated financial statements and as a whole provides a suitable view of the Group's position and suitably presents the opportunities and risks of future development.

Munich, February 23, 2016

PricewaterhouseCoopers Aktiengesellschaft Wirtschaftsprüfungsgesellschaft

sgd. Holger Graßnick Wirtschaftsprüfer (German Public Auditor) sgd. ppa. Sonja Knoesch Wirtschaftsprüferin (German Public Auditor) Welcome

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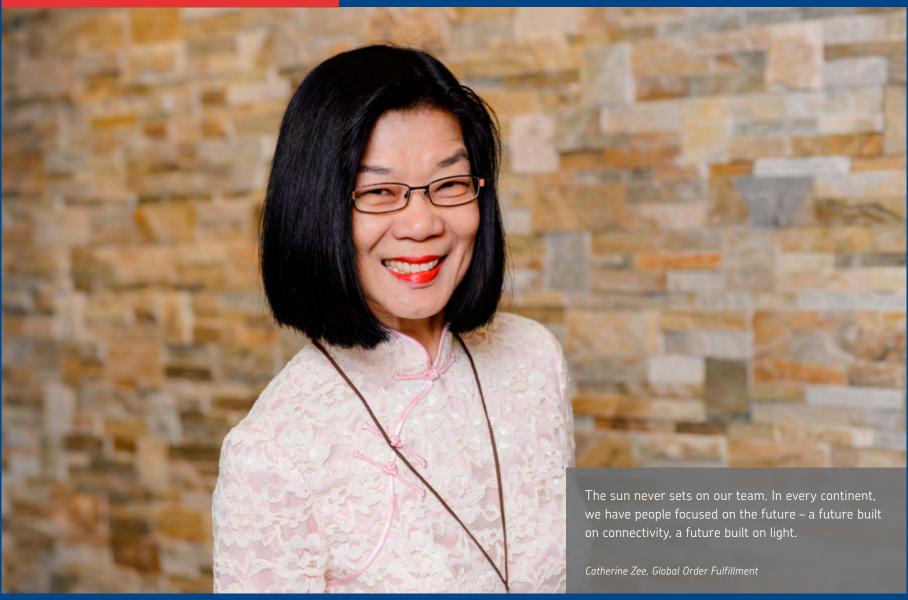
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## Quarterly Overview 2014-2015

		201	.5	2014				
(IFRS, in thousands of EUR, except stated otherwise)	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
INCOME STATEMENT								
Revenues	95,604	112,260	122,322	111,752	78,119	87,169	87,131	86,749
Pro forma cost of goods sold	-60,985	-73,592	-79,969	-69,975	-50,503	-58,577	-56,332	-54,996
Pro forma gross profit	34,619	38,668	42,353	41,777	27,616	28,592	30,799	31,753
Pro forma selling and marketing expenses	-13,368	-13,936	-13,825	-14,167	-11,389	-11,714	-11,994	-12,906
Pro forma general and administrative expenses	-7,271	-7,433	-7,905	-7,505	-6,313	-6,774	-7,247	-6,817
Pro forma research and development expenses	-18,724	-19,129	-19,991	-20,649	-16,695	-16,951	-16,619	-17,196
Income from capitalization of development expenses	7,526	8,432	8,186	7,927	5,063	6,173	7,914	7,958
Other operating income and expenses, net	921	1,069	781	1,621	2,109	1,099	661	2,345
Pro forma operating income	3,703	7,671	9,599	9,004	391	425	3,514	5,137
Amortization of intangible assets from acquisitions	-134	-45	-67	-100	-171	-187	-187	-188
Stock compensation expenses	-234	-204	-1,057	-1,381	-135	-200	-239	192
Operating income (loss)	3,335	7,422	8,475	7,523	85	38	3,088	5,141
Interest income and expenses, net	-265	-235	-187	-151	-336	-313	-311	-307
Other financial gains and losses, net	2,106	-1,621	179	1,495	40	311	621	170
Income (loss) before tax	5,176	5,566	8,467	8,867	-211	36	3,398	5,004
Income tax benefit (expense), net	-912	-440	110	14	-186	-33	1,043	-676
Net income (loss)	4,264	5,126	8,577	8,881	-397	3	4,441	4,328
Earnings per share in EUR								
basic	0.09	0.11	0.18	0.18	-0.01	0.00	0.09	0.09
diluted	0.09	0.11	0.17	0.18	-0.01	0.00	0.09	0.09
BALANCE SHEET (as of period end)								
Cash and cash equivalents	73,358	78,819	79,269	93,850	77,130	79,141	82,642	83,877
Inventories	59,000	65,912	78,521	72,950	38,931	42,409	46,147	46,982
Goodwill	24,955	25,028	24,680	24,881	19,932	20,569	20,978	23,581
Capitalized development projects	57,945	60,082	61,542	62,439	51,458	52,360	54,482	56,438
Other intangible assets	2,527	2,439	2,992	4,238	3,691	3,605	3,171	2,861
Total intangible assets	85,427	87,549	89,214	91,558	75,081	76,534	78,631	82,880
Other assets	134,928	132,289	137,583	133,177	114,127	117,426	115,477	111,098
Total assets	352,713	364,569	384,587	391,535	305,269	315,510	322,897	324,837
Total stockholders' equity	190,036	195,513	203,011	215,921	163,936	165,241	173,943	177,114
Net liquidity	40,489	47,507	50,080	51,181	38,480	40,477	46,101	48,885
CASH FLOW STATEMENT								
Cash flow from operating activities	-1,493	18,135	12,038	10,736	4,839	12,626	16,387	12,334
Gross capital expenditures for property, plant and equipment	-1,577	-2,709	-1,335	-2,177	-1,028	-1,748	-2,452	-1,864
EMPLOYEES (as of period end)	1,466	1,476	1,509	1,524	1,417	1,471	1,482	1,491

Pro forma financial numbers exclude non-cash charges related to the stock compensation programs and amortization and impairment of goodwill and acquisition-related intangible assets.

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## Multi-Year Overview 2005-2015

(in thousands of EUR except stated otherwise)	2005 IFRS	2006 IFRS	2007 IFRS	2008 IFRS	2009 IFRS	2010 IFRS	2011 IFRS	2012 IFRS	2013 IFRS	2014 IFRS	2015 IFRS	Change 2015 vs. 2014
INCOME STATEMENT												
Revenues	131,292	192,709	251,486	217,672	232,808	291,725	310,945	330,069	310,702	339,168	441,938	+30%
Pro forma cost of goods sold	-68,529	-110,849	-158,774	-128,854	-140,041	-181,874	-191,560	-196,820	-188,561	-220,408	-284,521	+29%
Pro forma gross profit*	62,763	81,860	92,712	88,818	92,767	109,851	119,385	133,249	122,141	118,760	157,417	+33%
Pro forma general, administrative, selling and marketing expenses	-34,325	-46,721	-59,685	-60,385	-60,005	-66,224	-67,418	-71,984	-72,942	-75,154	-85,410	+14%
Pro forma research and development expenses	-15,238	-28,054	-41,372	-40,682	-40,714	-49,391	-60,083	-65,055	-65,649	-67,461	-78,493	+16%
Income from capitalization of development expenses	5,805	5,852	10,039	12,056	12,404	15,291	23,648	23,529	22,490	27,108	32,071	+18%
Restructuring expenses	-	-	-	-2,251	-	-	-	-	-	-	-	-
Other operating income and expenses, net	89	185	86	1,736	1,650	3,761	1,751	2,059	2,531	6,214	4,392	-29%
Pro forma operating income (loss)	19,094	13,122	1,780	-708	6,102	13,288	17,283	21,798	8,571	9,467	29,977	+217%
Amortization of intangible assets from acquisitions excluding goodwill	-714	-6,681	-10,727	-4,574	-2,443	-2,141	-2,493	-1,620	-683	-733	-346	-53%
Impairment of goodwill	-	-	-6,581	-	-	-	-	-	-	-	-	-
Stock compensation expenses	-1,198	-5,526	-3,186	-1,761	-1,378	-1,848	-1,583	-1,344	-913	-382	-2,876	+653%
Operating income (loss)	17,182	915	-18,714	-7,043	2,281	9,299	13,207	18,834	6,975	8,352	26,755	+220%
Interest income and expenses, net	-26	-490	-853	-1,005	-1,215	-1,439	-1,531	-1,163	-1,144	-1,267	-838	-34%
Other financial gains and losses, net	248	-1,443	-1,734	-1,103	543	3,130	2,328	834	-1,475	1,142	2,159	+89%
Income (loss) before tax	17,404	-1,018	-21,301	-9,151	1,609	10,990	14,004	18,505	4,356	8,227	28,076	+241%
Income tax benefit (expense), net**	-5,530	-9,325	-8,154	275	-289	-3,983	2,935	-1,783	7,279	148	-1,228	-930%
Net income (loss) **	11,874	-10,343	-29,455	-8,876	1,320	7,007	16,939	16,722	11,635	8,375	26,848	+221%
Earnings per share in EUR**												
basic	0.35	-0.26	-0.64	-0.19	0.03	0.15	0.36	0.35	0.24	0.17	0.55	+224%
diluted	0.34	-0.26	-0.64	-0.19	0.03	0.15	0.35	0.34	0.24	0.17	0.55	+224%
BALANCE SHEET (as of December 31)												
Cash and cash equivalents	27,657	32,181	41,576	46,560	50,882	54,085	59,110	70,625	80,934	83,877	93,850	+12%
Inventories	14,373	42,034	31,029	26,961	25,400	39,588	36,536	41,339	40,074	46,982	72,950	+55%
Goodwill	11,704	24,247	20,006	18,854	19,103	19,653	19,842	19,876	19,875	23,581	24,881	+6%
Capitalized R&D expenses	5,567	10,198	12,238	19,829	25,449	29,571	39,231	47,497	52,080	56,438	62,439	+11%
Other intangible assets	3,132	28,107	18,178	12,926	9,991	7,467	5,541	3,586	2,699	2,861	4,238	+48%
Total intangible assets	20,403	62,552	50,422	51,609	54,543	56,691	64,614	70,959	74,654	82,880	91,558	+10%
Other assets **	62,634	95,918	80,769	70,670	66,172	83,758	99,636	101,172	103,544	111,098	133,177	+20%
Total assets **	125,067	232,685	203,796	195,800	196,997	234,122	259,896	284,095	299,206	324,837	391,535	+21%
Total stockholders' equity **	79,681	138,322	109,026	97,998	101,270	115,414	135,986	153,909	163,948	177,114	215,921	+22%
Net liquidity	12,167	347	4,549	12,378	22,534	24,650	31,163	41,600	41,724	48,885	51,181	+5%
CASH FLOW STATEMENT												
Cash flow from operating activities	13,526	-7,899	25,150	23,343	29,105	21,100	39,736	45,156	31,413	46,186	39,415	-15%
Capital expenditures for property, plant and equipment	-5,008	-10,245	-8,378	-4,464	-5,807	-8,808	-7,260	-9,167	-6,989	-6,966	-7,798	+12%
EMPLOYEES (as of December 31)	561	853	1,040	1,042	1,100	1,203	1,304	1,378	1,425	1,491	1,524	+2%

Pro forma financial numbers exclude non-cash charges related to the stock compensation programs and amortization and impairment of goodwill and acquisition-related intangible assets.

<sup>\*</sup> From 2012, amortization for capitalized development projects is presented as cost of goods sold; prior period information has been adjusted accordingly.

<sup>\*\*</sup> In a retrospective restatement in 2014, deferred tax assets as of December 31, 2013, were increased by EUR 6,128 thousand. As a result, the line items "income tax benefit (expense), net", "net income" and "basic and diluted earnings per share" in the consolidated income statement in 2013 were increased accordingly.

## Glossary

#### Α

## **ALM (Access Link Monitoring)**

ALM is a new functionality of the ADVA FSP 3000 product family. ALM provides non-intrusive monitoring of fiber access networks independent of the services running over that fiber.

## **API (Application Programming Interfaces)**

API is a term that is commonly used in the context of computer programming. It refers to a set of well-defined routines, protocols and tools for building software applications.

## C

## **Carriers**

Carriers, in general, are companies that build and maintain communications networks for commercial use. Beyond incumbent telephony companies, these also include new alternative carriers, which were established during the deregulation of the telecommunications market, and special service providers, which offer outsourced services (e.g., software applications or data storage) for enterprise customers.

## **CCTV (Close Circuit Television)**

The use of video cameras to transmit a signal to a specific place, on a limited set of monitors. The term is commonly used to refer to video surveillance solutions.

#### **Cesium Clocks**

Many network services and applications require the availability of a highly accurate primary frequency reference. This can be achieved using Cesium clocks. Unlike off-air receivers, Cesium clocks are autonomous, self-contained primary references immune to external influences.

#### Cloud

Cloud in the context of IT describes a concept where applications no longer run on the user's in-house IT infrastructure (for example, a server) but are outsourced to a service provider whose IT infrastructure is not visible or known in detail – as if it was hidden in a cloud. A typical example is the use of software as a service, where the software is not stored on the user's machine, but on servers of the software service provider.

#### CloudConnect™

FSP 3000 CloudConnect™ a new version of the FSP 3000 platform, specifically designed for hyper-scale data center interconnect.

#### **ConnectGuard™**

Brand name for ADVA Optical Networking's encryption technology, implemented in the FSP 3000 and FSP 150 product families.

## **CWDM (Coarse Wavelength Division Multiplexing)**

CWDM is a standardized WDM technology that uses up to 20 different wavelengths for data transmission over a single fiber. In contrast to DWDM, CWDM uses only a "coarse" wavelength grid, so the underlying optical component technology is simpler. This makes CWDM systems very cost-effective, but also limits them in terms of total capacity. See also DWDM (Dense Wavelength Division Multiplexing) and WDM (Wavelength Division Multiplexing).

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## **DevOps (Development and Operations)**

The term DevOps has its origins in software development. It describes a methodology that stresses communication, collaboration and cooperation between software developers and other information-technology (IT) professionals. In a broader sense DevOps refers to the tight alignment between product development teams and operational teams responsible for product introduction.

## **DMT (Discrete Multitone Transmission)**

DMT is a modulation technique that has been widely used in DSL networks. It is now finding early adoption in optical transmission technology.

## **DSL (Digital Subscriber Line)**

DSL is a technology that provides fast digital data transmission over the copper wires of a local telephone network. The advantage of DSL is that broadband services like fast Internet access and Internet television signals can be delivered over the same twisted pair of copper wires that was originally deployed for phone service only.

## **DWDM (Dense Wavelength Division Multiplexing)**

DWDM is a standardized WDM technology that uses up to 192 different wavelengths for data transmission over a single fiber. DWDM uses a "dense" wavelength grid that requires high-precision optical components, maximizing the bandwidth per fiber. See also CWDM (Coarse Wavelength Division Multiplexing) and WDM (Wavelength Division Multiplexing).

Е

## Etherjack™

This innovative ADVA Optical Networking technology allows carriers to deploy differentiated Ethernet services by providing the industry's first intelligent Ethernet demarcation point, which includes service definition toward the end-user and end-to-end quality-of-service assurance across any network.

## **Ethernet**

Ethernet is a packet-based data transmission protocol with a data rate of 10Mbit/s. Fast Ethernet provides a data rate of 100Mbit/s, Gigabit Ethernet 1Gbit/s and 10 Gigabit Ethernet 10Gbit/s. Today also 40 and 100 Gigabit Ethernet solutions are commercially available with data rates of 40Gbit/s and 100Gbit/s, respectively.

## F

## FC (Fibre Channel)

Fibre Channel, or FC, has been designed for the continuous, serial high-speed transmission of big data volumes. It is primarily used for SANs in enterprise storage. Today's transmission speeds include 1, 2, 4, 8, 10 and 16Gbit/s. See also SAN (Storage Area Network).

#### Fronthaul

Umbrella term for transmission solutions in mobile broadband networks that connect baseband units with remote radio heads.

## FSP (Fiber Service Platform)

The Fiber Service Platform is ADVA Optical Networking's comprehensive product portfolio that provides carriers and enterprises with innovative connectivity solutions for access, metro and long-haul networks.

## FTTx (Fiber-To-The-x)

FTTx is an umbrella term for fiber-based access networks, where x defines the end point of the fiber network. One example is FTTC (Fiber-To-The-Curb) where the fiber network is terminated in a street cabinet (at the curb) and the remaining distance to the end user is bridged by some other – in most cases existing – media, such as copper. Many network operators see FTTH (Fiber-To-The-Home) as the ultimate solution. In a FTTH scenario the fiber is deployed all the way to individual homes.

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G

## Gbit/s or G (Gigabit per second)

Bits are binary symbols of zero or one and are the standard unit by which data is stored and processed by computers. "Giga" stands for one billion (1,000,000,000). Bit/s is the basic unit of a data rate, which describes how many bits per second are being transmitted. One Gbit/s or G is therefore a data rate that transmits one billion bits of data per second.

## **GNSS (Global Navigation Satellite System)**

GNSS refers to a constellation of satellites transmitting positioning and timing data from space. GNSS receivers determine their location by using that data. By definition, a GNSS provides global coverage.

## **GUI (Graphical User Interface)**

Common term to describe a man-machine interface that allows users to interact with electronic devices through graphical icons and visual indicators.

Н

#### HD-SDI

Serial digital interface (SDI) is a family of digital video interfaces. High-definition SDI (HD-SDI) provides a nominal data rate of 1.485Gbit/s.

Ι

### ICP (Internet Content Provider)

Internet content providers are entities whose primary business is the creation, storage and dissemination of digital information. ICPs are also commonly referred to as over-thetop (OTT), Web 2.0 and digital media companies.

#### IEEE 1588v2 Mini-Grandmaster Clock

The Precision Time Protocol (PTP) is used to synchronize clocks throughout a computer network. PTP was originally defined in the Institute of Electrical and Electronic Engineers' IEEE 1588-2002 standard and revised in 2008 as PTP version 2 (1588v2) for improved accuracy, precision and robustness. The 1588v2 is used in carrier networks to synchronize clocks over a data transport infrastructure. A grandmaster clock is the root timing reference in a hierarchical architecture, typically located centrally in a network. A mini-grandmaster clock is a smaller version of a root timing reference, typically located further out in the network.

## IP (Internet Protocol)

IP is a packet-based method by which data is sent from one computer to another on the Internet.

#### ISO 14001 and ISO 22301

ISO 14001 is a standard developed and published by the International Organization for Standardization. This standard defines, establishes and maintains an environmental management system for the manufacturing and service industries. 22301 describes a standard for business continuity management.

## LAN (Local Area Network)

A LAN is a computer network covering a small physical area, like an office or small group of buildings. There are several technologies available for setting up a LAN. Today, Ethernet is the most commonly used technology in LAN environments. See also *Ethernet*.

## LTE (Long Term Evolution) / LTE-Advanced / LTE-TDD

LTE is the project name of a high-performance air interface for cellular mobile communication systems. It is often used as the synonym for the 4<sup>th</sup> generation (4G) of radio technologies designed to increase the capacity and speed of mobile networks. LTE-Advanced provides further enhancements to the LTE technology, enabling operators to deliver even more bandwidth to more mobile users. The TDD (Time Division Duplex) version of the standard uses a single frequency for uploading and downloading data, alternating between the two through time.

## Μ

## MADI (Multichannel Audio Digital Interface)

MADI is an electronic communications protocol that defines the data format and electrical characteristics of an interface that carries multiple channels of digital audio.

## Mbit/s (Megabit per second)

Bits are binary symbols of zero or one and are the standard unit by which data is stored and processed by computers. "Mega" stands for one million (1,000,000). Bit/s is the basic unit of a data rate, which describes how many bits per second are being transmitted. One Mbit/s is therefore a data rate that transmits one million bits of data per second.

## MSO (Multiple Service Operator)

The term MSO emerged in the 1990s when cable television companies, mainly in the U.S., started to offer telecom services in addition to their traditional television and video offerings. Technically, most telecom service providers today could be called multiservice operators, but the term MSO still implies the historical roots in the cable television space.

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Ν

## NID (Network Interface Device)

A NID is a device that serves as the demarcation point between the carrier's access network and the customer's premises networking devices.

## **NFV (Network Functions Virtualization)**

NFV is an alternative design approach for building complex IT applications, particularly in the telecommunications and service provider industries. NFV virtualizes entire classes of functions into building blocks that may be connected, or chained, together to create services. With the introduction of NFV the architecture of service provider networks will change. Functions that were previously tied to a particular network element can now hosted centrally leading to a new distribution of hardware and software functionality across networks.

## **NPI (New Product Introduction)**

NPI typically refers to the process of bringing a new product to market. The NPI-team at ADVA Optical Networking is responsible for facilitating the transition of a product from the final development phase through prototyping into mass production.

## NTP (Network Timing Protocol)

NTP is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks.

0

## OAM&P (Operations, Administration, Maintenance & Provisioning) Capabilities

Capabilities that control and manage data transport in carrier networks. Enhanced OAM&P capabilities facilitate specific service level agreements between carriers and their customers detailing data signal quality and speed.

## **OEM (Original Equipment Manufacturer)**

OEM partners purchase products from other companies to fill gaps in their portfolio and offer an end-to-end solution. They typically re-label and market the products under their own brand name.

### PAM (Pulse Amplitude Modulation)

A form of signal modulation where the message information is encoded in the amplitude of a series of signal pulses. PAM becomes increasingly relevant in optical transmission systems for applications with shorter reach.

## PLM (Product Line Management)

PLM is a business term to describe the orchestration of activities that contribute to the output of a product line. In ADVA Optical Networking, product line managers are part of the CTO organization and have authority over a particular product line.

## **PON (Passive Optical Network)**

PON is a concept for fiber-based access networks. Using unpowered optical splitters, a point-to-multipoint topology is set up, enabling the efficient connection of multiple customer end points to one network node.

## proNID (Programmable Network Interface Device)

A NID is a demarcation device that defines the boundary between two networking domains – typically between the network operator and his client. ADVA Optical Networking offers a programmable NID, referred to as proNID.

## **Protocol**

A protocol defines the "language" elements that networks use to communicate with each other.

#### **PTP Grandmaster**

The Precision Time Protocol (PTP) is a protocol used to synchronize clocks throughout a network. The grandmaster is a reference point that delivers precise synchronization. See also *IEEE 1588v2 Mini-Grandmaster Clock*.

R

## Rack Unit (RU)

A rack unit describes the height dimension of electronic equipment designed to mount in a standard rack. One rack unit is 1.75 inches (44.45 mm) high.

## RAN (Radio Access Network)

The RAN is part of a mobile telecommunication system connecting a mobile communication device such as a mobile phone or smart phone via an air interface to the network of the communication service provider. The most current RAN technology is LTE, a high-speed and low-latency RAN for mobile broadband services. See also *LTE* (Long Term Evolution)/LTE-Advanced.

#### **ROADM**

## (Reconfigurable Optical Add / Drop Multiplexing)

ROADM is an innovative functionality in optical networks that enables cost-effective switching of wavelengths.

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S

## SAN (Storage Area Network)

A SAN establishes direct connections between storage devices and network servers, enabling such devices to be shared as peer resources and increasing the capacity and performance of storage hardware.

## SDN (Software-Defined Networking)

SDN is an approach to building networks where the control function is separated from the forwarding engine. I.e., SDN decouples the system that makes decisions about where traffic is sent from the underlying hardware that forwards traffic to the selected destination. SDN has the potential to be disruptive to the networking industry and is seen as a key enabler on the road to network virtualization. See also *Control Plane* and *OpenFlow*.

#### **Server Virtualization**

Server virtualization is the masking of server resources, including the number and identity of individual physical servers, processors and operating systems, from server users. The server administrator uses a software application to divide one physical server into multiple isolated virtual environments, which are made accessible to individual users. These virtual environments function equivalently to a separate physical computer and are sometimes called virtual private servers, but they are also known as guests or instances.

#### SFP (Small Form-Factor Pluggable)

The SFP is a standardized, compact, pluggable transceiver used for both telecommunication and data communications applications.

## **Smart Aggregator**

Aggregation is a network function that combines several signals with lower data rates and packs them into fewer signals with higher data rates. ADVA Optical Networking provides smart aggregators as part of the Group's product portfolio.

# SONET (Synchronous Optical Network) / SDH (Synchronous Digital Hierarchy)

SONET and SDH are methods for communicating digital information. These methods were developed in the mid-1980s to replace the Plesiochronous Digital Hierarchy system for transporting large amounts of telephone and data traffic and to allow for interoperability between equipment from different vendors. While SONET is a U.S. standard, SDH is dominant in Europe and also widely used in the rest of the world.

## SSU (Synchronization Supply Unit)

Many services running on digital telecommunication networks require accurate synchronization for correct operation. Telecommunication networks rely on the use of highly accurate primary reference clocks (see also *Cesium Clocks*), which are distributed network wide using synchronization links and synchronization supply units.

## Syncjack™

This innovative ADVA Optical Networking technology allows carriers to deliver, monitor and assure accurate timing and synchronization information required for applications such as mobile backhaul.

### **TDM (Time Division Multiplex)**

TDM is a type of digital multiplexing in which two or more bit streams or signals are transferred apparently simultaneously as sub-channels in one communication channel, but are physically taking turns on the channel. The time domain is divided into several recurrent timeslots of fixed length, one for each sub-channel.

#### TL 9000

TL 9000 is a quality management system standard defined specifically for the telecommunications industry. It standardizes the quality system requirements for the design, development, delivery, installation and maintenance of telecommunication products and services, and it also defines the performance metrics required to measure the situation at the time of the implementation of the standard as well as progress made.

## **Triple Play Services**

Triple play services refer to bundled offerings of data, voice and video services to end customers. These services are offered in a bundle of three, and may include Internet and e-mail access, Internet telephony, Internet television and video-on-demand.

V

## VAR (Value Added Reseller)

VAR partners combine products from a number of different vendors together with their own services to offer customers a complete and comprehensive solution.

## vCPE (Virtual Customer Premise Equipment)

A CPE is a terminal unit located at a subscriber's premises and connected with a carrier's telecommunication network. The CPE provides demarcation functionality between the network domains of the service provider and his client (see also *ProNID*). In the context of NFV, certain functions of the CPE can be virtualized and hosted centrally in the service provider network. This software package defining the CPE function is called virtual CPE (vCPE).

W

## WDM (Wavelength Division Multiplexing)

WDM expands the capacity of networks by allowing a greater number of signals to be transmitted over a single fiber. WDM enables numerous channels of data to be multiplexed into unique color bands, and then to be combined and transmitted over a single fiber and de-multiplexed at the other end.

## WDM-PON (Wavelength Division Multiplexing-Passive Optical Network)

WDM-PON is an innovative concept for access and backhaul networks. It uses multiple wavelengths (WDM) over a physical point-to-multipoint fiber infrastructure that contains no active components (PON). The use of different wavelengths allows for traffic separation within the same physical fiber. The result is a network that provides logical point-to-point connections over a physical point-to-multipoint network topology. A WDM-PON allows operators to deliver high bandwidth to multiple endpoints over long distances. See also PON (Passive Optical Network) and WDM (Wavelength Division Multiplexing).

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## **ADVA Optical Networking on the Web**

More information about ADVA Optical Networking, including solutions, technologies and products, can be found on the Group's website at <a href="https://www.advaoptical.com">www.advaoptical.com</a>.

PDF files of this annual report, as well as quarterly reports, presentations and general investor information, are also located on the Group's website and can be downloaded in both English and German. Quarterly conference calls are conducted on the day of earnings announcements. Related PDF, audio and transcript files are available for download in the investor relations section of the Group's website, www.advaoptical.com.

#### Auditor

 PricewaterhouseCoopers Aktiengesellschaft Wirtschaftsprüfungsgesellschaft, Munich, Germany

## **Legal Counsels**

· Hogan Lovells, Munich, Germany

#### Tax Advisers

• Deloitte, Munich, Germany

## Financial Calendar 2016

April 21 2016
Martinsried/Munich, Germany

| Publication of Three-Month Report 2016

May 11 2016 Meiningen, Germany

| Annual Shareholders' Meeting

July 21 2016
Martinsried/Munich, Germany

| Publication of Six-Month Report 2016

October 27 2016
Martinsried/Munich, Germany

| Publication of Nine-Month Report 2016

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