

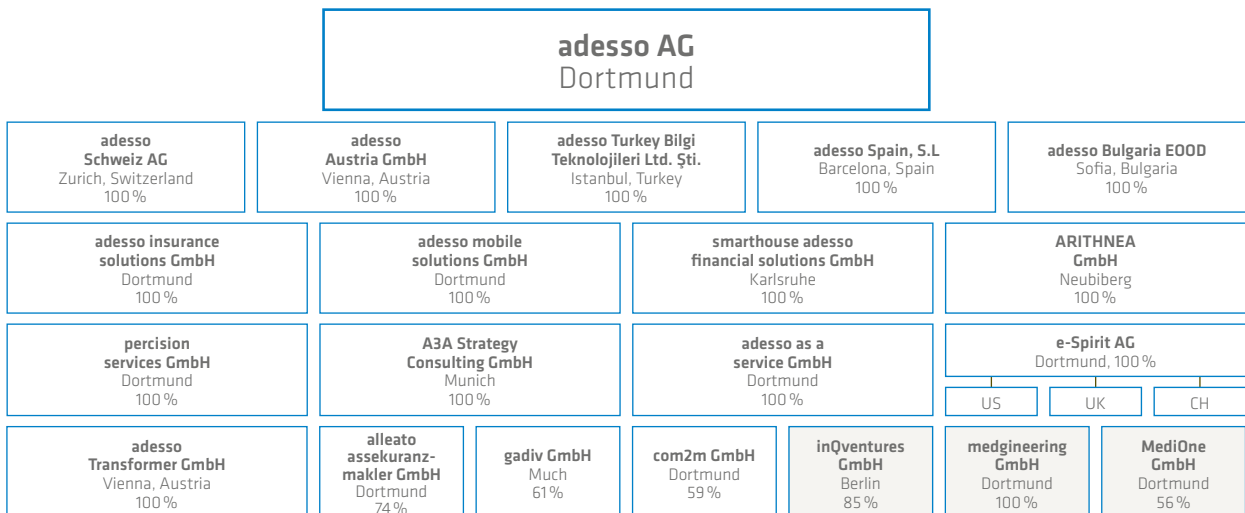
**Artificial  
intelligence  
changes the  
perspective**

**ANNUAL  
REPORT  
2018**

## LOCATIONS



## COMPANIES IN ADESSO GROUP



## MISSION STATEMENT

adesso optimises companies' core business processes with the targeted use of information technology. We offer customers expert consulting based on our in-depth industry knowledge and use our technical knowhow to develop customised software solutions. For a defined set of operational tasks adesso provides innovative solutions and products.

As an independent partner, we aim to help our customers make the most of their business potential while retaining flexibility in the future.

## ARTIFICIAL INTELLIGENCE CHANGES THE PERSPECTIVE

Early recognition of, and engagement with, promising new technological approaches is an essential element in adesso's trajectory of organic growth. That is why we carefully analyse the potential that those technologies offer both our customers and adesso, build up the necessary expertise and integrate new services into our portfolio on a step-by-step basis.

Today, in the context of digitalisation, artificial intelligence (AI) has significant market potential. It should be taken into account that AI changes your perspective on how modern software systems work and how they are developed. As a partner in the digital transformation, adesso not only offers expertise regarding the current benefits of AI in customer processes, but also has the specialist and technical capabilities to help its customers prepare sustainably for the AI processes of the future. adesso is also capable of developing or enhancing supporting software systems that increase the utility of AI. That requires extensive experience with IT projects and systems on which to base decisions about the use of AI.

In the present Annual Report, we would like to outline the current state of the technology and its impacts on the business of adesso and its customers. Of course, we have also gathered some exciting insights into current practical applications. Read more from page 16 onwards.

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To maintain a better readability, this Annual Report largely dispenses with the simultaneous use of female and male forms of language. Terms such as "employee" or "colleague" thus equally encompass both genders.

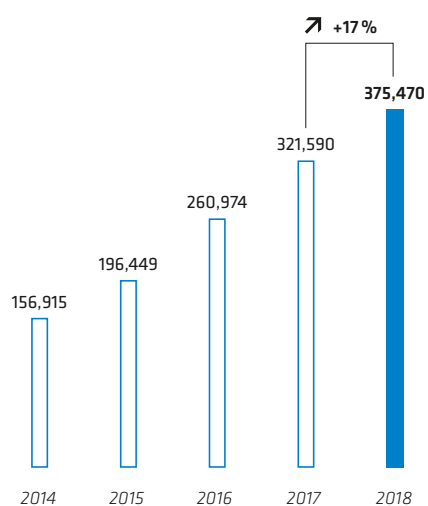
## KEY FIGURES

<i>in EUR k</i>	<b>2018</b>	2017	<i>Change</i>	<i>in%</i>
<b>PROFIT SITUATION</b>				
Sales revenues	<b>375,470</b>	321,590	53,880	17
domestic	<b>308,564</b>	259,990	48,574	19
foreign	<b>66,906</b>	61,600	5,306	9
EBITDA	<b>31,081</b>	25,378	5,703	22
EBITDA margin (in %)	<b>8.3</b>	7.9	0.4	5
Consolidated earnings	<b>13,335</b>	11,331	2,004	18
<b>BALANCE SHEET</b>				
Balace sheet total	<b>221,848</b>	202,812	19,036	9
Equity	<b>77,294</b>	67,023	10,271	15
Equity ratio (in %)	<b>34.8</b>	33.0	1.8	5
Liquid assets	<b>45,912</b>	46,497	-585	-1
Net cash position	<b>-2,196</b>	342	-2,538	-742
<b>EMPLOYEES</b>				
Employees (FTE)	<b>3,280</b>	2,748	532	19
domestic	<b>2,797</b>	2,391	406	17
foreign	<b>483</b>	357	126	35
Gross profit/Employees	<b>110</b>	113	-3	-3
<b>SHARE</b>				
Number	<b>6,176,093</b>	6,174,203	1,890	0
Price at the end of the period (in EUR)	<b>47.10</b>	54.67	-7.57	-14
Market capitalisation at the end of the period (in EUR m)	<b>290.9</b>	337.5	-46.6	-14
Earnings per share (in EUR)	<b>2.17</b>	1.79	0.38	21
Dividend per share (in EUR)*	<b>0.45</b>	0.40	0.05	13
P/E ratio	<b>21.7</b>	30.5	-8.8	-29

\* Subject to the approval of the Annual General Meeting in the year under review.

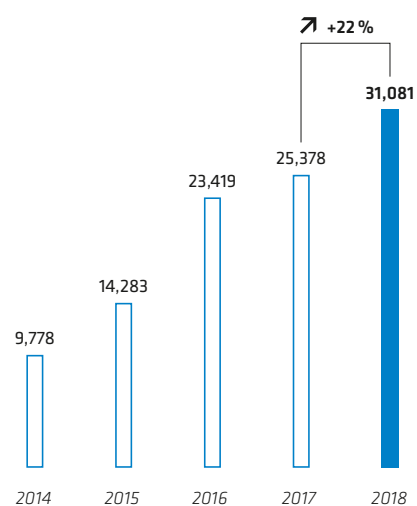
## GROWTH IN SALES

in EUR k



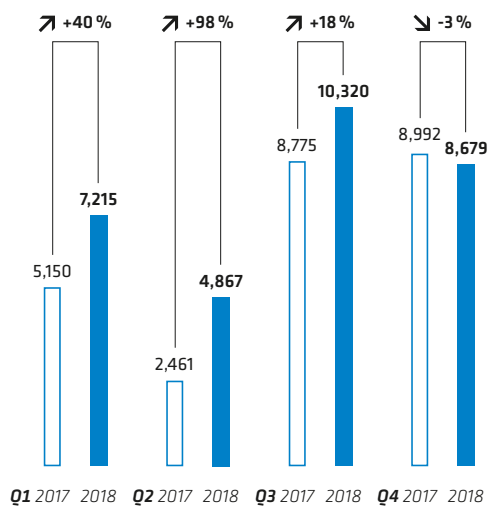
## EBITDA-DEVELOPMENT

in EUR k



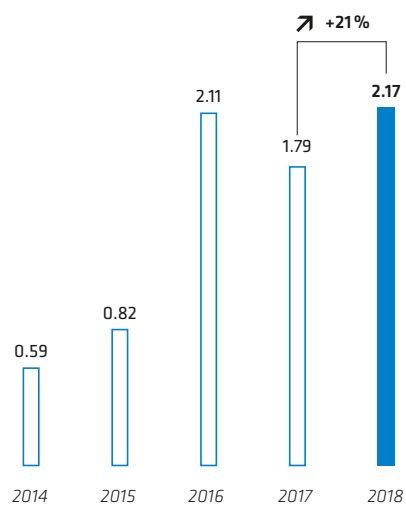
## EBITDA DEVELOPMENT (PER QUARTER)

in EUR k



## EARNINGS PER SHARE

in EUR



## FOREWORD BY THE EXECUTIVE BOARD

*Dear Shareholders, Employees and  
Friends of the Company,*

Innovation, sales and earnings growth, and internationalisation – three areas of focus – influenced our course of action in 2018. We are pleased that adesso succeeded in achieving its ambitious targets and was able to keep up the high momentum.

As in the previous year, we have the privilege of reporting a new record high. Sales rose 17 % to EUR 375.5 million, with operating earnings before interest, taxes, depreciation and amortisation (EBITDA) up 22 % to EUR 31.1 million. That growth was almost entirely organic, as we only acquired two smaller software companies to expand the portfolio belonging to the in|sure product family for insurance companies in 2018. Based on these developments, the Executive Board and the Supervisory Board have proposed to further increase the dividend by 13 % to EUR 0.45 per share, pursuing the aim of a steadily rising dividend payout to our shareholders for the fifth year in a row.

Early recognition of, and engagement with, promising new technological approaches is an essential element in adesso's trajectory of organic growth. Today, in the context of digitalisation, artificial intelligence (AI) has significant market potential. AI can change a person's perspective on how modern software systems work and how they need to be developed. As a partner in the digital transformation, we would like to use this Annual Report to outline the current state of the technology and its impact on the business of adesso and its customers. Of course, we have also gathered some exciting insights into current practical applications.

As announced, we took further steps towards the internationalisation of the adesso Group in 2018. We pursued two separate approaches in establishing our subsidiaries in Bulgaria and Spain. In Bulgaria, an EU country, we are developing a second location for our SmartShore concept in addition to Turkey. Development teams in Bulgaria and Turkey are involved in projects in Germany, Austria and Switzerland. In Spain, our focus is on attracting local banks and insurers to adesso through our extensive portfolio of expertise and references. Both subsidiaries have succeeded in growing to 30 employees each and operating profitably from month to month. adesso is also represented through its own offices in Barcelona, Jerez de la Frontera, Madrid and Sofia.

We plan to continue down this path and are currently setting up an adesso subsidiary in Hungary. In addition, we are preparing to enter the Dutch market, where adesso has already been hired to work on major projects for two banks. Both subsidiaries will focus primarily on addressing the local market and will be able to take advantage of the adesso Group's extensive portfolio. The task at hand now is to leverage adesso's open corporate culture to build a network that offers our customers the greatest possible benefits.



Christoph Junge, Dirk Pothen, Andreas Prenneis, Michael Kenfenheuer (v.l.n.r.)

As part of our internationalisation, we aim to transform adesso AG into a European limited company, or *societas Europaea*, by the name of adesso SE. Along with the standardised and recognised legal form throughout Europe, we see advantages in the ability to set up forms of notification, consultation and co-determination for employees at all of our subsidiaries that are tailored individually to adesso and the IT sector.

We started 2019 with a series of additional initiatives. To pool our data management and business intelligence expertise as a foundation for our customers' AI strategies, we have merged employees from multiple companies into a new Data & Analytics Line of Business and set up a dynamic planning process. Our new Manufacturing Industry Line of Business provides adesso with further growth prospects in a branch of industry that is particularly important for Germany. The mechanical engineering industry is investing in the digitalisation of its products and in the creation of new business models that are being made possible in the first place by digitalisation. adesso also aims to quickly set up a Salesforce business area.

Salesforce is a fast-growing provider of cloud-based solutions for customer acquisition, communication, marketing and e-commerce. adesso has already achieved Gold Partner status and plans to become one of the manufacturer's most important partners in the German-speaking world in the near future.

When it comes to company acquisitions, we remain active and are currently pursuing a variety of promising leads. Multiple banks have made it clear that they intend to approve loans and other financing options for adesso, allowing us to make substantially larger investments in combination with existing liquidity. We plan to stay true to our M&A guidelines and intend to gain strategic advantages and additional portfolio elements through acquisitions.

In 2019, we have launched major investment programmes for our two most important product segments, the in|sure product family for insurance companies and the FirstSpirit content management system. Whereas the focus at in|sure is on integrating the two acquired solutions for commission calculation and company pensions, as well as the development of a separate module for the PayTras payment transaction software, FirstSpirit is set to see fundamental developments such as a new client and various starter kits. We want FirstSpirit to remain one of the best content management systems in the world. We are aware that our product innovations may have a negative impact on earnings.

Supported by the strong motivation of our employees, all our business areas are working towards the further growth of the adesso Group. Despite the marked deterioration in economic forecasts, adesso is determined to seize the new opportunities. We are making long-term investments in innovation and growth. Against the background of our investments in products and the anticipated lower level of capacity utilisation among our employees due to economic factors, we expect sales growth of at least 9% to over EUR 410 million and EBITDA between EUR 40 million and EUR 45 million in 2019. Adjusted for the initial effect of the new IFRS 16, the EBITDA forecast stands at an EBITDA between EUR 30 million and EUR 35 million at the terms valid in 2018.

We would like to sincerely thank all of our employees, who help advance adesso through their dedication and commitment. We would like to thank you, our customers, for placing your trust in us. And we would like to thank all our shareholders for their loyalty and continued interest.

Dortmund, March 2019

The Executive Board



Michael Kenfenheuer



Christoph Junge



Dirk Pothen



Andreas Prenneis



## REPORT BY THE SUPERVISORY BOARD



Prof. Dr. Volker Gruhn

### Advising and Monitoring of Management

In financial year 2018, the Supervisory Board continued to constantly monitor the management activities of the Executive Board in accordance with legal provisions and the company's bylaws, and advised it in all important decisions in the management of the company. In compliance with its duty to provide information in a timely and comprehensive manner, the Executive Board informed the Supervisory Board regularly, in written and oral form, about the situation and the course of business development at the company and its key subsidiaries, and about incidents and measures that were relevant for the company. The Supervisory Board received documents about the asset, financial and earnings situation for this purpose on a quarterly basis. Additionally, it received detailed information from the Executive Board about relevant business transactions.

The Supervisory Board is thoroughly convinced that the operating and financial risks are hedged through organisational and internal approval processes. A sound reporting system and an internal control system exist for the company and the Group, both of which are subject to continued further development. The Supervisory Board was informed at regular intervals about the development of particularly relevant projects and the development of the Group companies.

The members of the Supervisory Board had sufficient opportunity at all times to critically examine the reports and proposals presented by the Executive Board and contribute their own suggestions. In particular, the Supervisory Board discussed in depth all business transactions that were of significance for the company on the basis of written and oral reports by the Executive Board. The Supervisory Board issued its consent to individual business transactions to the extent required by the law, the Articles of Association or the bylaws. Between the board meetings, the Supervisory Board Chairperson additionally remained in close and regular contact with the Executive Board to exchange information and ideas, and keep abreast of key developments.

#### Subjects of the Supervisory Board Meetings

Four regular Supervisory Board meetings took place in financial year 2018. All six members of the Supervisory Board attended all four meetings. One essential component of all meetings were the Executive Board's reports on the current asset, financial and earnings situation within the context of the business development of the company and the subsidiaries; on strategy; on risk management and controlling; and on personnel development and policies. The members of the Supervisory Board also discussed important individual business transactions and projects. In addition, individual current topics were discussed in regular meetings between the members of the Executive Board and the Chairperson of the Supervisory Board. The Supervisory Board was informed of events of extraordinary significance for the situation and development of the adesso Group without delay. Transactions that required the approval of the Supervisory Board were always discussed before they took place and in good time. The Supervisory Board formed no committees.

As in previous years, the March meeting for the year under review focused on the individual company financial statements, the consolidated financial statements and their development. The CFO presented adesso AG's individual financial statements and the consolidated financial statements and discussed various aspects of development over time, certain items on the balance sheet, the income statement, liquidity and the cash flow statement. Sales development for key customers and industries, tax effects and the contributions of individual group companies to the development of results were discussed at the Group level. The CFO presented the composition and development of goodwill and discussed the results of the impairment tests. The current risk report, the most important areas of risk and significant changes regarding the probability of occurrence and amount of potential damage were discussed as well. Then the Executive Board presented the 2018 forecast report.

The members of the Executive Board also reported on the individual companies, their business models and planned investments in this meeting. The projected 2018 figures for the individual companies were then discussed and adopted.

Furthermore, the joint corporate governance report of the Supervisory Board and Executive Board was approved. The update to the statement of compliance with the German Corporate Governance Code was also discussed and adopted.

The agenda items and proposed resolutions for the Annual General Meeting were discussed and adopted.

Key aspects of the non-financial report, prepared for the first time and separately summarised for adesso AG and the Group, were discussed by the Executive Board. Based on the German Sustainability Code (DNK), the report among other things presents adesso's positioning in re-gards to environmental, employee and social aspects, the protection of human rights and fighting corruption and bribery. The report was submitted to the Supervisory Board in advance for review. Upon deciding that reporting of the non-financial information was legitimate, correct and appropriate, the Supervisory Board approved the report for publication.

The possibility of forming committees and adopting rules of procedure for the Supervisory Board was discussed towards the end of the meeting. It was decided that the Supervisory Board shall adopt rules of procedure, but there continues to be no need to form committees.

The CFO presented and discussed the quarterly financial statements for adesso AG and the Group during the June meeting. Members of the Executive Board reported on the individual subsidiaries in relation to acquisitions, growth and capacity utilisation. At this meeting, there was a special focus on adesso's foreign subsidiaries, all of which are profitable, as well as an analysis of their capacity utilisation. Guidance for the year overall was confirmed based on the good start to the year. Individual company analyses were presented in the CFO's report on the current business situation. Possible measures to boost sales in order to reach the planned re-sults of individual companies were suggested and discussed in detail.

The Executive Board reported on specific M&A projects and presented the planned merger of related business operations of smarthouse adesso financial solutions GmbH with adesso as a service GmbH. With this step, adesso can largely complete the organisational consolidation of the software and system operation business within the adesso Group. Previously, the remaining 50 % of the shares in adesso as a service GmbH were taken from Adacor Hosting GmbH and corresponding business operations were transferred from Arithnea GmbH. The Chairperson of the Executive Board presented the planned takeover of the assets of Collogia Trianova GmbH for adesso insurance solutions GmbH, which was assessed as positive by the Supervisory Board.

The wording of the rules of procedure prepared for the Supervisory Board was also approved in this meeting and signed by all members of the Supervisory Board.

At the September meeting, the focus was on the half-yearly interim financial reports for adesso AG and the Group. The individual companies were examined in detail in terms of their EBITDA forecasts, and the figures that had been submitted were discussed. The CFO presented the development of results for the subsidiaries compared to the previous year and plan. Overall, the results exceeded the previous year. An individual analysis of the companies followed, with in-depth questions from the Supervisory Board and an assessment of whether the planned results can be achieved.

The development of adesso's new foreign subsidiaries in Bulgaria and Spain were also pre-sented in regards to the number of employees, recruiting and customer acquisition.

Dirk Pothen introduced himself as a new member of the adesso AG Executive Board at the last meeting for the year. This December meeting focused on the interim financial statements for adesso AG and the Group as of 30 September 2018. The key figures and items in the consoli-dated income statement were presented and discussed, and key figures in the balance sheet and the development of liquidity were analysed and discussed. Moreover, the CFO explained the current business situation of the individual companies in the Group. The members of the Executive Board reported on the development of the individual companies from both a sales and an earnings perspective. Previously defined plans for the individual companies in 2019 were presented and correspondingly analysed.

As in previous years, current developments pertaining to corporate governance were also a subject of discussion. The update to the statement of compliance with the German Corporate Governance Code was also adopted during this meeting.

With the entry of the new Executive Board member Dirk Pothen, the rules of procedure for the Executive Board were discussed regarding the new assignment of portfolios, lines of business and companies, and were unanimously approved.

The CFO presented some fundamentals regarding the legal form of a European corporation (SE) in this meeting and discussed aspects of a possible change of corporate form. Numerous legal and organisational questions remained unanswered after an exhaustive debate on the advantages, disadvantages and implementation. Therefore, the topic was postponed to the start of the new year.

After a corresponding orientation for members of the Supervisory Board, a decision to work towards the conversion of adesso AG into an SE was made in a telephone vote by the Supervi-sory Board at the beginning of January 2019. The Executive Board was asked to initiate the required steps. In the course of changing the legal form, one of the objectives is to initiate the involvement of employees in the further development of key topics related to cooperation be-tween the employees and company management, in keeping with adesso's history and culture. Discourse between employees within the adesso Group is to be promoted within the framework of the new institution as well. Joint values and Group-wide positions are also to be developed regarding topics such as diversity, respect and tolerance as well as minimum social standards. The legal form of SE allows for a flexible agreement with the employees, individually tailored to adesso, to be concluded in this context. This is modern and corresponds to the organisation of an IT company such as adesso that is very much tailored to the employees. Since the SE was conceived with an international orientation from the outset, it is a good fit for the adesso Group's increasing internationality under this aspect as well.

### 2018 Annual Report

Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Dortmund, the auditor elected by the Annual Shareholders' Meeting, has audited the Annual Financial Statements and the Management Report of the parent company (adesso AG), the Consolidated Financial Statements and the Group Management Report for financial year 2018 and has issued an unqualified audit opinion.

The responsible auditor from Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft explained the key findings of the audit and was available to answer questions from the Supervisory Board. He informed the Supervisory Board about the services performed by the auditing company in addition to the audit. The Supervisory Board thoroughly examined the annual financial statements and management report of adesso AG, the consolidated financial statements and group management report as of 31 December 2018, and the Executive Board's proposed appropriation of profit. To do so, the Supervisory Board consulted the auditor's reports. The Supervisory Board has agreed with the findings of the audit of the annual financial statements and the management report of adesso AG, and has approved the annual financial statements and consolidated financial statements for financial year 2018.

The Annual Financial Statements have therefore been approved (Section 172 of the German Stock Corporation – Aktiengesetz, AktG).

The Supervisory Board concurs with the Executive Board's proposed appropriation of profit.

As part of its examination, the Supervisory Board also reviewed the content of the separate consolidated non-financial report submitted by the Executive Board for adesso AG as required by Section 171 AktG and the Group as required by Sections 289b and 315b HGB. This report was prepared based on the German Sustainability Code (DNK). The Supervisory Board decided that reporting of the non-financial information was legitimate, correct and appropriate.

In 2018, the Supervisory Board accompanied the Executive Board of adesso AG through a highly successful financial year. Long-term strategic objectives continued to be pursued and the favourable market position was used for the company's further development in the interest of its shareholders.

The Supervisory Board thanks all employees of adesso AG and its affiliated companies as well as the members of the Executive Board for their personal contribution and dedication, once again leading to a highly successful financial year.

Dortmund, 22 March 2019

On behalf of the Supervisory Board



Prof. Dr. Volker Gruhn, Chairman

## HIGHLIGHTS 2018

### January

#### adesso receives follow-up order from GEMA

adesso's outstanding collaboration is affirmed at the start of the year: GEMA (the Gesellschaft für musikalische Aufführungs- und mechanische Vervielfältigungsrechte, Germany's music rights organisation) awarded a fourth, agile fixed-price project to adesso. The objective is to adapt the system that supports the core business processes in the live music and radio segments to the system environment. The project, encompassing an order volume of EUR 2.4 million, has a term of 20 months.

### February

#### Proven modules for sales controlling and commission settlement obtained through acquisition

In the course of a takeover by the adesso subsidiary adesso insurance solutions GmbH, the company's product portfolio is being expanded to include standard modules for sales controlling and commission settlement. The provider of the commission settlement software is being integrated with adesso insurance solutions by way of a merger. With subsequent further development as in|sure Commission, the module rounds off the in|sure services portfolio with important technical sales and settlement functionalities, so that insurance companies can modernise their insurance processes even more quickly on the basis of proven standards.

### March

#### Dividend increase for the fifth year in a row

In March, adesso shareholders can look forward to a dividend increase for the fifth year in a row. Subject to approval by the Annual General Meeting, the Executive Board and Supervisory Board are proposing an increase to EUR 0.40 per share, thereby confirming a sustained absolute increase in line with the distribution policy.

#### adesso once again best employer in the ITC sector

After 2016, adesso is once again recognised as Germany's best employer among large enterprises in the ITC sector. The award recognises a workplace culture defined to a great extent by trust, pride and team spirit. adesso improved further in many categories compared to its previous participation, thereby demonstrating its attractive working conditions and supportive culture of collaboration. adesso did particularly well in the areas of team spirit, fairness, respect and pride.

### May

#### adesso assists LOTTO Thüringen with the introduction of a new central lottery system

Over a period of one year, adesso assisted Lotterie-Treuhandgesellschaft mbH Thüringen (LTG) with the implementation of a new lottery system. adesso's integrated support approach encompassed the evaluation of requirements documentation and usage concepts, tailor-made training and quality management with extensive tests of the new software. The fully revised central lottery system, which forms the basis of the lottery business, was successfully put into operation as a result.

### June

#### DKV puts its money on in|sure for long term care insurance

After the health insurance segment of the adesso Group's in|sure product line was completed on schedule in the previous year, licensing by one of the largest private health insurance companies in Germany and one of the largest in Europe confirms the module's market opportunities. The use of in|sure Health Claims will allow DKV to provide extensive digital support for the extremely complex billing process associated with caregiving. The software is scheduled to enter into full use at DKV in 2019.

**adesso founds new foreign subsidiary in Spain**

adesso has opened a new foreign subsidiary in Spain. With the branch in Barcelona, adesso continues driving the internationalisation of the service business. adesso Spain is an important supporting pillar in south-west Europe. New markets in the Mediterranean region and also South America are to be developed for adesso by the new foreign subsidiary in the medium term.

**July****adesso concludes master agreement valued at up to EUR 25 million**

In the course of a Europe-wide request for tender, adesso has won an important framework contract with the federal government: the Procurement Office of the Federal Ministry of the Interior (Bundesministeriums des Innern – BMI) has engaged adesso to manage, maintain and develop its electronic tender platform for a further six years. The estimated total contract volume is up to EUR 25 million.

**August****adesso subsidiary com2m develops IoT solution for TRILUX**

After adesso increased its participation in com2m GmbH from 24.9% to around 60% in January, the adesso Group's specialist for IoT solutions is proving its potential in August: An integrated solution in the IoT (Internet of Things) segment was realised in cooperation with TRILUX, the market leader for technical lighting. Digitally networked lamps in combination with sensor data bring innovative, digital services to the lighting market.

**September****Further acquisition to complement in|sure in the company pension segment**

With the takeover of Collogia Trianova GmbH, based in Cologne, the services offered by the adesso Group have been expanded in the field of company pension plans and working time accounts. This acquisition includes the CollPhir® software solution that has been successful in the market for many years, which is being integrated into adesso's in|sure product line in the course of the business combination.

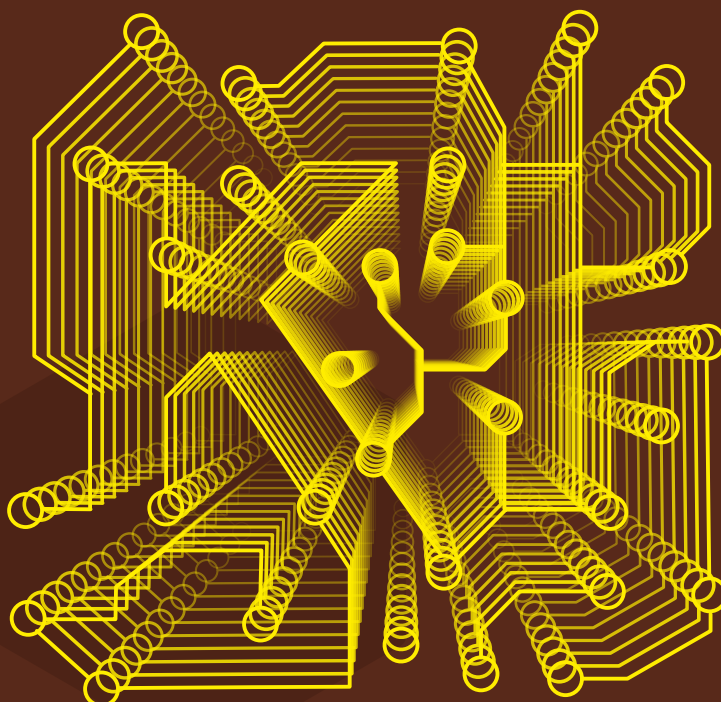
**December****Growth of adesso in Spain through the takeover of Salesforce specialist**

With the takeover of a start-up, adesso is gaining two new Spanish locations in Madrid and Jeréz de la Frontera, thereby driving the growth of the new foreign subsidiary. Simultaneously, adesso gains sought-after specialists for its own Salesforce solutions competence centre.

**Two more insurance companies license in|sure products for the health insurance sector**

At the end of the year, adesso successfully closes two more contracts for the introduction of in|sure in the health insurance sector. The insurance companies DEVK and uniVersa decided to implement in|sure standard software solutions for their insurance processes. Licenses valued at more than EUR 4 million, implementation agreements in the single-digit millions and maintenance agreements over several years are included in the assignments.





## Artificial intelligence changes the environment

In recent years, few topics in the field of information technology have attracted as much attention as artificial intelligence (AI). But when people talk about systems based on AI technology, what exactly do they mean? How can AI be usefully applied? And will it affect our lives in the context of digitalisation? Is the rise of AI under our control, or is there cause for concern? There are many questions that do not have clear answers today. But it is also apparent that AI is becoming increasingly relevant to the majority of adesso's customers. That is why we are looking forward to finding the answers together, and providing comprehensive IT system support to our customers, drawing on the experience we have built up over 20 years.

AI is becoming increasingly relevant to adesso's customers.





**AI is seen as a tool that can be used to reach decisions, improve quality and make forecasts.**

One thing is certain: adesso's expertise puts it in a better position than almost any other company to create AI-based systems highly efficiently. We are familiar with the AI technologies available today, and are well-placed to assess their potential applications. We know which software processes can be used to develop AI-based systems, have a strong command of their software architecture, understand how AI can be integrated into IT architecture, and – most importantly – adesso has the necessary industry experience. But let's start with a fundamental question: What is AI?

There is still no universally applicable definition of intelligence, and that is even more true of the relatively new field of artificial intelligence. There is general agreement that AI is a branch of information technology that focuses on research into the mechanisms underlying intelligent human behaviour. Academics differentiate between so-called strong AI, which aims to replicate human intelligence, and weak AI, which focuses on intelligent decisions in automated processes. The field of information technology is still a long way from achieving strong AI, even though some reports suggest otherwise. That means the aims of strong AI remain visionary, even after decades of research. Its many potential benefits have resulted in premature celebration, along with warnings about the unforeseeable dangers of autonomous systems. Without sufficient pragmatism, the many opportunities that AI systems already offer companies can be obscured. In fact, AI is an approach that already plays a role in numerous applications today, and is increasingly included in commercial IT strategies. The range of applications includes everything from voice commands to pattern recognition and the automated compiling of data and information.

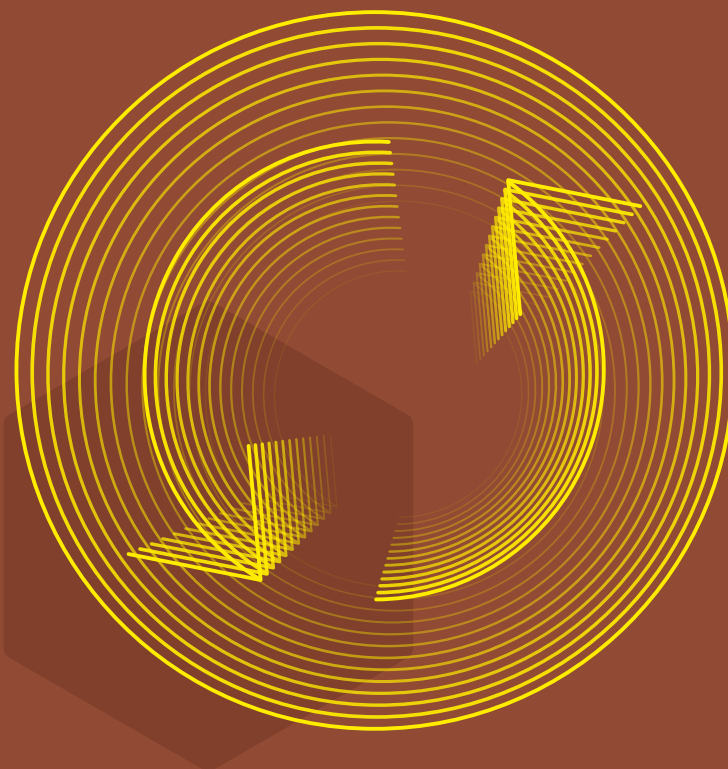
### **IT departments must adjust to new challenges**

AI-based systems present different challenges for developers than traditional IT systems. The necessary data often has to be procured and prepared before they can be implemented. In order to determine the appropriate AI method for a particular task, that data is first used in experiments to establish a proof of concept. Then a model often has to be taught using training data. That teaching process usually has to be assessed using test data. Prefabricated AI services, from chatbots to machine learning services, are often integrated into the solution. That can result in AI-based systems that combine traditional information systems with cyber-physical elements. Such systems usually require constant maintenance even after commissioning.

It soon becomes apparent that we need a different perspective on IT systems as a whole. We must take the merging of the real and digital worlds – for example in Internet of Things applications – into account, while also recognising the potential of AI systems, particularly for the evaluation of large quantities of data. Today, AI is seen as a tool that can be used to reach decisions, improve quality and make forecasts about the future. That way of thinking is anything but new. The first neural networks were proposed back in 1943. The reason for the current renaissance in AI is the huge increase in computing capacity. Together with the internet and the use of modern big data technologies, we now have access to large quantities of high-quality data for use in various applications. AI includes methods, processes and technologies that can be used to analyse that data, to develop models based on it, and support decision making and forecasting. Among other things, the success of neural networks based on the currently available level of AI is due to the use of graphics processing units (GPUs) to achieve hugely accelerated learning. For exciting examples of real-life applications, please see the selection of current systems realised by adesso from page 26 onwards.

### **Differentiation of symbolic and sub-symbolic systems**

An important difference between the methods used in artificial intelligence relates to the representation of knowledge. Symbolic systems describe their knowledge in a form that can be read and understood by people, while sub-symbolic systems are generally black-box systems, with content that is very difficult for people to understand. The choice between the two types of system also depends on the context. Regulations often require decisions to be comprehensible and explicable. Sub-symbolic systems cannot be used in such situations, because those explanations cannot be provided. Artificial intelligence systems are often very general systems with general reasoning mechanisms, for example, or the universal ability to learn and recognise patterns. Such systems do not include any knowledge. To make them intelligent, they have to be trained or explicitly fed information.



## Machine learning

**Learning is considered an important part of intelligence. Machine learning means that a model is “learned” from data.**

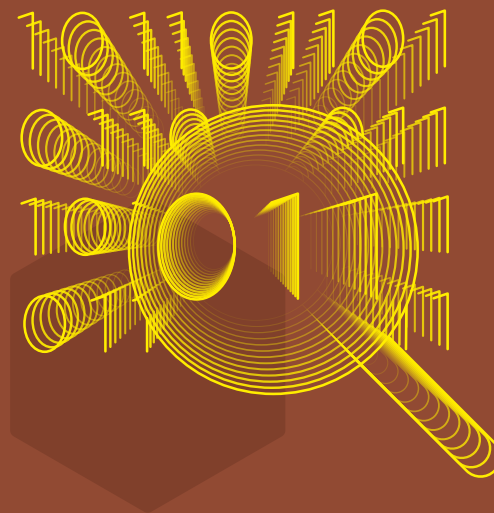
After appropriate training, a model could, for example, have the ability to operate cameras filming a game of football. That means it would be able to independently choose appropriate camera positions and settings. AI early warning systems in mechanical engineering are another example: here, technical systems “learn” to detect the mechanisms that are expected to result in the future failure of the machine. That allows maintenance to be carried out in good time, before an outage occurs. The AI principles of machine learning can also be useful in many other areas of our economy: adesso has developed the Heuristic Claims Management (HCM) process for the insurance industry, which enables efficient claim reporting and recording, thanks to its full automation. In the banking sector, there are AI-based fraud detection systems that can identify malicious behaviour at an early stage. And, of course, artificial intelligence is used in robotics and vehicle technology as well as in voice-operated assistants like Alexa, Siri, Google Assistant and Cortana. In many scenarios at adesso customers' companies, the applications are complex. The data used in machine learning is essential to the success of those projects.

In the field of machine learning, supervised learning is differentiated from unsupervised learning. Supervised learning means that a correct answer is defined for a particular data set used in training. Because very large training data sets are required, considerable effort is usually involved. Learning in symbolic systems can also be carried out using generalised rules or decision trees. Sub-symbolic learning processes are used in classification or regression. Searching for classes (clusters) among a quantity of data points is an example of unsupervised learning. Generally speaking, such processes are very well suited to the classification of all types of signals, whether audio, image or radio signals.

Text mining and natural language processing (NLP) are further important sub-fields of artificial intelligence. Both disciplines are concerned with processing text, not speech. NLP methods use a “deeper” approach to text analysis. They recognise word types such as nouns, articles and verbs. Parsing sentences allows their structure to be recognised and roles to be assigned. Following further analysis, parts of sentences can be allocated to categories such as people, locations or company names. Relation extraction allows the relationships in texts to be identified. In contrast to such deep analysis, text mining uses statistical methods, for purposes such as extracting important words from text or to classify texts.



*AI is not always the most suitable solution for every requirement. adesso can offer its customers well-founded assessments about whether the use of such technologies is appropriate and, above all, economically viable.*



Complex capital goods including automobiles, large printing presses, gas engines and power plants use increasing numbers of sensors that supply a constant stream of measurements regarding their operation. AI systems can use that data to provide notifications about appropriate maintenance work long before a failure occurs. That reduces outages due to mechanical failure. Neural networks are used to analyse data from individual sensors or groups of sensors to detect such indicative values. Those neural networks have to be trained using supervised learning. That requires training data with values that are characteristic of such a failure, whether from real past events or generated by simulations. The results of these analyses are then fed into a knowledge representation system. This process results in suggestions about which parts should be replaced and how the problem can be prevented in advance using appropriate maintenance.

However, complex systems generally use a number of different methods from the field of artificial intelligence to support the desired process. adesso's AI strategies are focused on specific applications that benefit its customers. The company offers fundamentally technology-neutral, pragmatic advice, because AI is not always the most suitable solution for every requirement. adesso provides its customers with well-founded assessments about whether such technologies are appropriate and, above all, economically viable. That is why the cooperation between various specialists, including technical experts, IT professionals, data scientists etc. is even more important to the success of a project than in conventional software development.

Data is also even more important in AI contexts, because AI systems allow it to be processed, refined and exploited in far greater volumes than in the past. It is important to us that the AI we use in our work is not a black box that swallows up data. Instead, it is essential to our customers that they retain control of their data, and maintain transparency regarding its use and their processes on their path to success. If AI is used responsibly in this way, and if a specific application scenario calls for it, then there are few reasons not to use it. To answer another of the questions we posed at the outset, there are many indications that, in the future, AI-based systems will play an important role in digitalisation. However, it should be borne in mind that AI is usually an element of a larger software project. That plays to adesso's strengths, because its AI knowledge is used in combination with its extensive experience from countless successful software projects.

**AI systems allow data to be processed, refined and exploited in far greater volumes than in the past.**

INTERVIEW

## The future of humanity or a widespread myth?

An interview with experts Prof. Jürgen Angele and Dr Thomas Franz on the subject of artificial intelligence



Prof. Dr. Jürgen Angele

**Everyone is talking about artificial intelligence these days. Could you offer a short definition of artificial intelligence from a scientific perspective?**

**Prof. Jürgen Angele (JA):** The word intelligence alone is hard to define. AI is a sub-field of information technology that is concerned with methods for simulating intelligent behaviour. Or you could put it another way: AI methods can be used to complete tasks that could previously only be carried out by people.

**When and how did you first come into contact with AI, and why is it so fascinating?**

**Dr. Thomas Franz (TF):** I first came into contact with AI when I was working on the thesis for my masters. It focused on the development of a generic architecture for recommendation systems. Other students working at the same time with my supervisor, Prof. Schmidt-Thieme, submitted their implementation of the recommendation algorithms. I was very interested, because I wanted to understand how Amazon and similar services, and machines in general, can generate meaningful suggestions. When I embarked on my doctoral studies, I considered the topic more closely. That included everything from knowledge-based approaches to factorization methods, with the aim of addressing questions relating to information management through machine reasoning and relevance ranking.

**Two years ago, Mark Zuckerberg, CEO of Facebook, and Elon Musk, CEO of Tesla, sparked broad discussion with their opposing views of AI and its future development. How do you see the relationship between the opportunities and risks of AI?**

**JA:** Like every technology, there are opportunities and risks associated with AI. It gives us many opportunities to make business processes better and faster. However, AI can also be used in surveillance or military applications.

**How far have things developed by now, and what should we expect in the future?**

**JA:** AI and most AI methods are relatively old. Most of the advances emerging at the moment are driven by the availability of the data and computing power required by such methods. And, of course, their use in turn is resulting in corresponding structural changes in certain areas.



**Dr. Thomas Franz**

*Prof. Jürgen Angele has been at adesso since 2017 and is currently head of the Artificial Intelligence Competence Centre. He advises customers on the use of artificial intelligence methods and manages the resulting projects. Angele has a doctorate in the sub-field of knowledge representation and reasoning systems. He has thirty years' experience of AI projects, as an academic, founder and CEO, and a consultant to start-ups. More than 100 publications and nine software patents in the field underline his comprehensive expertise.*

*Dr. Thomas Franz has been a member of the adesso team since 2013. He currently heads the company's technology advisory board. He advises customers regarding the use of new IT approaches and the associated architectural, methodological and organisational changes. He completed his doctoral studies in a sub-field of artificial intelligence, the "semantic web", and has more than ten years' experience of AI projects as an academic, founder of a start-up and a consultant.*



### Is AI a purely technological topic?

**The digitalisation of our world is making constantly increasing quantities of data available. Those with digitalisation on their agenda will make their companies increasingly data-driven and see opportunities to use AI.**



**TF:** Is there such a thing as a purely technological topic? Technology does not exist in a vacuum. It exists because it offers benefits – but, unfortunately, they do not always benefit the whole of humanity. Doesn't that lead us to the real question? AI is essentially a different solution to questions about automation and decision making. From a purely technological perspective, AI is just one of many tools. We can develop software with program code that makes decisions based on pre-defined variables. Or we can let a machine learn which results are "desired" based on the input parameters. Programming is more economical in some cases, while machine learning is more effective in others. There is a fundamental difference between these approaches and tools. They have specific advantages and disadvantages. When we talk about what AI is for, and how we want to use it – a moment ago I consciously used the word "desired" – then that discussion is no longer on a technological level. To return to the original question: AI is a fundamentally different tool, and the effects of those fundamental differences are not restricted to the technological level.

### In the future, will AI determine whether companies survive and are successful?

**JA:** I think every optimisation in the area of digitalisation can have a decisive effect on the success and survival of a company. But that also depends what type of company it is.





**AI is a tool and, ultimately, a further element in IT solutions. That means that, as in the past, we have to understand this technical field as well.**



**What are the questions that companies that have not had any contact with AI in their day-to-day business in the past should be asking themselves right now?**

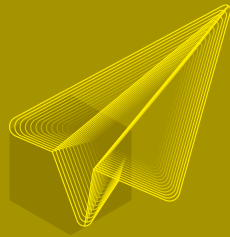
**TF:** In cases where there are significant quantities of data in digital form (which is accessible to machines), then there is particular potential to use AI. The digitalisation of our world is making constantly increasing quantities of data available. Those with digitalisation on their agenda will increasingly be able to make their companies more data-driven. Then AI becomes a relevant tool for the optimisation of business processes and the development of completely new products and services. Companies at which digitalisation and data do not play a role will probably remain competitive without AI in the foreseeable future.

**In what areas is the human brain superior to the brain of a machine?**

**JA:** I would reformulate the question, turning it around. There are some specific areas in which computers, and therefore AI methods, are superior to the brain. For example, if you want to calculate many combinations of moves in a game or quickly integrate large quantities of data, then computers are superior. But that is hardly news. A pocket calculator can calculate formulas better than most people.



**Will computers catch up with people in other areas in the foreseeable future? And if so, how quickly will that development play out?**



**TF:** Today we have AI systems that can easily beat people. But they are extremely specialised AI systems that only operate in extremely limited environments. They can play chess, or GO, and are constantly getting better at driving cars. There is no question that those are complex games and situations, but the possible actions are very simple. In chess, a queen can move as far as a player wants in eight different directions, based on the rules of the game. Compared with a person's transferable skills, the ability to efficiently handle new situations, and the extremely broad applicability of human intelligence, that represents a different quality of intelligence, at a different scale. That gap will not be closed by machine-based processes in the short or long term.

**JA:** I don't believe that we will see an AI with its own consciousness and creativity, one that can close the gap to people and overtake them – at least not in the near-to-medium term. At the moment, nobody knows how to develop that.

**How do you see the prospects of other IT and software companies, compared to the technology giants Amazon, Apple, Facebook and Google?**

**JA:** The technology giants have a huge advantage, because they have access to unbelievably large data sets. That makes it difficult for other companies to catch up.

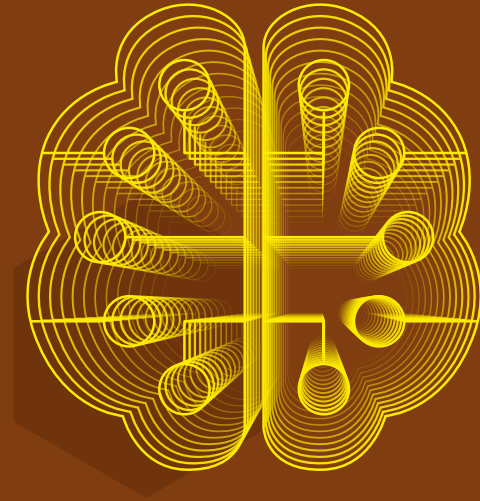
**In your view, what are adesso's key strengths as a partner for questions relating to AI?**

**TF:** I already said that AI is a tool and, ultimately, a further element in IT solutions. That means that, as in the past, we have to understand this technical field in order to develop AI for specific applications. We have to continue to appropriately integrate AI into the existing world of IT, and understand the IT world in its full breadth to do so. To develop AI-IT systems for our customers that are practical and economically viable, we need well-founded software engineering knowledge based on well-founded requirements engineering methodology. Deference to expertise and the appropriate use of methodology are values that define adesso at its core, and which have allowed the company to grow successfully in the past. Together with its broad technological knowledge – I explicitly include "AI tools" here – that puts adesso in a strong position.



**AI with independent consciousness will not exist in the near-to-medium term.**

# What can artificial intelligence do (today), and what is it not capable of?



Our ten propositions call for a pragmatic approach

10 propositions

The topic of artificial intelligence (AI) has been generating increasingly breathless headlines for some time. While some people predict a paradise on earth, others warn of the destruction of the human race. The gap between those views is huge, and only one thing is certain: it is a relevant topic, and we want to explore it for our customers. In that context, it seems that more pragmatism in our approach to AI is in order. That is why we are putting the following ten propositions forward for discussion.

THESIS  
1

## 1. Before artificial intelligence, we need human intelligence.

The use of AI does not free us from the need to know the requirements of our industry and company.



## 2. AI finds the needle in the haystack – even if there is no needle and no haystack.

AI systems identify relationships that are too complex for humans.

THESIS  
2



THESIS  
3

## 3. AI is not driven by the quantity of data, storage space or bandwidth. It is driven by customers.

The focus of AI is not the technology. Instead, it is the opportunity to better fulfil customers' requirements.



#### 4. AI summertime, and the living is easy.

The AI winter was long and dark, but now it is over. AI solutions are ready for use today, and further smart applications are just around the corner. Companies will not make all their visions a reality – but they will achieve many of them.

THESIS  
4



THESIS  
5

#### 5. The “A” in “AI” does not stand for abracadabra.

Successful AI projects are the result of traditional project strengths and do not grow on trees.



THESIS  
6

#### 6. AI begins with “D” for data.

Companies develop AI projects on the basis of existing data.



THESIS  
7

#### 7. AI cannot solve every problem facing a company. Only people can do that.

The success of AI applications depends on them being accepted by employees.



THESIS  
8

#### 8. AI application, young, intelligent, with a wide range of interests, seeks partners – including humans – for shared success.

AI projects only make sense if they are embedded in business processes and information systems. They only achieve their full potential in cooperation with a company's own experts.



THESIS  
9

#### 9. AI is colourful and dazzling. It is a matter of taste.

From chatbots and voice recognition to data science. AI solutions offer companies a whole range of applications. The choice of the right scenarios for the respective company is one of the key management decisions in an AI environment.

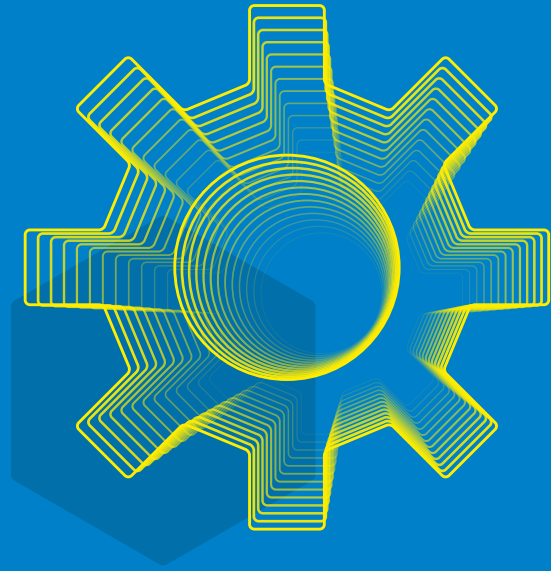


THESIS  
10

#### 10. Can we build AI systems? Yes, we can!

Building AI systems requires IT experts to think differently because they need a different approach from that used with traditional information systems. The underlying data is, in particular, very important.

## Convincing applications – AI in **אפוזבנק**



### Using an information advantage to achieve success

#### Lead generation in B2B sales

Together with adesso, Deutsche Apotheker- und Ärztebank eG (apoBank) developed a trend-setting solution to allow its B2B sales department to profit from an information advantage. The success of sales discussions is, in large part, dependent on whether the contact meets latent or manifest demand in a tailored, targeted way. Identifying such opportunities, and making use of them at the right time, requires significant research and outstanding intuition on the part of sales staff.

apoBank requested the development of a lead engine based on Microsoft software and AI to support the work of its B2B sales team. The system uses external data sources such as websites, news content and search engines. It automatically scans all the sources connected to it based on search terms that might hint at possible sales opportunities. The application cleans up the results with the help of automated text analysis tools, removing hits that are not promising and duplicates. Each sales employee has their own dashboard, which the system uses to show him or her all the relevant hits and the associated background information. Where are potential customers planning new openings? What changes have there been in management? Who said what about strategic plans or investment decisions? Then the sales experts use these and similar processes to identify talking points for when they make contact.

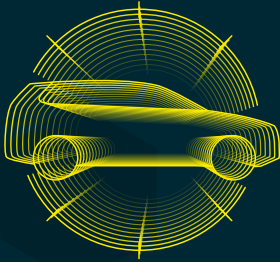
The sales employee evaluates each individual suggestion. That feedback ensures that the quality of the results is constantly improved by helping the system learn. The automatically generated lead information means sales staff can spend more time initiating and maintaining contact with potential customers.



Michael Gabler  
Head of  
Corporate Finance  
at apoBank

*“In its first week of operation, the system highlighted a number of additional potential leads which we would otherwise have missed or only identified later. The solution gives us an advantage in sales and helps us use the limited available time more effectively.”*





**Daimler has positioned Ask Mercedes exactly where today's customers need support.**

The customer always receives the exact information they need at a specific moment.



© Daimler AG

## More personal customer information and communication

"Ask Mercedes" augmented reality and chatbot project



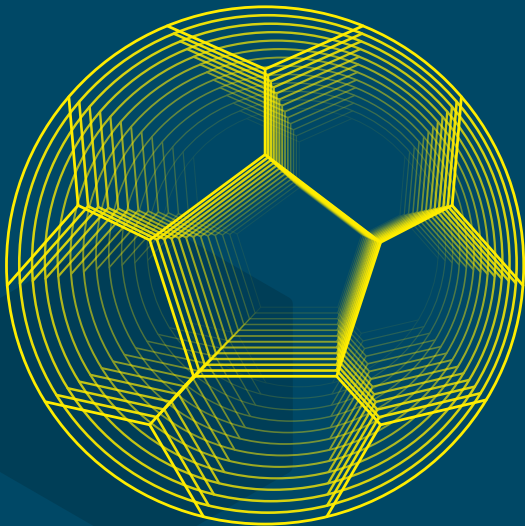
*Take a seat in a car and let your gaze wander over a still unfamiliar cockpit. And if it is not immediately clear what a particular control does, or if you can't find a function right away, then simply Ask Mercedes. Where, in the past, operating manuals, handbooks or quick-start guides were the rule, Daimler, with support from adesso, has added additional digital channels to the communication process.*

For example, the "Ask Mercedes" application helps users quickly get used to a vehicle. The virtual assistant can be activated by voice commands, or using a smartphone keyboard or camera. In the background, a system that uses artificial intelligence (AI) and augmented reality (AR) helps make a modern car with countless functions, settings and assistance systems easy to understand in next to no time.

Daimler has positioned Ask Mercedes exactly where today's customers need support. The number of vehicle functions and the complexity of the supporting service offered are constantly increasing. That is why it is increasingly important to engage in close dialogue with the customer. The customer always receives the exact information they need at a specific moment. From the outset, it was clear to those involved that the operating instructions at the core of Ask Mercedes were just one possible application. The chatbot functions can also be usefully applied in other areas of the company, such as the Customer Contact Center, Daimler's customer support department. That is why, together with Daimler, adesso developed an "intelligent" information hub that is at the heart of all its chatbot applications. The hub is both a content library and an information platform. Various specialist departments enter their content, and the chatbots access the information and present it to the user. In Ask Mercedes, artificial intelligence is granted personality and charm. Interaction with the app – whether spoken or written – is supposed to feel natural. The user should forget that the answers are being provided by a chatbot, rather than a person. To achieve that, the team created a complete personality profile that Ask Mercedes uses to answer questions – sometimes with a wink or a cheeky comment. For example, she knows how to react if you ask her to guess the right lottery numbers. The chatbot also had to be fed with all the facts about the car, and be able to identify the right answers to the most important questions. There are plans to integrate Ask Mercedes into the Facebook Messenger ecosystem. The integration of its content into the Google Home and Amazon Alexa voice-operated assistants will follow. The aim is to give the user the opportunity to stay in contact with their vehicle, at all times and wherever they are.



© Daimler AG



## Intelligent playmaker

**soccerwatch.tv allows amateur football matches to be broadcast live**

According to the German Football Association (Deutscher Fußballbund – DFB), 1.8 million games of football are played each year. Of those, 99 percent are not broadcast. That is because the solutions available in the past were cumbersome, expensive and offered low quality results. But amateur players with no connections to the Bundesliga, DFB Cup, Champions and Europa Leagues are full of passion, and their family, friends and sponsors, or even their future opponents, are certainly interested in watching their games. The start-up soccerwatch.tv recognised that demand and has stepped up to film German amateur football using digital camera technology, and make it available to the public live, on demand, or in the form of highlight reels.

To do that, soccerwatch.tv has developed its own camera system consisting of six full-HD cameras. The images from the cameras are assembled into a 180 degree panorama. The system is installed at sports grounds, on floodlight poles near the centre line at a height of approximately 7.5 metres, and broadcasts wirelessly in HD quality via the LTE network.

**The system works without human camera operators or editing. Instead, algorithms give the system its artificial intelligence.**

To deliver the picture quality viewers are familiar with from professional football, an intelligent algorithm automatically identifies the relevant section of the panoramic image in real time – without the need for a single chip in the ball or player’s shirts. The system works without human camera operators or editing. Instead soccerwatch.tv uses algorithms developed in cooperation with adesso, which give the system its artificial intelligence.

“soccerwatch Analytics” will enable AI-supported game analyses in the future. This will allow even amateur clubs to have access to the kind of data known from the professional world, such as running performance, challenges won and overplayed opponents. Overall, this translates to a huge benefit for the sport.

Along with its economic potential, what excites adesso about the start-up is the underlying technology: soccerwatch.tv uses cutting-edge platforms including Tensor Flow, one of the most important frameworks for programming neural networks, as well as deep and machine learning, along with the latest computer vision and machine vision technologies, to allow the images to be understood and processed. These are among the reasons that adesso has decided to invest in the company, taking an approximately 36 % stake. The aim is to transfer the experience gathered to other areas of the company’s business. The number of companies that want to exploit the benefits of big data and analytics is constantly growing, and soccerwatch.tv has considerable expertise in this area.

soccerwatch.tv currently has approximately 150 camera systems installed and has entered into a cooperation with DFB GmbH to increase its reach. soccerwatch.tv wants to roll out more than 1,000 systems across Germany by the end of 2019 – with the continued support of adesso, of course. That means a godfather in Hamburg should soon be able to watch his nephew’s game in Munich live on screen, and then give him a call to congratulate him on the win.



***“We offer unique technology to ensure that amateur football in Germany gets the recognition it deserves. Our camera system can be installed in just a few hours and without affecting the infrastructure of the sports ground. Clubs receive a share of the income from local sponsorships, and therefore participate directly in the success of soccerwatch.tv.”***

Jan Taube  
CEO of  
soccerwatch.tv





If an international transaction is not settled promptly, it can lead to risks, such as those caused by changes in exchange rates, resulting in problems for banks.



## Ending up in the right place more often

Quality assurance for the processing of foreign payments

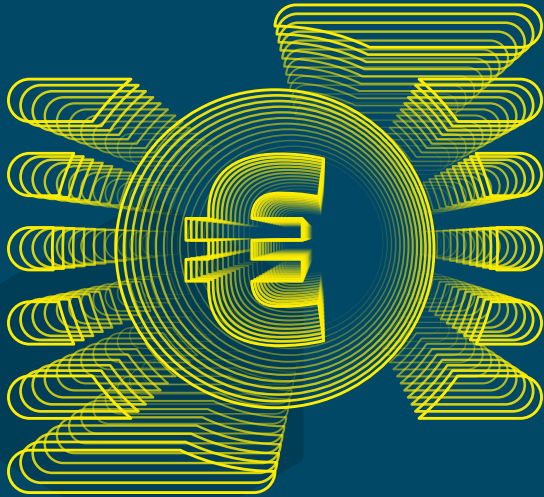


*The AI will give the matching process a kind of “intelligent memory” that allows it to automatically apply knowledge from specific past cases to ambiguous matches. That significantly reduces the manual effort involved, along with the associated risks.*

**Processing foreign payments is an essential core task for an international bank. To reduce risk, the regulator requires payments to be settled promptly.**

Processing foreign payments is an essential core task for an international bank. Foreign payments are reliably processed using the SWIFT (Society for Worldwide Interbank Financial Telecommunication) network. However, matching those payments involves a complex procedure at the banks themselves. To reduce risk, the regulator requires payments to be settled promptly. Erroneous SWIFT notifications and complex matching processes mean that such transactions often have to be allocated manually to allow settlement. If a transaction is not settled promptly, then large transactions can lead to risks, such as those caused by changes in exchange rates, resulting in problems for banks.

Until now, that matching knowledge has not been transferred to systems. Time and again, such situations require manual interactions. Now, a major international bank wants to address that problem, together with adesso, and using AI. The AI will give the matching process a kind of “intelligent memory” that allows it to automatically apply knowledge from specific past cases to ambiguous matches. That significantly reduces the manual effort involved, and the associated risks. When there are new cases that the system is unfamiliar with, then the system learns from the manual matching process, using a process known as case-based reasoning. The process meets the bank’s requirements and also offers transparency during regulatory investigations. If, for example, a neural network were used, then it would meet not this special requirement of the banking sector. Reliability and availability are also key requirements that adesso has previously met in numerous traditional IT projects. adesso’s considerable experience with core banking architectures, combined with its AI expertise, meant it was perfectly qualified to implement the project.



*Along with the conditions of a loan, time has become an important factor in the competition between banks to conclude contracts with customers, and can considerably increase user and customer-friendliness.*

## Loan decisions in real time

**Innovative tools to increase proximity to customers and improve service.**

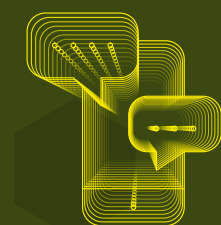
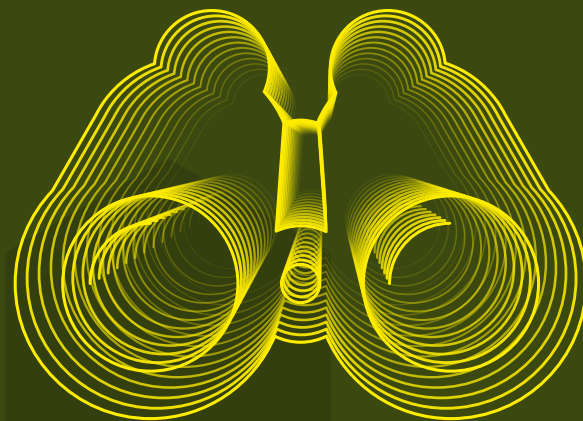
Whether it's a new car, a special holiday, or making a long-standing dream a reality – sometimes you don't have the necessary funds yourself. Along with the conditions of a loan, time has become an important factor in the competition between banks to conclude contracts with customers, and can considerably increase user and customer-friendliness. Traditional credit checks, many of which remain paper based, generally cause considerable delays. More efficient processes, which involve less manual effort, are also essential for more attractive loan conditions.

That is why a retail and commercial bank that operates throughout Germany has taken a new approach, with adesso's help. The bank's customers can generate loan decisions online in just a few minutes, helping them achieve their goals much faster and more easily. The bank uses analysis of the customer's past transactions to calculate the probability of repayment and calculate the conditions offered accordingly. Of course, to comply with data protection laws, that can only be done with the customer's explicit agreement. The process involves the bank categorising the available data using a set of rules in order to carry out a credit check and reach a loan decision on that basis in almost real time. To open up the potential of the AI required for that analysis for use by the bank, adesso worked with the customer to design and implement a company-wide big data architecture that has done more than revolutionising the process of granting loans. The technologies also form the basis of numerous other sales, marketing and customer service processes. The architecture's potential is far from exhausted and, as a key strategic and infrastructure measure, it is paving the way for the banking applications of the future.

**Customers can generate loan decisions online in just a few minutes, helping them achieve their goals much faster and more easily.**



# Artificial intelligence is our **iqot**



***Seeing processes differently – building systems differently:  
The idea behind our AI campaign can be summed up by this  
formula. Our aim is to provide specialist decision-makers  
with practical information on the topic.***

**Within  
the scope of an  
AI market study, adesso  
analyses the current  
environment, assessments  
and plans of industry deci-  
sion-makers and consumers.  
More than 300 managers  
and 1,000 customers were  
surveyed to  
that end.**

**adesso addresses the topic of AI with both old and new target groups. It has already established itself as an important topic for many customers who look to adesso to provide support. It is bound to open up additional potential for the adesso Group, which is why it is important to continuously communicate on the topic. As part of our AI campaign, we will be offering a series of exciting elements from the second quarter of 2019.**

Our ability to build AI solutions is at the centre of our communication. These applications require a different approach and expertise than traditional software development projects. To be successful, participants need to have an understanding of the underlying data, the specifics of their own company and industry, the possibilities inherent to analysis and, building on these, the development of algorithms. We have the necessary specialist and industry knowledge as well as the appropriate process model – qualities that distinguish adesso from our competitors on the market.

From Computerwoche to marconomy, a wide range of IT and industry media already make use of our AI offerings, relying on the know-how of adesso employees in their reporting. Within the scope of an AI market study, we analyse the current environment, the assessments and plans of decision-makers and consumers. To ensure comprehensive results, we surveyed over 300 managers and 1,000 customers. The evaluation of the survey is not just of interest to the usual trade media, and the publication of the results will therefore be part of our campaign.

A corresponding landing page on the adesso website will constitute the hub of the campaign, where we will offer decision-makers all the necessary information, such as application cases, industry focal points, specialist articles, videos, study results or news. A newsletter and adesso's own AI-specific print media ensure continuous communication with the target groups. Of course, the social media channels will not be left out either. We are also planning a major summer event for customers and interested parties. We look forward to a constructive exchange, because AI is our topic.

# GROUP MANAGEMENT REPORT





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## GROUP PRINCIPLES

### Business model, targets and strategies

The adesso Group is a fast-growing IT company, which has set its sights on becoming one of the leading consulting and technology groups for industry-specific business processes in Central Europe. To do this, the establishment of additional subsidiaries in Europe is being accelerated. With a high level of expertise in the areas it caters to, adesso operates at the interface between business processes and IT, implementing software projects at the highest technical level. The development of in-house software solutions increases the company's market penetration and strengthens its position in promising IT fields, such as mobilisation and enterprise content management. Enterprise development is complemented by a well-defined acquisition strategy.

Fuelled by past growth and growth in the making, a focused business model and an insistence on outperforming industry average margins, the adesso Group's value is continually increasing. To achieve this, adesso invests significant resources in targeted business development, the expansion of sales capacities, recruiting and marketing. These investments, coupled with extensive industry and consulting expertise, enable growth rates, which exceed the industry average by far.

adesso is a leading corporate group in the field of software development and invests more than average in the training and development of our workforce and in ongoing development of the adesso model for the software development process.

The Executive Board is committed to a strategy of striving for the right balance of growth, solid finances and profitability.

As targets for 2018, the Executive Board defined sales growth of at least 9% to at least EUR 350 million, an operating profit increase of at least 9% in the form of an EBITDA of at least EUR 27.7 million on achievement of a minimum EBITDA margin of 7.5%. With sales increasing by 17% to EUR 375 million, of which 16% was organic, an EBITDA amounting to EUR 31.1 million and an EBITDA margin of 8.3%, the adesso Group achieved its targets well.

### Employees and structure

At the end of 2018, adesso had a workforce of 3,280 FTE across the Group (previous year: 2,748) in Germany, Austria, Switzerland, Turkey, Bulgaria, Spain and the USA. While 483 (previous year: 357) of these employees were working abroad for the adesso Group, 1,852 (previous year: 1,587) employees in Germany were working for the parent company adesso AG, which represents the holding company and by far the largest operating unit.

adesso AG's largest location is Dortmund, which is also the city in which the company was founded and where its corporate headquarters is located. To stay close to its customers and keep travel times and costs as low as possible, adesso maintains 19 other offices in all of Germany's major economic regions. This broad local presence is also extremely important in terms of recruitment. International locations are Barcelona, Basel, Bern, Boston, Istanbul, Jerez de la Frontera, Lausanne, London, Madrid, Sofia, Vienna and Zurich.

In addition to adesso AG, the largest operating unit and parent company, the adesso Group, also includes 24 subsidiaries, five associated companies and two joint ventures as at the reporting date.

adesso has two different segments: IT Services and IT Solutions. While the IT Services segment offers customised, project-oriented services in the areas of consulting and software development, the IT Solutions businesses market their own solutions as home-grown products or standard software products.

The parent company adesso AG is publicly traded and listed on nearly all German stock exchanges (ISIN code: DE000A0Z23Q5, WKN [national security identification number]: A0Z23Q).

## Management system

As the holding company of the adesso Group, adesso AG defines the strategy and operational targets of all group companies. It controls the legally independent group companies by implementing a target system, carrying out an ongoing reporting process and occupying positions in the supervisory bodies and management teams.

Operational control is ensured by a reporting system, which has been implemented uniformly across the Group. In the process, each group company prepares full monthly financial statements based on national legal regulations. Key performance figures for reporting are sales, EBITDA, earnings before tax (EBT), the EBT margin, number and proportion of employees not fully utilised, number of employees and net liquidity. The most important performance indicators are subject to continuous comparisons with forecast and actual data. All indicators are carried forward and subject to an internal group benchmark. Updated forecasts are prepared for each group company on a rolling basis for the entire year to identify possible planning deviations in a timely manner. Fixed reporting channels and cycles have been defined, and there is also a fixed appointment schedule for management meetings. There are no fundamental differences between key performance indicators in the reporting systems for each segment.

## Research and Development

The bulk of the adesso Group's sales is attributable to IT services. Research costs in the IT Solutions segment are negligible in relation to Group expenses. None of the group companies has its own dedicated research department.

## BUSINESS REPORT

### Macroeconomic climate and industry-specific conditions

#### Macroeconomic economic conditions

The German economy also grew in 2018, if less keenly than forecast by the Federal Government at the beginning of the year. After a growth rate of the gross domestic product of 2.2 % in the previous year, the initially expected slight increase was absent. The growth dynamic instead diminished, according to initial calculations by the German Federal Office of Statistics, to an expected 1.5 %. The growth compared to the revised autumn projected forecast thus turned out to be lower once again. The original yearly projection of the federal government for 2018 was noticeably undershot by 0.9 percentage points.

According to the estimate by the Federal Ministry of Economics, the German economy, however, finds itself in a constant and large-scale upswing with a solid domestic economy base. Special effects in the third quarter of 2018, emerging from the automotive industry, led to a temporary interruption to this upswing. After resolution of these effects, the Federal Ministry expects a continuation. In the fourth quarter of 2018, according to estimates by the German Federal Office of Statistics, the German economy initially recovered only slightly compared to the previous quarter. As in previous years, consumption in 2018 was an important pillar of the economy. According to calculations by the authorities, private consumer spending increased by 1.0 % in real terms, and government consumer spending increased by 1.1 %. In 2018, the economic outlook throughout the year became somewhat bleaker due to a weaker external environment and special effects emerging from the automotive industry. Experts are expecting a continuation of the upswing from the fourth quarter after resolution of these effects based on the indicators for the industry and for the economy as a whole, but also due to the trend in the external environment. However, the signals from the world trade environment gave a mixed picture. The ifo index on the global economic climate for the fourth quarter of 2018 reflects a very dampened mood. In their autumn forecasts, international organisations are also expecting a continued positive but eased trend of the global economy compared to earlier estimates.

For Switzerland, the Federal Government's expert group expects GDP growth of 2.6 % for 2018. This corresponds to a further acceleration of the dynamics in comparison to the previous year (1.6 %) and is slightly lower than the forecast of 2.3 % originally made for the entire year at the end of 2017. During the course of 2018, the expert group significantly raised their own prognosis to 2.9 % in the second half of the year despite growing foreign trade risks. Due to a foreseeable weak domestic demand and a dampened outlook, these expectations were however again revised at the end of 2018 to 2.6 %.

In Austria, the economy only picked up slightly compared to the previous year. After GDP growth of 2.6 % in the previous year, the leading economic research institutes are expecting 2.7 % for 2018.

In Turkey, the OECD is expecting significantly weaker GDP growth for 2018 of 3.3 % (2017: 7.4 %), in particular influenced by the currency crisis and high inflation.

In the USA, the OECD is expecting an acceleration in the GDP growth dynamic of 2.9 % in 2018 following 2.2 % in 2017.

The overall economic conditions were therefore to be assessed as positive for the business development of adesso, even though the outlook, mainly in Germany, has become considerably dampened in the second half of the year.

#### Industry-specific conditions

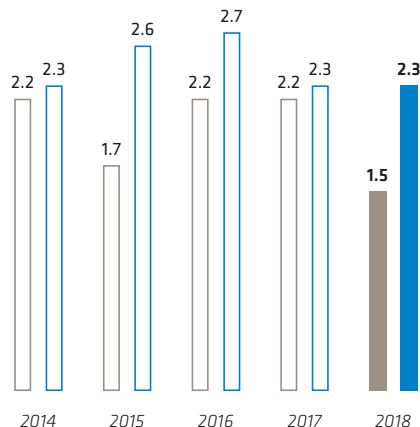
The industry association Bitkom expects an increase in the German market for information technology product and service providers of 3.1 % to EUR 89.9 billion in 2018. As a result, the growth dynamic weakened considerably compared to the previous year's figure of 5.3 %. The minimal growth in the field of IT hardware of only 1.5 % after 9.5 % in the previous year was decisive here. However, the IT market once again grew over 50 % faster than the economy as a whole.

The highest rate of growth was still shown by the software segment, which was able to make gains of around 6.3 % in 2018, as in the previous year. The market volume reached EUR 24.4 billion .

GDP GROWTH RATES (REAL)  
AND IT SERVICES

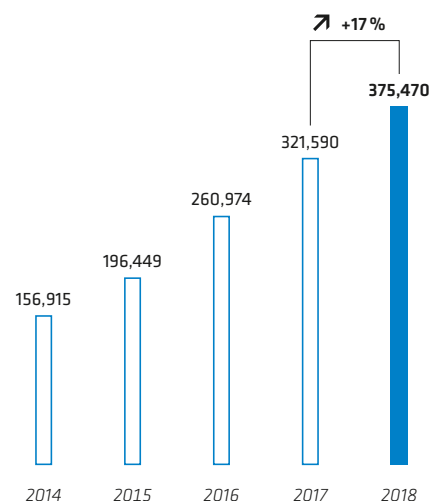
in %

■ BIP (real) ■ IT-Services



GROWTH IN SALES

in EUR k



Growth in the IT services area, the most important area for the adesso Group's turnover, also remained stable at 2.3%. The market volume of this segment now amounts to EUR 39.9 billion.

Industry-specific conditions, therefore, continued to be positive for adesso's business performance.

## Business performance

There were no individual events that could be seen as having significantly affected the business performance in the reporting period.

### Overall statement on business performance by the management

The adesso Group was able to improve sales by 17% (of which 16% is organic) and operating earnings (EBITDA) by 22% year on year and thus achieved its 2018 targets for these key performance figures. The target of generating an EBITDA minimum margin of 7.5% was achieved with 8.3%.

## Position

### Newly applied accounting standards

For the first time on 01.01.2018, adesso applied the reporting standards IFRS 9 (financial instruments) and IFRS 15 (revenue from contracts with clients). On the first application of IFRS 9 and IFRS 15, the transitional standards were applied. This is represented according to the so-called modified retrospective method. This involves the conversion calculations in the group reserves to be recorded up until 01.01.2018. The previous year's figures are not adjusted. Making a comparison with the previous year's figures in the financial statement is therefore only possible to a limited extent. The first-time application mainly has an impact on the representation of the asset and financial situation of adesso. A reference is made in the consolidated notes with regard to the impact on the first application of IFRS 9 and IFRS 15 as well as the unavailable direct comparison with the previous year.

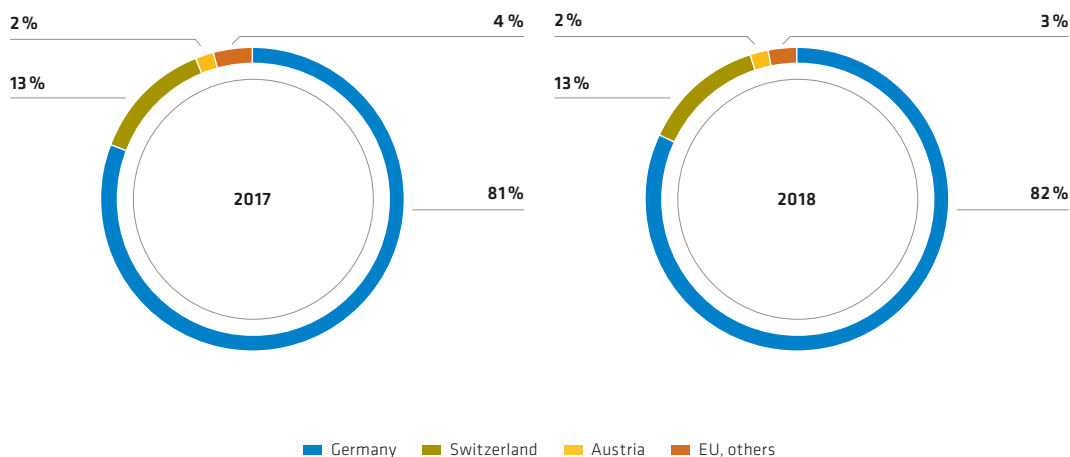
### Profitability

#### Growth in sales

The adesso Group successfully increased its sales by 17% to EUR 375.45 million in the 2018 financial year. The purely organic growth (without consideration of the company's acquisitions in 2017 and 2018) amounted to 16%.

SALES BY COUNTRY

in %



With estimated market growth, relevant to adesso, of 3.0 % for the industry, adesso, as it did in previous years, had significantly higher organic growth than the market in 2018. It was therefore able to gain additional market shares.

Within financial year 2018, the sales revenues from the first half of the year rose from EUR 177.6 million to a new record value in the second half of the year of EUR 197.9 million. This increase resulted from the number of employees, which continued to increase, the higher number of work days and higher licence revenues.

Sales in both segments increased, and growth in the IT Services segment of 19 percentage points was clearly above that of the IT Solutions segment.

In the IT Services segment, the most significant adesso subsidiary in the group in terms of size, as in the previous year, was able to significantly expand its sales in Germany above the group growth by 23 %. Investments in the development of additional key sector aspects such as automotive and new portfolio elements as well as the focus on recruitment and employee retention could once again be transferred

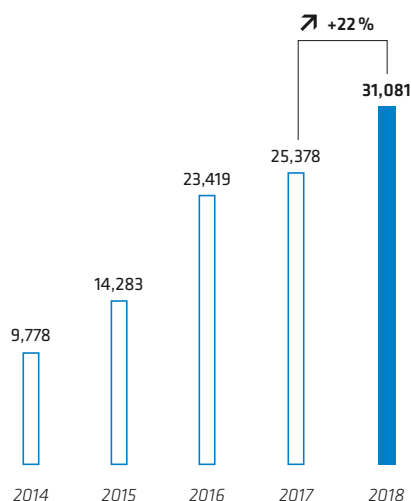
into high growth in sales. In Turkey, the sales revenues once again rose sharply by 63 % through the winning of contracts in the country and also through the increase in project involvement in Germany and Switzerland. The subsidiary in Switzerland increased its growth to 8 %; in Austria, after the very significant expansion of sales in the previous year of 23 %, minimal sales growth of 2 % was achieved, and the focus was placed on the increase in earnings.

Most of the sales with external experts are generated in the context of adesso Group projects. External resources are used here for capacity reasons or to obtain specialised knowledge. The share of sales generated with external experts stayed more or less constant in 2018. The business activities with Smart Housing and Cloud Services increased again significantly by 31 %.

In the IT Solutions segment, business with the adesso in-house product family in|sure for the insurance business was expanded by 31 %. The turnover rose in all three revenue categories of licences, maintenance and implementation. In the Content Solutions business area, turnover with the in-house content management system FirstSprit increased only slightly by

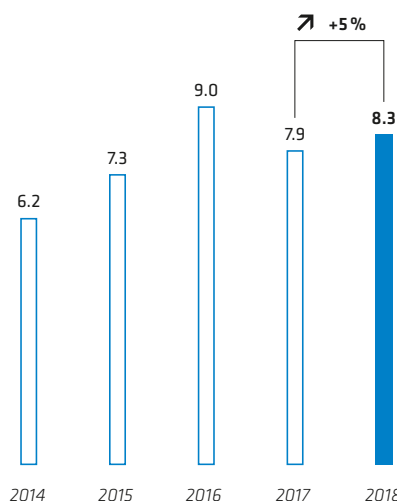
EBITDA

in EUR k



EBITDA MARGIN

in %



1 % due to higher maintenance revenues. Due to the increased share of contract models with distributed sales realisation, such as in the case of software as a service agreements, there is a delay between rising order intake and rising sales revenues from licences. After this applied in the previous year, in particular in the USA, its share in Europe now also saw a rise.

Sales in the Mobile Solutions segment rose significantly by 26 %. The mobilisation of web content and business processes has become a significant part of the standard investment budget of the company and continues to be one of the disproportionately growing fields in IT. In this field, the adesso Group is a leading company for enterprise mobility in Germany.

The strongest sales increases in terms of percentage were in the new core sector of automotive & transportation and in the field of health, which won one of the largest development projects of recent years. Growth rates greater than 20 % were achieved in banks/financial services and insurance, which account for the largest proportion of adesso's sales.

The sales with customers in Germany rose in 2018 by 19 %, and by 9 % outside Germany.

### Earnings

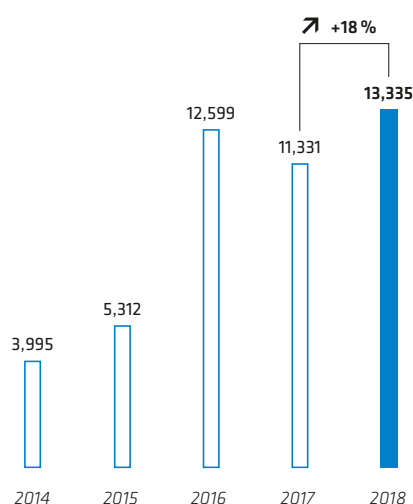
In 2018, the EBITDA increased disproportionately by 22 % to EUR 31.1 million compared to sales. This achieved and exceeded the minimum target value of EUR 27.7 million.

At sales growth of 17 %, in 2018 the average number of employees (FTEs) grew faster by 20 %, or 507 employees, to 3,031.

The material expenditure to the amount of EUR 43.3 million, mainly caused by the incorporation of subcontractors into projects, rose by 16 % and thus within a similar scope to the sales revenues. Gross profit thus increased by 17 % to EUR 332.2 million. Due to the use of external labour, the material usage ratio at 11.5 %, after 11.6 % in the previous year, remained more or less constant. In the face of the disproportionate growth in employees, the result is a downward gross profit per employee of EUR 110 thousand (previous year: EUR 113 thousand). The inclusion of external specialists follows the demand at peak times and the incorporation of experts in some projects. From a strategic perspective, the aim is to have a high proportion of sales revenues from in-house employees.

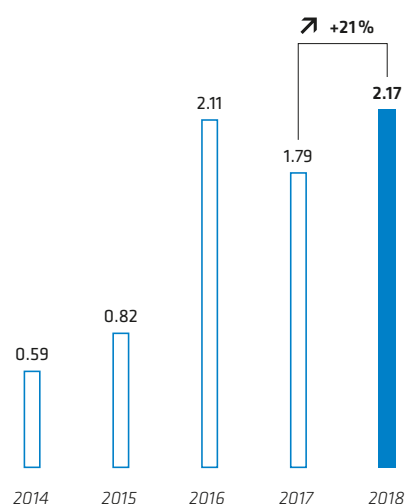
CONSOLIDATED EARNINGS

in EUR k



EARNINGS PER SHARE

in €



Personnel costs increased by 18 % to EUR 243.1, while the average number of employees rose by 20 %. Hence, the average personnel costs per employee dropped from EUR 82 thousand to EUR 80 thousand. Compared to the same period, there was a noticeable rise in the number of employees in Turkey, Bulgaria and Spain accompanied by lower personnel costs.

Other operating expenses increased by 15 % to EUR 64.0 million, a disproportionately low margin compared to sales revenues. A large share of this increase is due to the rise in the number of employees. Costs such as travel, vehicle and training expenses tend to increase proportionately with each employee. Occupancy and related costs of office space also increased

due to relocations and expansions. In 2018, following the activities for the 20th anniversary of the company in the previous year, some cost items turned out to be less in marketing but also in the Employer Branding segment. In total, other operating expenses increased more slowly than sales, which increased the margins.

Total operating earnings before interest, taxes, depreciation and amortisation (EBITDA) increased by 22 %, or EUR 5.7 million in absolute terms, to EUR 31.1 million in 2018. The EBITDA margin came to 8.3 %, up from 7.9 % in the previous year. The increased margin is attributed to the rise in other expenses which were disproportionately low, as well as the continuing rise in the licence and sales revenues in the in-house software products business.

#### MULTI-PERIOD OVERVIEW OF INCOME STATEMENT

<i>in EUR k</i>	2018	2017	2016	2015	2014
Sales revenues	375,470	321,590	260,974	196,449	156,915
Other operational revenues	5,081	3,135	3,212	1,862	2,069
Changes in inventories (IFRS 15)	331	-	-	-	-
Own work capitalised	532	47	-	165	274
<b>OVERALL PERFORMANCE</b>	<b>381,414</b>	<b>324,772</b>	<b>264,186</b>	<b>198,476</b>	<b>159,258</b>
Cost of materials	-43,296	-37,390	-28,389	-22,975	-18,980
Personnel costs	-243,052	-206,266	-168,737	-125,144	-98,903
Other operating expenses	-63,985	-55,738	-43,641	-36,074	-31,597
<b>EBITDA</b>	<b>31,081</b>	<b>25,378</b>	<b>23,419</b>	<b>14,283</b>	<b>9,778</b>
Depreciations	-9,097	-8,193	-6,352	-4,877	-2,407
<b>EBIT</b>	<b>21,984</b>	<b>17,185</b>	<b>17,067</b>	<b>9,406</b>	<b>7,371</b>
Income from financing and investment activities	-782	-554	-2	69	-83
<b>EBT</b>	<b>21,202</b>	<b>16,631</b>	<b>17,065</b>	<b>9,475</b>	<b>7,288</b>
Income and revenues taxes	-7,867	-5,300	-4,466	-4,163	-3,293
<b>Consolidated profit/loss</b>	<b>13,335</b>	<b>11,331</b>	<b>12,599</b>	<b>5,312</b>	<b>3,995</b>
Gross profit	332,174	284,200	232,585	173,639	138,209
Gross income margin	88 %	88 %	89 %	88 %	88 %
<b>EBITDA margin</b>	<b>8.30 %</b>	<b>7.90 %</b>	<b>9.00 %</b>	<b>7.30 %</b>	<b>6.20 %</b>
Sales development	17 %	23 %	33 %	25 %	16 %
Change in personnel costs	18 %	19 %	35 %	27 %	12 %
Change in other operating expenses	15 %	28 %	21 %	14 %	12 %



After an EBITDA of EUR 12.1 (previous year: EUR 7.6) in the first half year, the value in the second half of the year rose to EUR 19.0 million (previous year: EUR 17.8 million). The increase during the year is largely due to the higher number of working days and higher licence revenue.

A percentage improvement to the earnings contribution was found in the IT services segment, in particular in the subsidiaries in Turkey, Germany, and in Austria, as well as in the Group company adesso as a service for the sales of applications (Smart Hosting & Cloud Services). In the IT Solutions segment, the Mobile Solutions division was able to achieve significantly higher earnings. Due to a strong buildup of employees and increased investment in the development of further functions and modules for the insurance software in|sure, the result in this area remained below the previous year despite growing licence, maintenance, and implementation revenues. The same applies for the business with FirstSpirit from the Group company e-Spirit. The smarhouse business with solutions for the financial sector recorded a decline in earnings caused by significant budget cuts for one of the most important clients.

Depreciation and amortisation increased by 11 % in the reporting period to EUR 9.1 million. The rise is attributed to organic growth. This includes amortisation resulting from business combinations of EUR 2.6 million (previous year: EUR 2.9 million). This also includes depreciation of property, plant, and equipment, and amortisation of intangible assets, which increased significantly by 23 % to EUR 6.5 million. Drivers for the increase in depreciation and amortisation are both employee growth and the site expansion achieved by expanding and opening new facilities in Germany, Bulgaria, Spain, and Switzerland. As in the previous year, no unplanned goodwill impairments were recognised.

Income from financing and investment activities amounted to EUR -0.8 million following on EUR -0.6 million in the previous year. The interest expenditure of EUR 0.7 million remained virtually unchanged. Income from financing activities amounted to EUR -0.2 million following on EUR 0.2 million in the previous year. The biggest single position is the participation in soccerwatch.tv GmbH, which, as a high investment start-up in 2018, further increased the growth speed and is quickly winning market shares.

The result before tax (EBT) rose by 27 % to EUR 21.2 million and thus was somewhat stronger than the operating EBITDA result. Expense from income taxes amounted to EUR 7.9 million (previous year: EUR 5.3 million). The effective tax rate came in at 37 % (previous year: 32 %). The tax result includes, amongst others, expenditures from the adesso AG company audit and a series of domestic group companies for the audit period 2014 and 2015. In all, this led to a positive group result in the amount of EUR 13.3 million after a previous EUR 11.3 million in the previous year. The result per share is €2.17 after €1.79 in the previous year, corresponding to a rise of 21 %.

#### Order development

The order intake during 2018 accompanied the increase in employees and sales. A general slump in demand was not observed in any region, segment, or industry. Business activities continued at the start of 2019 with the majority of the leading customers for 2018. The weighted volume of offers that have been made to customers but not yet accepted in the most important market, Germany, was above the value of the previous year on the reporting date.

#### Employee indicators

The leading performance figures for employees developed as follows:

#### MITARBEITERKENNZAHLEN

	2018	2017	2016	2015	2014
Employees at year end	3,590	2,980	2,382	1,840	1,499
Full-time equivalents (FTE) at year end	3,280	2,748	2,174	1,702	1,377
Full-time equivalents (FTE), average for the year	3,031	2,524	1,956	1,534	1,298
Sales per Ø FTE (in EUR k)	124	127	133	128	121
Gross profit per Ø FTE (in EUR k)	110	113	119	113	106
Personnel costs per Ø FTE (in EUR k)	80	82	86	82	76

## Financial position

### Financial management principles and objectives

adesso pursues a balanced financial policy. The objective of financial management is to assure short-term liquidity, including a margin of safety, as well as to secure and acquire financial assets to fund medium- and long-term investment projects. In principle, the company does not enter into investment transactions with speculative elements.

There are no variable interest rates on investments. In light of the zero-percent or even lower investment interest rates for low-risk investments, the company invests the existing liquid funds almost exclusively on a daily basis so that it can flexibly take advantage of investment opportunities when they arise.

Central cash management at the level of daily account clearing has not been set up. Bank borrowing was centralised with the parent company. The account balances and financial position of all companies are transparent to the Group's Executive Board and constitute a standard element of the monthly reporting system. All interest-bearing liabilities are denominated in euros, except for the 2015 acquisition in Switzerland, which was denominated in Swiss francs. Factoring or other methods of selling receivables are not used at this time.

### Capital structure

The financing of accounts receivable and of not-yet-invoiced services in the amount of EUR 93.2 million (previous year: EUR 81.5) represents the most meaningful part of the borrowing requirement. The working capital (trade and service receivables plus contract assets) (previous year: PoC receivables) minus trade and service payables and minus contractual obligations (previous year: PoC obligations) on 31/12/2018 amounts to EUR 73.0 million (previous year: EUR 58.2 million). As a result, the need for advance financing of business operations rose by 25 % year on year while sales increased by 17 %. The above average rise results as a snap-shot on 31/12 from the trade and service receivables, which in the previous year had grown significantly below average.

The entire portfolio of interest-bearing financial liabilities was EUR 2.0 million, under the value of the previous year at EUR 48.1 million on the reporting date as a result of new intake despite instalment payments carried out. Interest is fixed over the respective

entire term. All interest-bearing liabilities are denominated in euros or Swiss francs. Credit balances are available in the short term. Net liquidity after deducting the financial liabilities is EUR -2.2 million (previous year: EUR EUR +0.3 million). With a value of -0.1 (previous year: 0.0), the net liquidity in relation to EBITDA is considerably higher than the maximum target of -1.5 the company set itself. Please note that the net liquidity on the reporting date 31/12 regularly lies close to the maximum value over the course of a year.

### Investments, acquisitions, and divestments

The adesso business model requires relatively low investments in property, plants, and equipment. The property assets in the amount of EUR 9.9 million (previous year: EUR 8.7 million), and therefore 4 % of the sum of all asset items, largely consist of hardware, such as laptops and servers, as well as office furnishings. The increase resulted from the investments made in additional employee growth, the expansion of office areas at the locations, and furnishing locations that had recently been opened. There are no significant subsequent obligations from property, plant, and equipment investment projects as at 31/12/2018. There is no investment backlog to report. At the end of 2018 and at the beginning of 2019, the second phase of construction of the group headquarters in Dortmund, Germany, involving an investment sum of around EUR 4 million, will be furnished, made ready for use, and equipped with technical infrastructure. As a result, the depreciation and amortisation of the commodities with lesser value and the fixed assets portfolio will increase above and beyond normal growth in 2019.

In December 2017, adesso AG expanded its involvement in the Dortmund-based company com2m GmbH from 24.9 % (previously) to a current 58.7 % of the shares with effect as of 1 January 2018. This has already been reported in the group financial statement 2017.

In 2018, adesso AG held a 20 % share in Trilux Digital Solutions GmbH, the principle shareholder being an important client of adesso. The acquisition price was EUR 100 thousand.

The share in soccerwatch.tv GmbH was increased by EUR 1.1 million as part of capital increases, to which other investors participated as well.

## DEVELOPMENT OF CASH AT BANK AND FINANCIAL LIABILITIES

<i>in EUR k</i>	<i>Cash at bank</i>	<i>Change in %</i>	<i>Financial liabilities</i>	<i>Change in %</i>
2014	23,724	10	5,724	-6
2015	28,162	19	21,746	280
2016	43,144	53	48,098	121
2017	46,497	8	46,155	-4
2018	45,912	-1	48,108	4

## DEVELOPMENT IN LIQUIDITY

<i>in EUR k</i>	<i>2018</i>	<i>2017</i>	<i>2016</i>	<i>Change 2018</i>
Liquid assets	45,912	46,497	43,144	-585
(-) Financial liabilities	48,108	46,155	48,098	1,953
(=) Net liquidity	-2,196	342	-4,954	-2,538
Net liquidity to EBITDA	-0.1	0.0	-0.2	-0.1
Liquid assets	45,912	46,497	43,144	-585
(+) Trade accounts receivable and contract assets	93,199	81,459	70,060	11,740
- Current liabilities	101,698	92,366	80,581	9,428
(=) Net liquidity 2	37,317	35,590	32,623	1,727

## DEVELOPMENT OF FINANCIAL POSITION

<i>in EUR k</i>	<i>2018</i>	<i>2017</i>	<i>2016</i>	<i>2015</i>	<i>2014</i>
Liquid assets	45,912	46,497	43,144	28,162	23,724
Financial Liabilities	48,108	46,155	48,098	21,746	5,724
<b>Net liquidity</b>	<b>-2,196</b>	<b>342</b>	<b>-4,954</b>	<b>6,416</b>	<b>18,000</b>
Cash flow from operating activities	16,593	20,265	15,137	16,877	9,248
Cash flow from investing activities	-14,066	-11,017	-30,066	-26,878	-5,408
Cash flow from financing activities	-2,966	-5,594	29,929	14,081	-1,735
Currency translation differences	-146	-301	-18	358	-25
<b>Total change in liquid assets</b>	<b>-585</b>	<b>3,353</b>	<b>14,982</b>	<b>4,438</b>	<b>2,080</b>

At adesso Transformer GmbH in Austria, the declaration of acceptance of a call option by the previous partners increased the adesso share from 51 % to 100 %. The acquisition price was EUR 750 thousand.

The consolidated notes provide more details on the company acquisitions.

### Liquidity

Cash and cash equivalents totalled EUR 45.9 million on the reporting date (previous year: EUR 46.5 million). They were partly offset by financial liabilities, mainly from acquisition loans, in the amount of EUR 48.1 million (previous year: EUR 46.2 million). Net liquidity after deducting the financial liabilities thus reduced slightly by EUR 2.5 million to EUR -2.2 million.

Cash flow from operating activities stood at EUR 16.6 million (previous year: EUR 20.3 million). The decline despite the clear increase in the result before taxes is attributed in particular to the strong increase in trade receivables. Furthermore, for the first time in 2018, a part of the phantom shares equivalent to EUR 2.9 million was returned, which led to corresponding payments. The exercising of the phantom shares had no effect on the group result since ultimately the amounts to be paid out over the particular vesting period are accumulated with an effect on earnings. Cash flow from investment activities stood at EUR -14.1 million (previous year: EUR -11.0 million). The acquisitions carried out in 2018 led to larger payments than in the previous year. Cash flow from financing activities amounted to EUR -3.0 million, compared to EUR 5.6 million in the previous year. Repayments and acceptance of new financial liabilities were virtually balanced out. Dividends in the amount of EUR 2.5 million (previous year: EUR 2.4 million) were paid out, of which EUR 2.5 million went to adesso AG's shareholders (previous year: EUR 2.2 million).

Variable salary components are paid from cash and cash equivalents and are paid out in the first few months of 2019. This is typical for the business. Thus, as in the previous years, the net liquidity in the first half of the year 2019 is expected to experience negative developments for the time being. Overall, the liquidity of the adesso Group is adequate to carry on current business operations, for the planned redemption of liabilities, and to compensate for ordinary fluctuations in capacity utilisation.

## Assets and liabilities

### Analysis of asset structure

Total assets as at the reporting date increased year on year by 9 %, or EUR 19.0 million, to EUR 221.8 million. In addition to the organic expansion of the business activities, the effect from acquisitions in 2018 turned out to be lower than in the previous years.

On the assets side, the goodwill increased largely depending on acquisitions by EUR 3.4 million. Property, plants, and equipment increased only slightly by EUR 1.2 million. Sales growth and the acquisitions caused trade receivables to increase clearly by EUR 18.4 million while the contract assets dropped by EUR 6.7 million. The information in the consolidated notes is referred to with regard to the unavailable direct comparison to the previous year during the course of the first application of the IFRS 9 and IFRS 15. In absolute terms, current assets increased more quickly than non-current assets.

On the liabilities side, the long-terms debts reduced slightly by 1 %, while the short-term debts increased by 10 %. The consolidated equity rose significantly despite dividend payments as a result of the positive group result by EUR 10.3 million (previous year: rise by EUR 8.7) and amounts to EUR 77.3 million. The consolidated equity rate, therefore, increased by 1.8 % points to 34.8 % compared to the previous year.

## Multi-period overview of assets and liabilities

### Financial and non-financial performance indicators

The key financial performance indicators used for internal control of the Group are sales growth, EBITDA, and EBITDA margin. Targets and actual values for the reporting period, as well as the medium and long-term target corridor, are provided in the following table.

The adesso Group does not use any group-wide non-financial performance indicators for the internal control of the Group. Given the outstanding importance to the Group of adesso AG, which is responsible for over 50 % of adesso Group business, and the otherwise broad range of control-relevant performance indicators within the group due to the business it conducts, the financial and non-financial performance indicators used for the internal control of adesso AG are reported on below.

## MULTI-PERIOD OVERVIEW OF ASSETS AND LIABILITIES

<i>in EUR k</i>	2018	2017	2016	2015	2014
Balance sheet total	221,848	202,812	183,079	120,167	84,030
Current assets	146,226	133,357	117,897	78,656	60,789
Of which liquid assets	45,912	46,497	43,144	28,162	23,724
Of which trade accounts receivable and contract assets	93,199	81,459	70,060	46,730	34,655
Long-term assets	75,622	69,455	65,182	41,511	23,241
Current borrowed capital	101,698	92,366	80,581	55,540	38,209
Of which loans and other financial liabilities	15,008	13,877	14,099	4,212	1,583
Of which trade accounts payable and contract obligations	20,218	23,295	23,071	16,379	11,055
Non-current borrowed capital	42,856	43,423	44,183	22,476	7,073
Of which loans and other financial liabilities	33,100	32,278	33,999	17,534	4,141
Equity	77,294	67,023	58,315	42,150	38,748

## FINANCIAL PERFORMANCE INDICATORS

	Target 2018	Actual 2018	Target
Growth in sales (organic)	>EUR 350 million thus >9% growth	17% to EUR 375 million, of which 16% points is organic	At least double sector growth (2018: around 3.0%)
EBITDA	>EUR 27.7 million thus >9% growth	EUR 31.1 million	Increase over previous year
EBITDA margin (indirect)	> 7.5%	8.3%	9 to 11% (long-term)

Table source: Group figures - adesso Group

## PERFORMANCE INDICATOR INVERSE UTILISATION RATE

	2018	2017	2016	Target
Annual average	9.9%	9.1%	9.0%	9% bis 13%
Maximum	10.9%	10.6%	13.4%	15%
Minimum	8.9%	7.6%	6.6%	7%

Table source: adesso AG

The development of earnings generated by adesso AG depends on a number of performance indicators. In addition to the growth rate which is achieved, these are in particular:

*Employee capacity utilisation (proportion of employees working on customer projects)*

The proportion of employees working on billable customer projects has a direct influence on earnings. The greatest possible constant and high utilisation, without severely limiting flexibility in staffing new projects, is our goal. Since the end and beginning of projects cannot always be optimally scheduled in sequence, some basic non-utilisation of capacity is unavoidable. Utilisation is measured biweekly according to the number of employees in operations and is reported as the proportion of employees that are not assigned to a project.

A high utilisation was achieved again in 2018. The figure lies well within the target corridor.

*Booking intensity (average of billed hours per project day)*

The number of billable customer hours as the basis for sales and earnings is subject to fluctuations, which do not depend on the order situation, caused by the number of potential working days, holidays taken, illness, and capacity utilisation. When these effects are neutralised in the analysis of billable customer hours, it is possible to determine the average billable customer hours per project day for an employee assigned to a project, provided that structures remain unchanged. Changes to structures, such as the management team, career levels, and working models, are also included in the booking intensity. The booking intensity determined this way measures the development of quantitative value creation per employee in the project and structural efficiency.

Since additional or fewer hours worked per project day are accompanied by virtually unchanged costs, a change in the booking intensity has a direct impact on earnings. The booking intensity is also influenced by the intensity of pursuing internal projects for company development, business development, or pre-sales. It is specified as a percentage of an eight-hour workday.

In 2018, the average posting intensity increased compared to the previous year. Nonetheless, it is thus again below the target corridor.

*Average daily rates achieved*

The change in the average daily rates, both in projects billed on a time and materials basis and in fixed-price projects on a calculation basis, is a key earnings driver. In particular, compared to the change in labour cost per employee as the leading cost item, it has a significant impact on the operating earnings margin. Accordingly, the daily rates are a fixed internal control element. Their development is tracked on an individual customer basis, and they are purposefully examined for improvement potential. The change in the average daily rate is reported. In 2018, this could not be increased but dropped by 1%. The driver for this is a change in the customer structure; for existing customers, the daily rates did not reduce, with the exception of one TOP-10 customer.

*Calculated daily rates and budget overruns for fixed-price projects*

The number of project days in fixed-price projects that exceed the budget has a direct impact on earnings, since those days are not available for otherwise potential working hours. Even if they can be used only in combination with projects completed below budget for an overall image of the impact that fixed-price projects have on earnings, the change in budget overruns serves as a signal for progress or setbacks related to fixed-price projects. The evaluation is based on days and not on euros, so this is a qualitative assessment.

Together with the daily rates used in project calculations, the relationship between budget underruns and overruns is used to calculate the daily rate on fixed-price projects in the final costing analysis. The budget overruns in 2018 lay below the target corridor and below the previous year's value. The target value for the increase in the calculated daily rate could not be achieved in 2018 after the significant increases in the two previous years.



## PERFORMANCE INDICATOR BOOKING INTENSITY

	2018	2017	2016	Target
Annual average	96 %	92 %	90 %	93 % bis 99 %
Maximum	98 %	103 %	94 %	103 %
Minimum	94 %	85 %	86 %	83 %

Table source: adesso AG

## PERFORMANCE INDICATOR T&amp;M DAILY RATE

	2018	2017	2016	Target corridor
Annual average	-1 %	+2 %	+2 %	at least +2 %

Table source: adesso AG

## PERFORMANCE INDICATOR FIXED-PRICE PROJECTS\*

	2018	2017	2016	Target corridor
The proportion of employees in the overspend projects	1.2 %	1.4 %	not measured	< 1.5 %
Arithmetical daily rates	-3 %	+9 %	+10 %	mind. +2 %

Table source: adesso AG

\* In 2018, the calculation of the budget overruns was converted to the average share of employees in the overspend projects (FTE in overspend projects compared to the FTE of the operative areas). The measurement was re-started at the middle of 2017 so that the value for 2017 originates from the projection in months July to December 2017.

adesso AG examines employee aspects as non-financial performance indicators. As a fast-growing premium IT service provider, adesso depends on the ability to gain many of the best graduates and experienced experts as new employees, to extensively

pursue their internal further development, and to retain them for as long as possible. Here the following performance indicators described are of particular relevance.

## PERFORMANCE INDICATOR RECRUITMENT AND FLUCTUATION\*\*

	2018	2017	2016	Target corridor
Development of applications	+18 %	+12 %	+26 %	>= Gross profit increase, previous year
New appointments (permanent employees)	448	428	294	Increase over previous year
Turnover ratio (change and maximum value)	+3,1 %-P.; > 10 %	+0,5 %-P.; < 10 %	- 0,2 %-P.; < 10 %	Improvement; < 10 %

Table source: adesso AG

\*\* Changes to the target definition: trend of applications (previous year: >= growth of gross profit in the previous year; change to a medium-term target vs. historical comparison)/changes to the performance indicators compared to the previous year. The trend of initial interviews is dispensed with since the intermediate step between application and new appointment in the company is no longer observed as a basis for tactical measures. New appointments was changed from "all positions" to "permanent employees" since these are observed as relevant key figures in operational practice and, amongst other things, are absorbed by the high speed of change in the composition of student trainees.

## PERFORMANCE INDICATOR SOFTWARE PRODUCTS

	2018	2017	2016	Target value
Licence revenue	+ 25 %	+ 16 %	+ 6 %	> 5 %
Maintenance sales	+ 22 %	+ 23 %	+ 23 %	> 5 %

Table source: e-Spirit AG and adesso insurance solutions GmbH

### Recruiting performance figures and turnover

Recruiting examines the number of applications received, initial interviews conducted, and new hires. The turnover ratio is based on resignations of permanent staff.

In 2018, the number of the applications generated could be significantly re-boosted by 18 %. The fast organic growth was continued, and thus the number of new positions filled for permanent employees increased by a further 5 %. While adesso continues to be able to generate interest for applications and once again achieved record figures for the number of applications, it returned a lesser share of positions filled. In the previous year, the hiring policy was at times overheated. The turnover rate increased significantly

in 2018 and for the first time has been above the target corridor for several years. This trend is observed across the sector and represents a key challenge for the management and for personnel policy.

Group management also examines the development of licence and maintenance revenues from the FirstSpirit product and from the in|sure product for insurance companies as internal performance indicators, since licence revenue in a short-term quarterly and financial year view have a major direct impact on earnings and because maintenance revenues form the basis for growing the development and marketing cost base of products. Licence and maintenance revenue increased significantly above the target value in 2018.

# FORECAST, OPPORTUNITIES AND RISK REPORT

## Forecasting report

### Group strategy for the next financial year

adesso's vision of becoming one of Central Europe's leading IT consulting firms for industry-specific business processes will be pursued with vigour. The strategic guidelines for profitable growth through industry segmentation, new industries, new technologies, regional expansion, and the expansion of the company's solution portfolio will continue to determine the actions adesso takes over the next two years.

The company will continue to invest primarily in its in-house products and solutions, and in 2019 investment will increase once more compared to the previous year. adesso will retain its active acquisitions policy. It will continue to prioritise the rapid expansion of business activities while accepting that margins may continue to be negatively impacted as a result.

The expansion of additional national subsidiaries in Europe augments the fields of action for the further development of the adesso Group. After the opening of locations in Spain and Bulgaria in 2018, work is now under way on their fast expansion and integration into the adesso value chain. In 2019, locations in Hungary and the Netherlands are to be opened as a foundation for further subsidiaries. In both countries, each of the local markets are the focus of attention.

### Future Macroeconomic Situation

With a plus of 1.5%, in 2018, Germany achieved the lowest economic growth since 2013. Although in its annual projection for 2018 the German Government still assumed that there would be a slight increase in dynamic for the reporting year, it revised its expectations considerably over the course of the year, and the result fell below expectations. The Federal Government is hereby referring to fading special effects and an intact growth course from 2019 with further growth. If the Federal Government had anticipated a GDP growth of 1.8% for 2019 in its 2018 autumn projection, in the face of the 2018 shortfall and the increased deceleration from the second half of 2018,

the expectations in the context of the annual projection at the end of January 2019 would have been clearly adjusted downwards to 1.0%. There are risks for the economy in the sphere of foreign trade in particular. Trade conflicts, currency turbulence and geopolitical conflicts are putting a strain on the world's economy and have increased the general uncertainty about economic development. In summary, it is forecast that the German economy will overall assert itself well in this difficult environment. Its economic basic dynamics remain in an upwards trend, if perhaps a little slower than usual. From a global economic environment, the influences are somewhat more muted. According to the forecasts of international organisations, compared to earlier estimations, an eased but continued upwards trend in the world economy is expected.

The Swiss State Secretariat for Economic Affairs, SECO, is expecting a significant weakening of the growth dynamic in 2019 based on the estimates of a Federal expert group after the rise in the economy in the previous year. Against the background of weak domestic demand, the forecast was significantly lowered compared to the previous announcements to 1.5%. The experts are expecting a continuation of the economic normalisation of the world economy after the strongly expansionary phase of 2017 and 2018, whereby the eurozone is losing dynamic somewhat faster. In Switzerland, the weaker foreign trade momentum could be further compensated by domestic trade growth strength starting in 2020. GDP growth is expected to rise again slightly to 1.7%.

Based on projections of the Austrian Institute of Economic Research (WIFO) and the Austrian Institute for Advanced Studies (IHS), the Austrian Federal Ministry for Digitisation and Economic Location expects GDP growth to largely decrease, suggesting a growth between 1.7% (IHS) and 2.0% (WIFO) in 2019. According to the projections, growth is expected to weaken more in 2020. While the IHS anticipates GDP growth of 1.6%, the WIFO expects 1.8%.

In Turkey, after the heavily decreasing growth dynamic in the previous year, the OECD is estimating a shrinking economic performance in 2019. The GDP is expected to decrease by -0.4%. Based on a gradually returning trust in the currency, a growth of 2.7% is expected in 2020.

The OECD is forecasting a weakening growth for the USA of 2.7 % in 2019 and 2.1 % in 2020.

As a result, adesso expects a continually growing macroeconomic market environment in 2019, associated with ongoing and some new risks in regards to actual development. In all, the growth expectations in the economic regions relevant for adesso have markedly dampened compared to the previous year but, with the exception of Turkey, remain on a course for growth. For its projection, the German Government explicitly states that there shall be no sudden and considerable increase in uncertainty and no duty increases higher than previously during the projection period, as for example during the Brexit crisis or the currency crises in emerging markets. In addition, it is also assumed that the financial sector will remain stable and that there will be no further escalation in geopolitical risks. Based on previous measures and tendencies towards stabilisation of the financial sector and the eurozone, a serious worsening of the current positive economic development in the sectors important for adesso is not expected in 2019 and 2020.

#### Outlook for the industry

According to estimates by the industry association Bitkom, the German market will continue to grow in 2019 for providers of services and products in the IT sector. 2019 is expected to achieve an increase of 2.5 % to EUR 92.2 billion of market volume. Growth in the previous year still stood at 3.1 %. The highest growth rates belong to the software segment, as in 2018, with another 6.3 % to EUR 26.0 billion. Also for the IT services segment, compared to the previous year, a stable growth rate is calculated for 2019 of 2.3 % to EUR 40.8 billion of market volume. At year-end, 1.2 million people are expected to be employed in the sector. That corresponds to an increase of 40,000 jobs and a rise of 3.5 % compared to 2018.

According to the research institute Gartner, global IT investment is expected to rise by 3.2 % to USD 3.8 trillion in 2019. For IT services, Gartner predicts a growth rate of 4.7 % for 2019 (2018: 5.9 %) to USD 1.034 billion.

Internally, the adesso Group anticipates the market growth relevant to adesso in 2019 will be up by 2.5 % (previous year: 3.0%).

#### Anticipated Sales and Earnings Situation

The report on risks and opportunities is a pivotal part of the management's considerations of the further development of adesso and of the forecast report. Potential acquisitions or acquisitions targeted after the point at which the consolidated management report is prepared are not included in the forecast report.

Based on the significantly reduced growth forecast compared to previous years for adesso-relevant markets and for adesso-specific plans, in 2019, the management is expecting:

- > An increase of at least 9 % to at least EUR 410 million is expected for the sales revenues.
- > The operative result, EBITDA, without taking into account the initial application of IFRS 16, is expected to reach a value of between EUR 30 and 35 million. As a result of the expected reclassification of parts according to IFRS 16 of the otherwise operational expenditure, largely in the depreciation and amortisation, 2019 is expected to reach a stated EBITDA of between EUR 40 and 45 million.

A minimum value of 9.0 % is expected for the operative EBITDA margin relating to the EBITDA according to IFRS 16. The EBITDA margin is expected to be increased as far as possible in line with the long-term target corridor of 11 to 13 % (stepping up of the target corridor by IFRS 16).

The organic expansion of staff numbers which took place during the course of 2018 leads to correspondingly rising sales expectations for 2019. Against the background of the strong expansion of staff and the behaviour of the overall economic growth forecasts, a somewhat lower employee capacity utilisation is expected. In conjunction with the rising costs from the acquisition of the second phase of construction of the Group's head office in Dortmund, the costs of further internationalisation and also the expenditures which rose by EUR 2 million compared to the previous year for the further accelerated expansion of the range in the in|sure and FirstSpirit product area, this temporarily reduced the operative EBITDA margin.

Earnings are expected to be higher in the second half of 2019 than in the first half of the year. This is due to the higher number of working days in the second half of the year (five more), higher licence revenue based on empirical figures, and expected growth throughout the year.

For 2020, the adesso Group is anticipating further sales growth as well as further positive development of the operating result.

#### Financial outlook

The adesso Group's liquid asset base is considered solid and will be sufficient to cover financial obligations in 2019 should the forecast business development come to fruition. The consolidated balance sheet structure at the adesso Group and the balance sheet structure at adesso AG allow them to assume additional liabilities for investment projects to ensure that there are no shortfalls in terms of financing.

The adesso Group is aiming to achieve net debt of between zero and 1.5 times EBITDA in the past financial year. Only if there is an opportunity to acquire a company of unusual size and profitability with a high strategic value for adesso Group would a deviation be considered.

The Executive Board intends to continue the dividend policy on this basis, calling for a balanced weighting of investments in growth, financial stability, and shareholder participation in the company's earnings. If the earnings targets can largely be achieved, the Executive Board will strive to further increase the dividend. The dividend proposed for 2019 will reflect actual business development.

## Opportunity and risk report

Risk management is a pivotal component of all decisions and business processes. adesso takes a broad view of risk, defined as the risk of not achieving financial and operating targets as planned and, in the strictest sense, factors endangering the existence of the company. In order to safeguard the success of the company over the long term, it is therefore essential that adesso identifies and analyses risks efficiently and combats or mitigates them by implementing sufficient control measures. adesso's active risk management therefore also opens up opportunities for the company.

#### Risk management system

The adesso Group possesses a system of processes and data analysis structures to monitor risks posed to the Group. No exclusive risk management software system is used. Instead, adesso uses an integrated system from the manufacturer Corporate Planning AG and a central management information system for results controlling and tracking additional key figures. All planned and actual data from all business areas are stored in a central file for the purposes of reporting. Current figures are recorded directly from the company's financial accounting. Key performance indicators such as sales per employee, available liquidity, resources not fully utilised, incoming orders, and the order backlog are registered. All companies included in the scope of consolidation are part of the reporting system.

Fixed reporting channels have been established for other risks, such as those arising from the absence of contracts, high levels of receivables from customers, or projects that are threatening to go over budget. Certain reporting thresholds apply, which, if breached, result in the issue being included on the agenda of Executive Board meetings. Similar risks posed to companies in the adesso Group are identified through close cooperation with the respective responsible Executive Board member of adesso AG. adesso does not have a central risk manager. Risk reporting and assessment is documented in a risk manual. The risk manual is submitted to the Supervisory Board and to the auditor so that the risk management system can be acknowledged and reviewed.

Recognising opportunities and new areas of business are just as important for the development of

the adesso Group. Working groups consisting of the Executive Board, Business Development, the management of companies in the adesso Group, and heads of business areas meet on a regular basis to analyse new business opportunities and develop new business models, industries, solutions, or regions. The progress made in implementing these measures is presented at regular intervals.

Within the scope of a risk inventory, the following risks were assessed as relevant to the business and subsequently assessed in view of their probability of occurrence and amount of loss. In principal, only risks that would have negative implications for the asset, financial, or profit situation are listed here.

Moreover, the adesso Group is potentially exposed to further risks which may not be known or be considered as major risks at the current time. The risk factor is calculated from the probability of occurrence and the amount of loss, which determines how relevant the risk is. The following risks were identified as at the reporting date and as at the preparation of the consolidated management report as having a risk factor worthy of inclusion in this report:

### Primary risk carrier

#### Project risks

In the event of the budgeted time frame and costs being exceeded, fixed-price projects can lead to project-related losses. Budget deviations are identified and analysed constantly during every fixed-price project. There is also an escalation mechanism that extends to the Executive Board. A customer has refused acceptance under a service contract as at the reporting date (previous year: one refusal of acceptance). One customer claimed back payments totalling more than EUR 0.1 million (previous year: one customer). Several projects presented for customer approval have not yet been formally accepted by the customer. However, given that none of these customers has refused approval, this delay is not unusual in normal business practice.

The backlog of fixed-price projects that have yet to be invoiced in full rose year on year. The risks from projects are assessed as being unchanged since it was possible to keep the amount of budget overruns in fixed-price projects at a low level, and the increased amount of projects with agile approaches leads to earlier escalation of undesirable developments.

The adesso Group uses an Excel-based project controlling and reporting system, which directly draws on data from the ERP system implemented in mid-2016 and from the respective time and project management systems.

Depending on the project structure, sub-projects are defined and mapped in our web-based project and schedule management system. Expenses are distributed across the sub-projects, and times for milestones are defined. Over the course of the project, actual time and expenses are compared with planning figures, the expenses are calculated and compliance with the defined schedule is documented. Additional monthly or weekly assessments of work still to be completed are used to calculate the level of completion of the project under way.

The comparison of project budget with the sum of manufacturing costs plus the remaining expenditures show a possible budget overspend at an early stage. Projects that are likely to exceed the budget are given "overspend" status and are then added to the agenda of subsequent Executive Board meetings.

Aside from acknowledging the risk, the Executive Board meeting also discusses potential strategies to improve the situation by analysing the reasons for the overspending. In most cases, the estimations of remaining costs are determined and cost development displayed as a graph in order to counteract the tendency that project inconsistencies are identified too late. However, the share of projects with fixed budgets in the form of service contracts in terms of overall adesso Group sales is low at under 20 %.

adesso AG has established a Project Management Office (PMO) where experts supervise particularly large or challenging projects using standardised tools and mechanisms alongside the regular project management team. These tools and processes are routinely used. Expenses arising from budget overspends for new fixed-price projects is unchanged compared to the average of previous years. The systemic risk evaluation remains unchanged.

#### Risks from a shortfall in planned sales

In the event of a high gross margin and a large proportion of fixed costs, low sales can be directly reflected in adesso's results. In 2016, 2017, and 2018, turnover increased compared to the previ-



ous year and exceeded the planned turnover. The general expectation of the economic trend in 2019 compared with the previous years is more cautious. The demand dynamic appears to be decreasing compared to the one in the previous planning period. Planning in the IT Services segment expects utilisation to remain unchanged on average in 2019 along with a reduced growth rate. However, a decline in order intake or the termination of important ongoing customer orders could result in idle periods with corresponding implications for the profit and financial situation within a short period of time. Since the IT Services business area in particular generates business over specific periods of time, such idle periods are difficult to compensate for. As this risk factor is highly relevant to the company, adesso monitors the following values on a monthly and sometimes biweekly basis in order to identify trends at an early stage and take corresponding action: Incoming orders, number of hours invoiced, and capacity utilisation rates, as well as number of employees not working at full capacity.

The IT Solutions segment pursues a product strategy. In this segment, even standard solutions developed by adesso are sold and implemented through licensing with maintenance contracts or provided with software as a service (SaaS). While the established base of maintenance contracts represents a relatively stable basis for sales, the achievement of targets and the results of product companies are reliant on order intake and are much more volatile than the service business, given the low number of new licences sold. Sales revenues from maintenance activities do not cover total ongoing costs at any of the adesso group companies. As a result, the product companies' licence sales and related sales pipelines are monitored in detail in terms of structure and development over time. The planning deviation risk factor remains constant in the IT Solutions segment.

In each business area, there are detailed plans in which actual figures and previous year's figures are compared on a monthly basis. A forecast is also prepared and revised on a cycle, identifying possible future deviations in a timely manner. Corresponding reports form the basis for the monthly discussions of business development and prospects. This applies to all companies of the adesso Group.

The likelihood of this risk factor occurring is on the rise despite the planned sales being exceeded again in 2018, caused by political uncertainties, as well as economic activity in Germany having severely cooled off. The strong growth of the adesso Group in the previous years has at the same time caused the potential amount of loss to rise.

#### Financial risks

The risks posed by the financial situation and liquidity are estimated to be the same (previous year: unchanged). The loans taken out must be repaid, regardless of the economic performance of the company. On the reporting date 31/12/2018, the loan liabilities slightly exceeded the liquid assets portfolio. Currency risks remain low. Only a small proportion of sales are conducted in a currency other than the euro. This concerns mainly the adesso Schweiz AG and e-Spirit Schweiz AG transactions, both in Zurich, Switzerland, which operate in Swiss francs, those of adesso Turkey Bilgu Teknolojileri Ltd., Istanbul, Turkey, which bills customers in Turkey in Turkish lira and customers in Europe in euros, those of adesso Bulgaria EOOD, Sofia, Bulgaria, which up until now has operated exclusively with customers outside of Bulgaria in euros, those of e-Spirit UK Ltd., London, UK, which operate in pounds Sterling, and those from e-Spirit Inc., Boston, USA, which operate in the US dollar currency zone. These companies process the majority of their business in the respective national currency. No currency hedging transactions were carried out.

As part of the review into the allocation of costs of the market launch and entry of the FirstSpirit content management system in the USA, it was determined within the scope of an arm's length comparison that adesso Group company e-Spirit AG must bear significant shares of the losses that were incurred and continue to be incurred by the US subsidiary e-Spirit Inc. (categorised as a limited-risk distributor). All losses incurred in the USA have so far been fully financed by loans granted to e-Spirit Inc. by e-Spirit AG. For the years 2011 to 2018, the market entry compensation invoiced to e-Spirit AG by e-Spirit Inc. amounted to USD 9.6 million, including the reversal of impairments in previous years. This results in a temporary reduction in the total tax burden of adesso AG (as the controlling entity of the group taxation relationship for income tax purposes with, among others,

e-Spirit AG) as well as the adesso Group. The reported tax rate for adesso AG and the adesso Group would be too low in the event of an incomplete or only partial tax recognition.

Financial risks can arise from the payment terms of service agreements for projects with significant volumes. In addition to prepayments and instalments, payments are often linked to the completion of the project. In the case of delayed completion, significant liquidity shortfalls can arise. The resulting risks can be predicted in the scope of project controlling, but possibly not prevented. In some cases, project completion bonds must be deposited and are paid out if a project fails. In the case of major projects, service agreements can lead to large receivables, for example, if a customer has not paid two monthly invoices and the third month of service is already being provided.

The level of unpaid receivables and their development are included in monthly reporting at the individual company level. The CFO includes major receivables on the part of adesso AG in the agenda of Executive Board meetings, where individual strategies for collection are determined. There are currently several major projects (previous year: several) that could have a significant negative effect on adesso's liquidity. Projects relating to adesso solutions for the insurance industry in particular involve flows of liquidity that are largely independent of the provision of services. The risk factor in question remained unchanged compared with the previous periods.

There were no notable risks from financial instruments.

#### Personnel risks

The adesso Group is an IT company, its most important asset being its own employees. As a result, adesso constantly monitors and assesses a number of key performance indicators such as headcount, number of unproductive employees, number of employees on sick leave and holiday, costs/sales per employee, and capacity utilisation.

The top-level management is always informed about every dismissal and new recruit. The Executive Board regularly analyses trends and discusses measures in its meetings. This allows any potential loss of knowledge and expertise to be identified promptly. In the product segments, essential knowledge is con-

centrated around a small group of key developers. These developers are a particular focus of human resources activities.

The search for suitable, experienced employees remains characterised by a demand surplus from companies. Circumstances remain difficult with no change compared to the previous year. As in the past, the resulting entry-level salary expectations expressed by new recruits, as well as existing employees' expectations regarding pay rises, cannot always be compensated through a corresponding adjustment of market prices, meaning that the operating margin can be negatively impacted as a result.

adesso is able to maintain its position as a premium IT service provider thanks to its extraordinarily talented employees, who have a vast amount of experience in their respective fields. In this area in particular, the competition for employees continues to be at a high level. This applies not only to IT service providers, but also between user companies and the IT industry. A small number of employees are responsible for adesso's outstanding position in its core industries. The simultaneous departure of more than one of these employees would expose the company to medium-term risks in terms of its further development. Such risks are combated through active recruiting, strategies to intensify employee loyalty, and excellent career prospects in a prospering company. The numbers of incoming applications and new hires were further increased in 2018 over the already high level in the previous year.

In 2018, the fluctuation continued to rise compared to the previous year (previous year: rose slightly) and is currently above its own target value; however, it continues to be below the industry average, which is likewise assessed as having risen. The risk of insufficient availability of experienced employees for adesso is still considered high. The risk from high employee turnover and salaries increasing disproportionately to market prices was assessed as having risen. Personnel risk remains one of the Group's highly weighted main risks.

### Internationalisation/risks from business activities in other legal systems

The adesso Group has expanded internationally in past years and entered new legal systems. This involves possible risks related to lacking knowledge of legal affairs and business practices, as well as difficulties with direct supervision by adesso AG's Executive Board due to distances.

In 2012, e-Spirit AG established the business operations of a company in the USA, e-Spirit Inc. based in Boston, and continuously expanded its structures and customer base. In the USA, the risk of product manufacturers taking legal action is greater than it is in Germany. e-Spirit Inc. has an insurance policy with the maximum amount of liability that could be granted to it. In terms of both the legal structure of the company as well as internal cost allocation, it has been ensured that the potential for any problems to spread across to e-Spirit AG is as marginal as possible. The company acquired additional new customers in the USA in 2018. Thanks to SaaS contract models, they will generate ongoing sales in subsequent years as well and continue to reduce the shortfalls in the USA.

A Turkish adesso subsidiary was founded in Istanbul in 2013, which in the same year started trading and turned a profit for the first time in 2017. In 2018, two additional subsidiaries were founded in Barcelona, Spain, and Sofia, Bulgaria. Plans are under way for the setup of subsidiaries in the Netherlands and Hungary in 2019. The risk in conjunction with internationalisation or risks from other legal systems is thus higher compared to previous risk inventories, and with a view to the outlook, the defined strategy of continued internationalisation is causing the potential level of loss to be assessed as on the rise.

### Risks from the development of new products and solutions

In 2018, this risk category was for the first time classified among the main risks. In recent years, the adesso Group has significantly increased its initiatives for the development of new core products and solutions and, therefore, expanded the risk profile of its heavily service-oriented business model by adding elements. With adesso insurance solutions GmbH, adesso Group is pursuing the following strategy from now on: in addition to providing service business, it shall become an important provider of software solu-

tions for the insurance sector. With this aim in mind, the company is carrying out major development projects for customers in the health insurance, property insurance, and vehicle insurance segments. The existing systems for life, health, and property insurance are already being marketed on a large scale. All these products involve increasing risk from service and maintenance obligations. In the development phase, there is also increased risk from the higher-than-planned development costs, for which adesso is partially responsible. In 2018, the expenses for the development of additional modules increased. Increased investment is again planned in 2019; the expenditures in connection with the integration of the Fabis and Collphir software in 2018 further increase the level of investment. However, these risks are offset by increasingly considerable income from licences and maintenance. In 2019, the company will again increase its investment in the development of additional functionalities of the content management system FirstSpirit from e-Spirit AG. The development of new applications such as MediOne by medgineering and investment in start-ups such as soccerwatch.tv have allowed the risks from the new development to rise further. In all, the assessed risk with regard to the probability of occurrence and level of loss compared to the previous period is higher (previous year: unchanged).

### Other relevant risks

#### Risks from the customer structure

As sales from individual customers or customer groups increase, so does the risk posed by such customer relationships owing to potential project terminations or normal project expiry. In 2018, the largest customer accounted for 4 % (9 months; previous year: 4 %) of total sales. 27 % of total sales were generated with the ten largest customers (9 months; previous year: 26 %). Customer structure risks tended to decrease with adesso's growth, and the proportion of sales with the top ten customers is stable as well as relatively low. Continued cooperation with most of the ten largest customers was agreed for 2019.

The risk is assessed as unchanged compared to the previous year (previous year: unchanged) and remains in the other relevant risks group. However, the abrupt loss of one of the top three customers or more than one of the ten largest customers would have the potential to have a considerable negative impact on earnings and the situation of the Group,

at least in the short term. The relationship to each of these top customers is managed by a member of the Executive Board or by the management of the respective subsidiary in order to recognise potential risks promptly and take appropriate action.

The top ten customers are regularly listed by sales, with each customer's share of overall sales also being calculated. This avoids concentration on a small number of customer relationships and therefore allows a cluster risk to be recognised promptly.

#### Declining or insufficiently increasing daily rates

A significant proportion of sales is generated by service agreements and the charging of hours or days of service provided to the customer. With rising salaries and prices providing the basis for other costs, increases in nominal hourly and daily rates are essential in order to maintain the earnings margin and ultimately the existence of the Group. However, one must differentiate between a change in the daily rate for a certain activity for a certain customer and a change in average daily rates resulting from a different combination of orders or changes in the customer structure.

At adesso AG, volumes and daily rates are recorded for all service agreements and analysed in terms of their development. The volume-weighted average daily rate of the contract is thus calculated on a monthly, quarterly, and annual basis and reflected in the historical development. This does not include orders based on framework agreements or public tenders, which implies that the figures are suitable for general statements only. The daily rate of the contracts recorded in this way in 2018 reduced by 1 % compared to 2017 (previous year: +2 %). The slight decline is also the result of mixed daily rates when using mixed teams from on-shore and near-shore staff (with a clearly lower daily rate on average) such that against the background of the low general rise in costs, the risk from the average achieved daily rates is still assessed as moderate.

The realised daily rates are also periodically recorded at adesso AG at customer level and checked by the Executive Board in terms of necessary adjustments. Any identified need for action is implemented by sales wherever possible, which has anchored the relevant elements in its target-based system. Realised increases of daily rates are recorded for each cus-

tomers, and a price history is maintained. Daily rates were increased slightly in many cases among existing customers during 2018, with new customers tending to pay significantly more than the average daily rate. However, it was not possible to increase the prices paid by several major customers. For one of the ten main customers (previous year: none), it was necessary to implement a price reduction. The risk of insufficient rising daily rates compared to salary increases and prices on the cost side continues and, compared to the previous year, rose slightly due to the slightly downward trend of the average daily rate and the price reduction for one major customer.

#### Risks from regulatory law

As a listed company on the regulated market, adesso AG is subject to a number of additional legal regulations and obligations, such as those resulting from the Market Abuse Regulation (MAR), the Securities Trading Act (WpHG), the Securities Acquisition and Takeover Act (WpÜG), and the Stock Corporation Act (AktG). adesso follows corresponding developments in case law, obtains assessments from experienced solicitors, and raises the awareness of its employees with respect to legal obligations of listed companies. Thus, adesso has established the position of a Compliance Officer, maintains an insider directory, and continuously identifies transactions that could, over time, either constitute insider offences or lead to imbalances in the information supplied to the capital market.

In 2018, there is no change in the assessment of potential extent of loss due to risks from regulatory law.

#### Risks from technical infrastructure

As an IT company, adesso AG has extensive technical expertise and resources in the area of internal IT infrastructure. Since a large part of customer-relevant added value is created on the basis of IT infrastructure, the availability of the latter is of considerable significance. System failure therefore entails a significant financial risk. The internal IT operations department is equipped with full-time administrators who are supported by several trainees, students, and other employees from operational areas. Disciplinary and organisational responsibility are addressed in a separate management position. In 2016, the new position of CISO (chief information security officer) was established and staffed at adesso AG. The data on the

production server is incrementally backed up on a daily basis and on suitable media. The file systems of all servers are also mirrored so they are fail-safe. Once a week, a copy is stored outside of adesso's premises where it cannot be accessed by third parties.

The systems available on the Internet are protected against unauthorized access via a multi-level firewall system, and adesso operates a VPN to protect communication between the branches and subsidiaries. All systems have virus scanners from various product manufacturers whose virus signatures are automatically updated to comply with the latest standards.

In its main office in Dortmund, adesso has a data centre with safety procedures such as electronic access control, temperature-controlled server racks, fire extinguishing systems, uninterrupted power supply, and flood protection. All external data connections are secured in compliance with the relevant technical standards and are redundantly structured. Most of the holding companies have their own IT systems and departments. Their risk statuses are not reported to adesso AG in any regular form. adesso is working towards an increasingly interconnected collaboration between the IT departments at adesso and the holdings. adesso has been certified to ISO 9001 and ISO 14001. The processes that have been documented and more strictly defined have maintained a constant risk position in terms of technical infrastructure in spite of increasing complexity. In the previous period, customers' increasing awareness regarding data protection and data integrity is assessed as an increasing risk. This is especially true for banks and insurance companies as a result of extended regulation requirements and a rise in cyber risks. There is currently no cause for a renewed increase in the assessed risk. There are no known instances in 2018 (previous year: no instances) during which unauthorised third parties were able to implant harmful software in adesso AG's servers. There are no known instances in 2018 (previous year: no instances) during which unauthorised third parties were able to implant harmful software in the adesso Group's networks and servers.

#### Other risks

The risk manual specifies a number of other risks as at the balance sheet date, the risk factor (probability of occurrence multiplied by the expected average loss) of which has not changed compared to the previous year and is lower than average. These risks are:

- > risks from falling order backlog
- > risks from insufficient sales pipeline
- > change to market and competition structure
- > liquidity risks from bank credit lines
- > risks from falling market volume
- > risks from lack of insurance cover

#### Overall Statement Concerning the Group's Risk Situation

Every risk is evaluated by estimating the probability of occurrence and the possible extent of damage. The risk factor of every risk can be calculated by multiplying the probability of occurrence (1-10) by the extent of damage (1-10). The overall profile of adesso, the sum of all risk factors, is assessed as rising by 38 points or 8% compared to the previous year to 525 points (previous year: dropped by 5 points or 1% to 487 points). Therefore, the overall risk profile is in the upper range of previous evaluations. The drivers for the increased assessment are significant: the risk from new development of products and solutions is assessed as higher due to the higher investment in the in-house products in|sure, FirstSpirit, and several start-up companies. During the setup of further subsidiaries in Spain and Bulgaria in 2018, as well as the planned continuation of the Europe-wide expansion in 2019 and in subsequent years, the risks from internationalisation and the activities in other legal systems are assessed as higher. The missing growth in the German economy in the second half of 2018 and the cautious economic forecasts for 2019 combined with continued politico-economic uncertainties led to a rise in the risk position of the failing expected sales. The rise in fluctuation of employees leads to a rise in risks for the economic viability due to the risk of salaries rising faster than the sales prices.

None of the identified risks can be considered at the current point in time as risks that endanger the existence of the company as a going concern. However, the risks detailed above could have a negative impact on the Group's asset, financial, and earnings situation and thus on business performance.

#### Opportunities

adesso introduced a series of measures to identify, assess, and monitor opportunities for positive group development. In order to do so, organisational units were established to monitor portfolio development within a particular industry, to assess new technological developments, and to evaluate the suitability

of other industries for adesso. With the group further increasing in size, the systematic networking of all units within the adesso Group is leading to ever-increasing synergy effects, particularly in sales, and an integrated service approach for major customers.

In 2019, there will be a wide range of further opportunities to expand business activities and increase profits. The company also anticipates additional new customers for the in|sure system in the health and property insurance divisions. The growth of the new subsidiaries in Bulgaria and Spain, but also in the subsidiary already established in Turkey, offers the potential to increase the availability of employees in software development and to positively influence the average costs per developer hour. The increase in the number of employees during the year 2018, in particular at the adesso Group in Germany, once again offers opportunities for growth that far outstrips market growth in 2019.

In 2019, two new lines of business (LoB) will be starting in Germany: the LoB Manufacturing Industry is targeting the increasing significance of the Internet of Things, connected production, and digitisation of the entire value chain for the strong mechanical engineering industry, particularly in Germany and Switzerland; the LoB Data & Analytics bundles together the various consultancy and development competences of the adesso Group covering Business Intelligence & Big Data.

In 2019, greater investment will be made in the setup of a Salesforce business division. adesso is striving to become one of the most important partners of the software company Salesforce in selected industries, starting with the German-speaking region. The cloud-based approach and the setup of an in-house Salesforce ecosystem for some customers allows this expansion of the portfolio to appear promising.

adesso AG continues to see itself as an active consolidator on the IT market. After two smaller company acquisitions in 2018 in the field of the in|sure insurance solution, a great M&A volume is desired for 2019.



## INTERNAL CONTROL SYSTEM AND RISK MANAGEMENT SYSTEM FOR THE CONSOLIDATED ACCOUNTING PROCESS

In the accounting process, there is a risk that the financial reports based on the accounts could contain misrepresentations of facts that could have a significant influence on decisions made by the intended recipients of the reports.

These can include the misallocation of resources and non-performance of certain measures by the Executive Board in terms of the internal operational management of the Group, as well as misinterpretation on the part of report recipients, and particularly existing and potential shareholders. The processes and systems established at adesso are geared toward identifying potential sources of errors in the accounting process and thus limiting the resulting risks. They are intended to ensure that the annual report and consolidated financial statements are prepared in accordance with legal requirements. The report is standardised and identical in form for both the management report of the annual financial statement as well as for the group management report of adesso AG.

At adesso, no control and risk management system was defined and documented especially for the purposes of the accounting process. There is no internal auditing structure or risk committee. No external advisors or auditors were regularly engaged to review the efficiency of the controls in place as part of the consolidated accounting process.

A separate IT audit took place as part of the audit of the annual financial statements in 2017, which focused on the accounting system and the completeness and transparency of accounting systems due to the introduction of a new ERP system at adesso AG in mid-2016.

The structure of the internal control mechanisms and risk management system is primarily the result of how the accounting and reporting processes are organised. Accounting is typically handled locally by each of the Group's subsidiaries. As the parent

company, adesso AG performs accounting services for some adesso group companies together with centralised administrative processes such as payroll accounting. These companies' accounts are primarily kept on the same accounting system as clients. The fact that the same people are responsible for this process throughout the Group and that the adesso AG CFO has ongoing, direct access provides a good basis for the standardised, correct representation of facts.

Almost all companies use a standardised consolidated accounts system, minimising the number of discrepancies from the standard style of accounts. The detailed coverage of Group accounts means that it is simple to coordinate internal Group performance processes. The respective management teams are responsible for individual annual financial statements. Each annual financial statement that forms part of the consolidated financial statement is reviewed by the group auditor in terms of its plausibility and compliance with group standards, irrespective of any audits performed by the local auditor or tax consultant. For this purpose, the auditor of the consolidated financial statements visits the respective local auditor and inspects the documentation of key group companies.

All individual financial statements are submitted to a centralised consolidation system in adesso AG's Finance department and consolidated into the consolidated financial statement in accordance with the IFRS reconciliation statement. The software solution specially procured for this purpose was audited and certified in accordance with the "Erteilung und Verwendung von Softwarebescheinigungen" auditing standards ("Issuance and Use of Software Certificates") published by the Institut der Wirtschaftsprüfer in Deutschland e.V. (IDW PS 880). All IFRS reconciliation and consolidation processes are fully documented and traceable.

The core elements of the control and risk management system when it comes to accounting is the monthly, standardised reporting of full monthly financial statements on the basis of the consolidated accounts system, the comparison of actual data with plan data, and the update to the full-year forecast. A member of the adesso AG Executive Board is directly responsible for every company in the adesso Group. These Executive Board members discuss monthly financial statements with the respective company management and

are thus able to identify abnormal developments and discrepancies in a timely manner. The monthly financial statements of all companies are analysed monthly by the adesso AG Executive Board. For the quarterly financial statements, each company must prepare an extensive IFRS package containing information for consolidation and details of the notes. This allows the Finance department of adesso AG to carry out a further audit of all information intended for external reporting during the financial year. The auditor of the consolidated financial statement is referred to for selected issues.

## TAKEOVER-RELEVANT INFORMATION

adesso AG reports in accordance with Section 315a (1) HGB and Section 289a (1) HGB with the aim of providing potential takeover bidders with a complete overview of adesso as well as any potential takeover hurdles before they submit an offer.

There is only one type of share. Each common share grants one vote. adesso shares do not have restricted transferability. The Executive Board is authorised to increase the share capital until 04/06/2023 with the consent of the Supervisory Board in the amount of up to EUR 2,469,810 by issuing 2,469,810 new bearer shares on one or more occasions in exchange for cash contributions and/or contributions in kind. Shareholders' subscription rights can be excluded for contributions in kind in the form of companies, parts of companies, and investments in companies, licence rights, or receivables, as well as capital increases for cash which are smaller than 10 % of the share capital.

The Executive Board is authorised to acquire own shares of up to 10 % of the share capital with the consent of the Supervisory Board until 1 June 2020. This authorisation for the acquisition and utilisation of own shares can be exercised one or more times, at once or in several partial amounts, or for one or more purposes. When own shares are acquired through the stock exchange, the consideration paid per share is not permitted to exceed the opening price on the acquisition date by more than 10 %, nor fall more than 20 % below it.,

In case of acquisition through a public offer to buy, the offered purchase price or the limits of the purchase price range offered per share may not be more than 20 % higher or lower than the average values of the closing auction prices during the last three trading days in Frankfurt am Main prior to the day the offer is publicly announced. The own shares can be utilised by the Executive Board within the scope of stock option plans, sold to third parties with the consent of the Supervisory Board for cash or contributions in kind, especially in the context of company mergers or the acquisition of companies, offered to employees or managers, either to buy or as compensation elements, or also surrendered or withdrawn without consideration. As at the reporting date, adesso AG itself held none of its own shares. In addition, the company is not aware of any other restrictions with regard to voting rights. In principle, there are no restrictions in respect of the transfer of adesso shares. On the balance sheet date of 31/12/2018, no adesso shares (previous year: 28,405) are subject to the so-called soft lock up agreement. The company is not aware of any further restrictions that could arise from agreements between shareholders.

Further information on equity and the company's capital measures can be found in the equity section of the notes.

As at 31/12/2018, founding shareholder and Supervisory Board Chair Prof. Volker Gruhn held 27.9 % of share capital through a company he controls. Founding shareholder and a member of the Supervisory Board Mr Rainer Rudolf held 17.6 % of shares as at 31/12/2018. Please refer to the notes to the consolidated financial statements for more information on the company's ownership structure.

The company is not aware of any other direct or indirect share capital participations which exceed 10 % of voting rights. As the shares in the company are bearer shares, the company is in principle only notified of changes to share ownership insofar as the changes of ownership are subject to notification obligations and the respective parties fulfil these obligations. The company is only made aware of transactions that are completed within minimum and maximum notification thresholds in exceptional cases. Voting rights announcements and the shareholder structure derived as a result are always kept up to date and can be accessed via the Investor Relations section of the website, [www.adesso-group.de](http://www.adesso-group.de).

Control System and  
Risk Management System  
Takeover-relevant Information  
Declaration of Conformity

The Articles of Association do not permit any adesso shareholder to appoint members of the Supervisory Board. No shareholder possesses any other special rights that confer them powers of control. There are no restrictions to the voting rights of the adesso shares held by our employees.

Members of the Executive Board are appointed or dismissed in accordance with Sections 84 and 85 AktG. The Executive Board consists of at least one person in accordance with Article 6 of the Articles of Association. The Supervisory Board determines the number of Executive Board members, as well as the appointment and dismissal of members and the appointment of a member of the Executive Board as CEO. Changes to our Articles of Association are carried out in accordance with Sections 133 and 179 AktG by means of a resolution by the General Meeting passed with a majority of at least three-quarters of the share capital represented at said meeting. The Articles of Association do not contain any derogative provision. The Supervisory Board is entitled to resolve changes to the wording of the Articles of Association (Article 10 (7) of the Articles of Association). The resolutions of the General Meeting are decided on the basis of a simple majority of submitted votes, unless a different voting system is stipulated by law (Article 15 of the Articles of Association).

The company is not part of any material agreement containing special provisions in the event of a change of control or acquisition of control, such as in the event of a takeover bid. Our Articles of Association do not contain any provisions which grant the Executive Board special powers in the event of a takeover bid. Agreements concerning the phantom share plan stipulate a shorter waiting period of phantom shareholders in the event of a change of control. Moreover, there are no agreements with members of the Executive Board or the Supervisory Board or any employees concerning compensation in the event of a change of control.

## DECLARATION OF CONFORMITY (SECTIONS 289F, 315D HGB), DECLARATION OF CORPORATE GOVERNANCE REPORT CODE OF CONDUCT (SECTION 161 AKTG) AND NON-FINANCIAL GROUP DECLARATION (SECTION 315B HGB)

In accordance with No. 3.10 of the German Corporate Governance Code, the Executive Board and Supervisory Board of adesso AG report on an annual basis regarding the corporate governance of the company and publish this report in conjunction with the Declaration of Conformity in accordance with Section 289f or Section 315d HGB. In addition, as the parent company of the adesso Group, adesso AG issues a special, non-financial Group report as per Section 315b Paragraph 3 HGB with exempting effect for group companies subject to reporting. The reports and the declaration, including the Declaration of Conformity, have been made permanently available on the Internet at [www.adesso-group.de/corporate-governance/](http://www.adesso-group.de/corporate-governance/).

## REMUNERATION REPORT

### Principles of the Remuneration System

At adesso, variable remuneration systems are in place throughout the Group for a variety of functions. Management remuneration is primarily geared toward the success of the company and industry standards.

In addition to fixed remuneration, the adesso AG Executive Board is compensated depending on the amount of operating earnings (in reference to EBITDA), as well as earnings per share at the Group level, constituting performance-based remuneration. The Executive Board participated in the company-wide stock option scheme open to many employees and which expired at the end of 2013. This was replaced by a model of virtual stock options for the Executive Board. Because this model has expired, no new virtual stock options are being issued.

The members of the Supervisory Board are reimbursed for their expenses and also receive annual remuneration.

### Executive Board remuneration

Basic remuneration is paid as a monthly salary and is related to performance. The members of the Executive Board also receive payments in kind and other remuneration, including the use of a company car, reimbursement of travel expenses, coverage of direct insurance premiums, a personal pension, and reimbursement of half the documented premiums for voluntary health and nursing care insurance.

### Variable, performance-based remuneration

The variable remuneration model for the Executive Board is based directly on the relevant metrics of EBITDA and earnings per share (EPS), which are reported to adesso AG shareholders in the consolidated financial statements according to IFRS. Variable remuneration increases proportionally to EBITDA and EPS. As of a defined point, the increase sinks. One of two different variants, which are differentiated by the rate of increase and watershed, can be selected each year.

### Long-term remuneration

A phantom share programme for certain members of the Executive Board and employees at the first management level of adesso AG was approved by the Supervisory Board in the 2009 financial year. It was intended to help bind managers to the company in the long term. The phantom shares participate in dividends just like actual shares but the payments are included in salaries. After being with the company for a term of five to eight years, the holders of phantom shares have a right to receive the value represented at the time by the number of phantom shares and the underlying share price. Payment is included in salaries. The members of the Executive Board obtained additional rights from these phantom shares in 2018. In case a board member leaves the Executive Board, the following has been established with regard to the phantom share programme: If a board member leaves before the end of three years (for a member of the Executive Board: three years and eight months) after the start of the programme due to termination of contract, the board member only has to return the shares in exchange for compensation in case of a change of control. This is the case if shareholders Prof. Volker Gruhn and Rainer Rudolf (or companies through which they hold their shares) hold less than 35% of the company's share capital through the sum of their shares. If a board member leaves after at least three years (for a member of the Executive Board: three years and eight months) because the Supervisory Board dismisses the member, or due to the termination of their contract, or if the company fails to make a contract renewal offer at terms and conditions at least equivalent to those of the current contract, the board member has to return the shares. Compensation is 75% of the applicable value. If a board member leaves after the end of at least eight years (for a member of the Executive Board: six years and eight months), he must return the shares in exchange for compensation.

In 2017, several entitled parties from phantom shares, including the two members of the Executive Board who were entitled as a result, agreed to an adjustment of the regulations. The adjustment curbed the effect on the Group earnings statement resulting from changes in the exchange rate above or below an exchange rate corridor.

In 2018, a member of the Executive Board returned his phantom shares in full, in adherence to the minimum waiting period, against payment via his salary. To do this, corresponding accruals were formed in the previous periods.

The 2010-2013 share option plan of adesso AG duly expired on 31 December 2013. In view of the granted stock options, the Executive Board received virtual stock options for the 2014 financial year. The aim of the virtual stock options was for them to be financially equal to option rights when post-tax income is used for subscribing the virtual stock options in order to buy adesso AG shares on the market. The same conditions apply to virtual stock options as for stock options granted by the programme expiring on 31 December 2013. The number of virtual stock options issued to the Executive Board depends on the variable performance-based remuneration component, which means it is also performance-based. The virtual stock options result in cash value compensation only if the exercise criteria are met after the end of the minimum holding period. 140 virtual stock options are granted for each EUR 1,000 paid as the performance-based variable remuneration component 1 for a year. The virtual stock options remain valid even if a board member leaves before exercising the virtual stock options. Due to the further development of the variable remuneration model based on EBITDA and earnings per share, the virtual stock options programme was terminated as well. This means the members of the Executive Board did not earn any new claims under this programme for 2018.

Former members of the Executive Board who have left the company do not receive any remuneration and were not granted any pension commitments. No loans or advances were granted to members of the Executive Board. A former member of the Executive Board has continued to work in the company as a manager since 1 July 2015 at adapted terms without Executive Board membership.

With respect to non-financial reporting, the company has stated that the total remuneration per member of the Executive Board in 2018 is 17 % lower than the value in the previous year as a result of decreased growth in the value of long-term, share-based vari-

able salary. Taking only the performance-dependent remuneration and short-term variable salary components into consideration, the total amount of payment per member of the Executive Board increased by 11 %, which remains below the increase in the EBITDA (+22 %), Group sales (+19 %), and the number of employees as at the reporting date (+19 %). In 2018, two board members started new board contracts lasting several years, which accompanied a rise in the fixed remuneration.

#### Supervisory Board remuneration

According to Section 11 of the by-laws, the members of the Supervisory Board are reimbursed for their expenses and also receive annual remuneration. This consists of a fixed component of EUR 5 thousand, plus variable remuneration at a rate of 0.275 % of the company's balance sheet profit, reduced by 4 % of contributions to share capital. The Chairperson receives one and a half times this remuneration. Supervisory Board members who have not held their position for a full financial year receive remuneration according to their term in office. The chairperson of the Supervisory Board receives additional remuneration under a consulting and brokerage agreement.

adesso AG has neither granted loans or advances to members of the Supervisory Board nor issued bonds or guarantees on their behalf. There are no family ties between members of the Supervisory Board, nor between members of the Supervisory Board and the Executive Board. There are no service agreements between the Supervisory Board members and adesso or its subsidiaries that call for remuneration upon termination.

For further information regarding Supervisory Board and Executive Board remuneration, including detailed tables regarding individual remuneration of Supervisory Board and Executive Board members, information pursuant to Section 314 (1) No. 6 HGB and further information pursuant to the German Corporate Governance Code, refer to the consolidated notes.

# CONSOLIDATED FINANCIAL STATEMENT





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FINANCIAL STATEMENT**

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## CONSOLIDATED BALANCE SHEET

OF ADESSO GROUP AS OF 31 DECEMBER ACCORDING TO IFRS

### ASSETS

<i>in EUR k</i>	<i>Notes</i>	<i>2018</i>	<i>2017</i>
<b>NON-CURRENT ASSETS</b>			
Goodwill	1.	46,228	42,823
Intangible assets	1.	13,955	13,949
Property, plant and equipment	2.	9,884	8,728
Shareholdings recognized under the equity method	3.	3,322	2,116
Other financial assets	4.	1,208	929
Receivables from income taxes	5.	0	0
Deferred tax assets	5.	1,025	910
		<b>75,622</b>	<b>69,455</b>
<b>CURRENT ASSETS</b>			
Cash on hand and at bank	6.	45,912	46,497
Trade accounts receivable	7.	80,253	61,818
Contract assets*/Receivables PoC	8.	12,946	19,641
Receivables from income taxes	5.	1,836	1,453
Other financial assets	9.	404	314
Other assets	10.	4,875	3,634
		<b>146,226</b>	<b>133,357</b>
<b>TOTAL ASSETS</b>		<b>221,848</b>	<b>202,812</b>

\* Reported initially as of 01.01.2018 due to transition to IFRS 15.

## Consolidated Balance Sheet

## EQUITY AND LIABILITIES

<i>in EUR k</i>	<i>Notes</i>	<b>2018</b>	2017
<b>EQUITY</b>			
	11.		
Subscribed capital		6,176	6,174
Capital reserve		16,540	17,226
Other retained earnings		53,943	42,796
Reserve for currency conversion		576	690
Non-controlling interests		59	137
		<b>77,294</b>	<b>67,023</b>
<b>NON-CURRENT LIABILITIES</b>			
Financial liabilities	13.	33,100	32,278
Pensions and similar liabilities	17.	165	168
Provisions	15.	5,931	7,491
Contract liabilities*	14.	365	-
Other liabilities	16.	55	108
Deferred tax liabilities	5.	3,240	3,378
		<b>42,856</b>	<b>43,423</b>
<b>CURRENT LIABILITIES</b>			
Financial liabilities	13.	15,008	13,877
Trade accounts payable	14.	14,651	12,713
Contract liabilities*/Liabilities PoC	14.	5,567	10,582
Liabilities from income taxes	5.	7,719	4,201
Provisions	15.	8,936	6,976
Other liabilities	16.	49,817	44,017
		<b>101,698</b>	<b>92,366</b>
<b>TOTAL EQUITY AND LIABILITIES</b>		<b>221,848</b>	<b>202,812</b>

## CONSOLIDATED INCOME STATEMENT

OF ADESSO GROUP FROM 1 JANUARY TO 31 DECEMBER ACCORDING TO IFRS

<i>in EUR k</i>	<i>Notes</i>	<i>2018</i>	<i>2017</i>
Sales revenues	18.	375,470	321,590
Other operating income	19.	5,081	3,135
Change in inventory	20.	331	-
Own work capitalised	20.	532	47
<b>TOTAL INCOME</b>		<b>381,414</b>	<b>324,772</b>
Costs of material	21.	-43,296	-37,390
Personnel costs	22.	-243,052	-206,266
Other operating expenses	23.	-63,985	-55,738
<b>EARNINGS BEFORE INTEREST, TAXES, DEPRECIATION AND AMORTISATION (EBITDA)</b>		<b>31,081</b>	<b>25,378</b>
Depreciation on property, plant and equipment	24.	-9,097	-8,193
<b>EARNINGS BEFORE INTEREST AND TAXES (EBIT)</b>		<b>21,984</b>	<b>17,185</b>
Earnings from shares recognized under the equity method	25.	-171	178
Interest income and similar income	25.	131	22
Interest expenses and similar expenses	25.	-742	-754
<b>INCOME FROM ORDINARY ACTIVITIES (EBT)</b>		<b>21,202</b>	<b>16,631</b>
Income taxes	26.	-7,867	-5,300
<b>CONSOLIDATED EARNINGS</b>		<b>13,335</b>	<b>11,331</b>
of which attributable to shareholders of adesso AG		13,382	11,025
of which attributable to non-controlling interests		-47	306
Number of shares at the end of the period		6,176,093	6,174,203
<b>UNDILUTED EARNINGS PER SHARE (IN EUR)</b>	27.	<b>2.17</b>	<b>1.79</b>
Diluted earnings per share (in EUR)		2.16	1.78

## CONS. STATEMENT OF COMPREHENSIVE INCOME

OF ADESSO GROUP FROM 1 JANUARY TO 31 DECEMBER ACCORDING TO IFRS

<i>in EUR k</i>	<i>Notes</i>	<i>2018</i>	<i>2017</i>
Consolidated earnings		13,335	11,331
<b>OTHER COMPREHENSIVE INCOME, NOT SUBSEQUENTLY TRANSFERRED TO THE INCOME STATEMENT</b>			
Actuarial gains (+) and losses (-)	17.	-9	5
Deferred taxes on actuarial gains and losses		2	-2
<b>OTHER COMPREHENSIVE INCOME, SUBSEQUENTLY TRANSFERRED TO THE INCOME STATEMENT</b>			
Currency translation differences		-114	-209
<b>OTHER COMPREHENSIVE INCOME</b>		<b>-121</b>	<b>-206</b>
<b>TOTAL INCOME</b>		<b>13,214</b>	<b>11,125</b>
of which attributable to shareholders of adesso AG		13,263	10,818
of which attributable to non-controlling interests		-49	307

Consolidated Income Statement  
 Cons. Statement of Comprehensive Income  
 Consolidated Cash Flow Statement

## CONSOLIDATED CASH FLOW STATEMENT<sup>\*\*</sup>)

OF ADESSO GROUP FROM 1 JANUARY TO 31 DECEMBER ACCORDING TO IFRS

<i>in EUR k</i>	2018	2017
<b>EARNINGS BEFORE TAX</b>	<b>21,202</b>	<b>16,631</b>
Income from financing activities	611	732
Depreciation and amortization on property, plant and equipment and intangible assets	9,097	8,193
Result from shares recognized under the equity method	171	-178
Non-cash income/expenses	2,005	87
Change in pension provisions	-14	-18
Change in other provisions	145	2,619
Tax payments	-5,075	-4,525
Losses (+)/Gains (-) from the disposal of property, plant and equipment	29	3
Change to net operating assets	-11,578	-3,279
<b>CASH FLOW FROM OPERATING ACTIVITIES</b>	<b>16,593</b>	<b>20,265</b>
Sale of property, plant and equipment	37	24
Payments for shares recognised at equity	-2,007	-578
Investments in property, plant and equipment	-5,369	-5,753
Investments in intangible assets	-2,186	-380
Acquisition of subsidiaries (less cash and cash equivalents acquired)	-4,541	-4,330
<b>CASH FLOW FROM INVESTMENT ACTIVITIES</b>	<b>-14,066</b>	<b>-11,017</b>
Dividend payments	-2,521	-2,370
Dividends from shares recognised under the equity method	536	477
Capital increase	14	52
Purchase of non-controlling interests	-750	-148
New liabilities to banks	7,700	5,500
Repayment of financial liabilities	-7,438	-8,519
Deposits from non-controlling shareholders	-	4
Interest paid	-571	-593
Interest received	64	3
<b>CASH FLOW FROM FINANCING ACTIVITIES</b>	<b>-2,966</b>	<b>-5,594</b>
Currency differences	-146	-301
<b>CHANGE IN CASH AND CASH EQUIVALENTS</b>	<b>-585</b>	<b>3,353</b>
Cash and cash equivalents at the beginning of the period	46,497	43,144
Cash and cash equivalents at the end of the period	45,912	46,497

Vgl. Anhangsabschnitt „IV. Angaben zur Konzern-Kapitalflussrechnung“.

## CONSOLIDATED SHAREHOLDERS EQUITY STATEMENT\*

OF ADESSO GROUP FROM 1 JANUARY TO 31 DECEMBER ACCORDING TO IFRS

<i>in EUR k</i>	<i>Share capital</i>	<i>Capital reserves</i>
<b>01.01.2017</b>	<b>6,167</b>	<b>17,235</b>
Share-based compensation	0	45
Effects from the purchase of additional shares in subsidiaries	0	-99
Share of non-controlling interests in newly established subsidiaries	0	0
Increase in share capital by exercises of stock options	7	45
Other results at the end of the financial year	0	0
Consolidated result	0	0
Total	0	0
Dividends	0	0
<b>31.12.2017</b>	<b>6,174</b>	<b>17,226</b>
Transition to IFRS 9 and IFRS 15**		
<b>01.01.2018</b>	<b>6,174</b>	<b>17,226</b>
Share-based compensation	0	74
Effects from the purchase of additional shares in subsidiaries	0	-772
Increase in share capital by exercises of stock options	2	12
Other results at the end of the financial year	0	0
Consolidated result	0	0
Total	0	0
Dividends***	0	0
<b>31.12.2018</b>	<b>6,176</b>	<b>16,540</b>

\* Vgl. Anhangsabschnitt „III. A. 11) Angaben zur Konzern-Bilanz (Eigenkapital)“

\*\* Vgl. Anhangsabschnitt „II. A. Neue Rechnungslegungsvorschriften“

\*\*\* Die Dividende in Höhe von 2,470 T€ entspricht einer Ausschüttung von 0.40 € je Aktie.



## Cons. Shareholders Equity Statement

	<i>Other comprehensive results of the financial period</i>				
	<i>Other reserves</i>	<i>Reserves for Currency translation</i>	<i>Equity of adesso AG shareholders</i>	<i>Non-controlling shares</i>	<i>Total Equity</i>
	<b>33,989</b>	<b>899</b>	<b>58,290</b>	<b>25</b>	<b>58,315</b>
	0	0	45	0	45
	0	0	-99	-49	-148
	0	0	0	4	4
	0	0	52	0	52
	2	-209	-207	1	-206
	11,025	0	11,025	306	11,331
	11,027	-209	10,818	307	11,125
	-2,220	0	-2,220	-150	-2,370
	<b>42,796</b>	<b>690</b>	<b>66,886</b>	<b>137</b>	<b>67,023</b>
	240		240		240
	<b>43,036</b>	<b>690</b>	<b>67,126</b>	<b>137</b>	<b>67,263</b>
	0	0	74	0	74
	0	0	-772	22	-750
	0	0	14	0	14
	-5	-114	-119	-2	-121
	13,382	0	13,382	-47	13,335
	13,377	-114	13,263	-49	13,214
	-2,470	0	-2,470	-51	-2,521
	<b>53,943</b>	<b>576</b>	<b>77,235</b>	<b>59</b>	<b>77,294</b>

## CONSOLIDATED NOTES

OF ADESSO GROUP FOR FINANCIAL YEAR 2017

### I. General Information

The adesso Group (hereinafter referred to as adesso) is an IT service provider independent of manufacturers. It focuses on consulting and software development. adesso uses information technology to provide optimised core business process design and support to its customers.

adesso AG is a public limited company (Aktiengesellschaft) under German law. Its registered office is in Dortmund, Germany. The address is: adesso AG, Adessoplatz 1 (formerly: Stockholmer Allee 20), 44269 Dortmund, Germany. The commercial register is likewise located in Dortmund (HRB 20663).

The declaration on the German Corporate Governance Code required pursuant to Section 161 of the German Stock Corporation Act (AktG) has been issued and was made permanently available to the shareholders at [www.adesso-group.de/corporate-governance/](http://www.adesso-group.de/corporate-governance/).

The consolidated financial statements and the group management report were approved by the Supervisory Board on 21 March 2019 and released for publication by the Executive Board.

### II. Summary of Significant Accounting Principles

The consolidated financial statements have been prepared by adesso AG in accordance with international financial reporting standards (IFRS) of the International Accounting Standards Board (IASB), as adopted by the EU for the year ended 31 December 2018, as well as the supplementary provisions set out in Article 315e (1) of the German Commercial Code (HGB). All requirements of the applied standards and interpretations were met by adesso.

The consolidated financial statements for the year ended 31 December 2018 have been prepared in euros. The financial statements have been prepared on the historical cost basis except for where IFRS requires the use of different valuation principles. Uniform accounting methods based on IFRS were applied to the assets and liabilities of the companies included in the consolidated financial statements. The individual financial statements of the companies included in the consolidated financial statements are issued for the reporting date of the consolidated financial statements.

Assets and liabilities are classified in the consolidated balance sheet as current or non-current items according to their maturities. In principle, assets and liabilities are classified as current insofar as they are realised or mature within the normal business cycle or within twelve months after the end of the reporting period. The consolidated income statement has been prepared using the nature of expense method. Unless otherwise stated, the accounting policies have been consistently applied to all periods presented.

Unless otherwise stated, all amounts are given in thousands of euros (EUR thousand). As a result of rounding, some amounts may not add up to the disclosed sums. Where it is established during the preparation of the financial statements that prior-year figures were not accurately presented, they are adjusted accordingly. adesso has not made any significant adjustments.

## A. New accounting provisions

### Provisions applied for the first time

- > In May 2014, the IASB issued IFRS 15 (Revenue from Contracts with Customers), which replaces IAS 11 (Construction Contracts) and IAS 18 (Revenue) as well as the interpretations IFRIC 13 (Customer Loyalty Programmes), IFRIC 15 (Agreements for Construction of Real Estate), IFRIC 18 (Transfers of Assets from Customers) and SIC-31 (Barter Transactions Involving Advertising Services). Companies shall apply this standard to annual reporting periods beginning on or after 1 January 2018. IFRS 15 was adopted by the European Union on 22 September 2016. The impact of the adoption of IFRS 15 on adesso's financial position and financial performance is immaterial. More specifically, the impact on adesso will be as follows:
- Capitalisation and amortisation of expenses for contracts concluded with customers (mainly resulting from commission payments in sales).
  - Advance payments received (previously mainly recognised in PoC liabilities) must be set off against the relevant contract assets (previously mainly recognised in PoC receivables). A positive balance from receivables and advance payments is recognised as a contract asset, while a negative balance is recognised as a contract liability. Pending losses are now recognised as provisions in accordance with IAS 37 and no longer set off against PoC receivables pursuant to IAS 11.
  - Deferred income is recognised under contract liabilities, provided this deferred income includes amounts recognised in advance as income from performance obligations that have not yet been met. Deferred income for the year ended 31 December 2017 was reported under other liabilities.

The clarifications to IFRS 15 published by the IASB in April 2016 which address the topics of identifying performance obligations, principal versus agent considerations, and licensing were considered at the initial application. These clarifications were adopted by the European Union on 31 October 2017.

- > In July 2014, the IASB issued IFRS 9 (Financial Instruments), which replaces IAS 39 (Financial Instruments: Recognition and Measurement) and is applicable to annual reporting periods beginning on or after 1 January 2018. IFRS 9 was adopted by the European Union on 22 November 2016. Under IFRS 9, debt instruments are measured at amortised cost, at fair value through profit or loss or at fair value through other comprehensive income based on the entity's business model and the characteristics of the financial asset's contractual cash flows. IFRS 9 also implemented a new three-stage impairment model. Impairment losses under IFRS 9 are based on expected rather than incurred losses. Impairment losses are initially recognised based on 12-month expected credit loss (Stage 1). If credit risk of a debt instrument has increased significantly since initial recognition, the impairment loss is recognised based on the lifetime expected credit loss (Stage 2). In stage 1 and 2, interest revenue is calculated on the gross carrying amount (before impairment). If, alongside the default risk of a financial asset rising significantly, objective evidence of an impairment arises, the impairment must be entered in the total default amount expected over the term of the financial asset. The interest result is calculated on the net carrying amount (after impairment) (Stage 3). Under IFRS 9, financial liabilities are generally measured at amortised cost. IFRS 9 introduces a simplified approach to assessing impairment of trade receivables and contract assets. Under the simplified approach, receivables and contract assets are allocated directly to Stage 2 of the impairment model. As a result, there is no need to monitor for significant increases in credit risk. adesso uses this simplified approach. The third significant change in IFRS 9 relates to hedge accounting. The classification of financial assets and liabilities did not change as a result of the adoption. Under IAS 39, financial assets were classified in the "Loans and receivables" category and carried at amortised cost. Under IFRS 9, financial assets are measured at amortised cost. As at 1 January 2018, impairment losses of EUR 530 thousand were recognised in accordance with IFRS 9. This is EUR 205 thousand higher than the impairment losses recognised in accordance with IAS 39 as at 31 December 2017. Under IFRS 9 and IAS 39, financial liabilities are measured at amortised cost. The introduction of IFRS 9 did not have a material impact on the financial position and the financial performance of adesso.

At initial application of IFRS 9 and IFRS 15, the transitional standards were applied using the so-called modified retrospective method. The adoption effects were recognised in the (profit) reserves as at 01 January 2018. The previous year's figures were not adjusted. Making a comparison with the previous year's figures in the financial statement is therefore only possible to a limited extent. The adoption had the following effects on the balance sheet as at 01 January 2018:

<i>in EUR k</i>	<i>As at 31/12/2017</i>	<i>Application of IFRS 9</i>	<i>Application of IFRS 15</i>	<i>As at 01/01/2018</i>
Intangible assets	13,949	0	566	14,515
Deferred tax assets	910	13	0	923
Trade receivables	61,818	-172	0	61,646
Other financial assets	1,243	-4	0	1,239
Contract assets	0	-29	11,336	11,307
PoC receivables	19,641	0	-19,641	0
Other liabilities	44,125	0	-4,427	39,698
Contract liabilities	0	0	6,478	6,478
Other reserves	42,796	-141	381	43,036
Deferred tax liabilities	3,378	-51	185	3,512
PoC liabilities	10,582	0	-10,582	0
Current provisions	6,976	0	226	7,202

> In June 2016, the IASB published amendments to IFRS 2 (Classification and Measurement of Share-based Payment Transactions), which were included in European law on 27 February 2018. The amendments mainly clarify certain aspects of cash-settled share-based payment transactions that include performance conditions that are not market conditions. The amendments to IFRS 2 are to be adopted for financial years beginning on or after 1 January 2018 and do not have any significant effect on adesso's consolidated financial statements.

> In September 2016, the IASB published amendments to IFRS 4 (Applying IFRS 9 (Financial Instruments) with IFRS 4 (Insurance Contracts)). Entities that are mainly active in the insurance business are exempted from the obligation to apply IFRS 9 until the first-time adoption of IFRS 17 (Insurance Contracts). These amendments were included in European law on 9 November 2017 and are to be adopted for financial years beginning on or after 1 January 2018. The amendments do not affect adesso's consolidated financial statements.

> In December 2016, the IASB issued amendments to IAS 40 (Investment Property). The amendments clarify the requirements for the transfer to or from property held as financial investment. The amendments are to be adopted for financial years beginning on or after 1 January 2019. The amendments, which were included in European law on 15 March 2018, do not affect adesso's consolidated financial statements.

> In December 2016, the IASB issued amendments as part of the annual improvement project for 2014-2016. The amendments concern IFRS 1 (First-Time Adoption of IFRS), clarifications to IFRS 12 (Disclosure of Interests in Other Entities) and IAS 28 (Investments in Associates and Joint Ventures). The amendments to IFRS 1 and IAS 28 are to be adopted for financial years beginning on or after 1 January 2018. The amendments, which were included in European law on 8 February 2018, do not affect adesso's consolidated financial statements.

> In December 2016, the IASB issued IFRIC Interpretation 22 (Foreign Currency Transactions and Advance Consideration). The interpretation clarifies which exchange rate is to be used to account for sales revenue for transactions in a currency differing from the functional currency when the company received advance payments. The interpretation was included in European law on 3 April 2018 and is to be adopted for financial years beginning on or after 1 January 2019. The first-time adoption of the interpretation does not affect adesso's consolidated financial statements.

#### Regulations that have been issued, but not yet adopted

The IASB has issued standards, amendments to standards and interpretations that are to be adopted to financial years beginning on or after 1 January 2019. Adoption of the following regulations is not yet mandatory, and adesso has not yet adopted these.

#### Endorsed by the EU:

> In January 2016, the IASB issued IFRS 16 (Leases), which is to be adopted for financial years beginning on or after 1 January 2019; the standard establishes new provisions for the recognition, measurement, presentation and disclosure of leases. According to IFRS 16, all leases generally have to be included on the balance sheet of the lessee. For this, a right-of-use asset and the corresponding lease liability are to be recognised in the balance sheet of the lessee. Deviations are permitted only if the lease term is 12 months or less or the underlying asset has a low value, in which case the cost of the lease can generally be recorded on a straight-line basis over the lease term. On the lessor side, the lease will largely continue to be classified as finance lease or operating lease. This standard was endorsed by the EU on 9 November 2017. adesso will adopt the standard as of 1 January 2019 and will exercise the option of determining the leasing assets and leasing liabilities as of 1 January 2019 (so-called modified retrospective method). adesso has significant lease agreements for office space and vehicles.

Based on the current data, the adoption of IFRS 16 from 1 January 2019 is expected to have the following consequences:

	Change in EUR k	
	01.01.2019	31.12.2019
<i>Consolidated balance sheet</i>		
Non-current assets	57,533	63,970
Deferred tax assets		232
Equity		-474
Liabilities	57,533	64,677
<i>Consolidated income statement</i>		2019
Other operational expenses		10,933
<b>EBITDA</b>		<b>10,933</b>
Depreciation and amortisation		-10,270
<b>EBIT</b>		<b>663</b>
Interest expenses		-1,369
<b>EBT</b>		<b>-706</b>
Deferred tax income		232
<b>CONSOLIDATED RESULT</b>		<b>-474</b>

All leasing contracts concluded at the time of preparation are taken into account, excluding contracts for leases of low-value assets and contracts with a residual term of no more than twelve months. Significant additions in 2019 relate to two leases for business premises to be available in 2019 and recognised at EUR 14,302 thousand. Only lease payments were used to determine present value. Other expense components were not recognised and continue to be reported as part of other financial obligations. The discount rates used range between 0.7% and 5.9%, depending on the company and contract term. By contrast, the discount rate used for leases concluded in Turkey is 17%. Rental income of EUR 195 thousand will be recognised in 2019 for amounts received from employees arising from subleases mainly under employee bike leasing schemes (JobRad). The amount of subleases from the provision of company cars to employees cannot be shown because the consideration forms part of employee performance. In the cash flow statement, payments from operating leases are currently recognised in cash flow from operating activities. In the future, the payments will be recognised as repayment of the lease liability and interest payments. This will increase cash flow from operating activities and reduce cash flow from financing activities.

> In October 2017, the IASB published the amendment to IFRS 9 (Financial Instruments – Prepayment Features with Negative Compensation). This amendment clarifies whether payments for the possibility of early termination (e.g. a loan agreement) should be classified as interest and principal payments. The interpretation, which was adopted by the European Union on 26 March 2018, is applicable to annual reporting periods beginning on or after 01 January 2019. The amendment is not expected to have any impact on adesso's financial statements.

> In June 2017, the IASB published interpretation IFRIC 23 (Uncertainty over Income Tax Treatments), which contains clarifications on the question of how uncertain tax positions under IAS 12 should be reported in financial statements. The interpretation, which was adopted by the European Union on 24 October 2018, is applicable to annual reporting periods beginning on or after 01 January 2019. The amendment is not expected to have any impact on adesso's financial statements.

> In October 2017, the IASB adopted amendments to IAS 28 (Investments in Associates and Joint Ventures). The IASB clarifies that IFRS 9 (Financial Instruments), including the impairment provisions for long-term financial assets, must be applied to associate companies or joint ventures (e.g. lending to these companies). The provisions of IFRS 9 (and thus, if applicable, an impairment) must be applied before the provisions of IAS 28 (according to which pro-rata additional losses of the associate or joint venture may have to be recognised). The amendment, which has not yet been adopted by the European Union is applicable to annual reporting periods beginning on or after 01 January 2019. The amendment is not expected to have any impact on adesso's consolidated financial statements.

#### Provisions not yet adopted by the EU

> In December 2017, the IASB adopted amendments as part of the annual improvement project for 2015-2017. In particular, the amendments include clarifications to provisions of IFRS 3 (Business Combinations), IFRS 11 (Joint Arrangements), IAS 12 (Income Taxes) and IAS 23 (Borrowing Costs). The amendments are applicable to annual reporting periods beginning on or after 01 January 2019. The amendment is not expected to have any impact on adesso's consolidated financial statements.

> In February 2018, the IASB adopted an amendment to IAS 19 (Employee Benefits), which specifies the provisions for accounting for plan amendments, reductions and settlements. The amendments are applicable to annual reporting periods beginning on or after 01 January 2019. The amendments will affect adesso's consolidated financial statements if such an event occurs.

> In March 2018, the IASB published a revised "Conceptual Framework for Financial Reporting". The framework provides guidance on the application of IFRS. Entities shall apply the revised Conceptual Framework for the first time on or after 01 January 2020. Numerous standards and interpretations refer to the Concep-



tual Framework, and these references in the standards and interpretations therefore have to be amended accordingly. The proposed amendments to the standards and interpretations were published in March 2018. These changes are not expected to have any impact on adesso's financial statements.

- > In October 2018, the IASB published amendments to IFRS 3 (Business Combinations). The amendments clarify the definition of "business" in IFRS. This is necessary for the presentation of an acquisition transaction as a business combination or acquisition of individual assets (and liabilities). The amendments are applicable to annual reporting periods beginning on or after 01/01/2020. The amendments are not expected to have any impact on adesso's consolidated financial statements.
- > In October 2018, the IASB issued amendments to IAS 1 (Presentation of Financial Statements) and IAS 8 (Accounting Policies, Changes in Accounting Estimates and Errors). The amendments clarify the definition of "material", which is an important accounting concept in IFRS standards. The amendments are applicable to annual reporting periods beginning on or after 01/01/2020. The amendments are not expected to have any impact on adesso's consolidated financial statements.
- > In October 2017, the IASB published amendments to IAS 28 (Investments in Associates and Joint Ventures). The amendments clarify the interaction between IAS 28 and IFRS 9 with respect to non-current financial assets that form part of the net investment in an associate or joint venture but to which the equity method is not applied. The amendments are applicable to annual reporting periods beginning on or after 01 January 2019. The amendments are not expected to have any impact on adesso's financial statements.
- > In May 2017, the IASB adopted Standard IFRS 17 (Insurance Contracts), which will replace IFRS 4 (Insurance Contracts). IFRS 17 applies to insurance contracts, reinsurance contracts and investment contracts with discretionary participation features. IFRS 17 is applicable to annual reporting periods beginning on or after 1 January 2021. The amendments are not expected to have any impact on adesso's consolidated financial statements.

## B. Acquisitions

On 08 February 2018, adesso acquired 100 % of shares in FABIS Sales Solutions GmbH & Co. KG and its general partner FABIS Verwaltung GmbH (Bamberg), which were merged into adesso insurance solutions GmbH in the second half of 2018. As a result of the acquisition, adesso's in-house in|sure product portfolio was expanded to include standard modules for sales management and commission settlement. The purchase price for the shares was paid in cash and amounted to EUR 1,500 thousand. There were no further purchase price payments. The goodwill resulting from the business combination is tax deductible. It mainly represents the acquired workforce of the company, which cannot be capitalised, and other synergy effects. The fair value of the acquired trade receivables and the contractual cash flows from receivables amounted to EUR 314 thousand. Ancillary acquisition costs totalled EUR 7 thousand. They are recognised under "Other operating expenses" in the consolidated income statement.

On 13 July 2018 adesso acquired the assets and liabilities of Collogia Trianova GmbH, Cologne. With the acquisition of Collogia Trianova GmbH and CollPhir software, the range of services offered by the in|sure product family in the area of occupational pension scheme administration and working time accounts has been further expanded. The consideration paid in cash for the acquired assets and liabilities amounted to EUR 2,848 thousand. The goodwill is tax deductible. It mainly represents the acquired workforce of the company and potential synergy effects. The fair value of the acquired trade receivables and the contractual cash flows from receivables amounted to EUR 0 thousand. Ancillary acquisition costs totalled EUR 122 thousand. They are recognised under "Other operating expenses" in the consolidated income statement.

On 03 December 2018 adesso acquired 100 % of the shares in SunnyTrail Consulting S.L. with its registered office in Madrid, Spain. The acquisition will further expand the "Competence Centre" for Salesforce solutions

(products from the US-based Salesforce.com — expert for cloud-based customer relationship management applications) that has been established in Germany this year. The merger between SunnyTrail Consulting S.L. and adesso Spain Consultoria y Soluciones Tecnológicas S.L. is planned for 2019. The consideration paid in cash amounted to EUR 212 thousand. Furthermore, there are contingent purchase price payments depending on the project revenue of the company up to 31 March 2020, amounting to a maximum of EUR 120 thousand, which are payable in the first quarter of 2020. The future payment is almost certain and therefore the assessment of the obligation does not take into account any potential future payments. The fair value of the obligation amounts to EUR 116 thousand. The fair value of the acquired trade receivables and the contractual cash flows from receivables amounted to EUR 79 thousand. SunnyTrail Consulting S.L. is assigned to the IT Services segment.

<i>in EUR k</i>	<i>FABIS companies</i>	<i>SunnyTrail</i>	<i>Collogia</i>
Goodwill	1,531	0	1,502
Customer lists	72	288	271
Orders	20	105	1,007
Software	59	0	322
Other fixed assets	0	4	30
Deferred tax assets	4	0	60
Trade receivables	314	79	0
Other current assets	14	15	74
Liquid assets	1	18	0
<b>TOTAL ASSETS</b>	<b>2,015</b>	<b>509</b>	<b>3,266</b>
Provisions	3	10	84
Trade payables	283	0	0
Contract liabilities	227	0	334
Other liabilities	2	73	0
Deferred tax liabilities	0	98	0
<b>TOTAL LIABILITIES</b>	<b>515</b>	<b>181</b>	<b>418</b>
<b>NET ASSETS</b>	<b>1,500</b>	<b>328</b>	<b>2,848</b>
Consideration	1,500	328	2,848
Cash and cash equivalents received	1	18	0
<b>ACTUAL CASH OUTFLOWS FROM ACQUISITIONS</b>	<b>1,499</b>	<b>194</b>	<b>2,848</b>

Due to the merger with adesso insurance solutions GmbH and the resulting consolidation of accounts, the revenue recorded in the consolidated financial statements of adesso as well as the earnings contribution of the acquired FABIS companies cannot be determined. The same applies to revenue recorded in the consolidated financial statements of adesso as well as the earnings contribution of Collogia Trianova GmbH. The revenue and earnings contribution of SunnyTrail Consulting S.L. amounted to EUR 136 thousand and EUR 19 thousand, respectively. If the companies had been included in the consolidated financial statements as at 01 January 2018, consolidated revenue would have amounted to EUR 377,747 thousand and consolidated earnings to EUR 12,889 thousand.

### Acquisitions in the previous year

On 10 February 2017, adesso acquired 100 % of the shares in UnitCon GmbH, Darmstadt, which was subsequently merged into ARITHNEA GmbH, and on 26 September 2017 adesso acquired 100 % of the shares in medgineering GmbH, Dortmund (formerly Halle, Westphalia), the IT service provider and system developer of the Mobile Retter association. The following assets and liabilities were recognised in business combinations. The purchase price allocation is final. There have been no changes compared to the previous year.

<i>in EUR k</i>	<i>UnitCon GmbH</i>	<i>medgineering GmbH</i>
Goodwill	2,244	464
Customer contracts	1,486	450
Order backlog	848	0
Fixed assets	52	5
Deferred tax assets	0	22
Trade receivables	443	37
Receivables from income taxes	25	0
Other current assets	27	2
Cash and cash equivalents	1,891	27
<b>TOTAL ASSETS</b>	<b>7,016</b>	<b>1,007</b>
Long-term financial liabilities	300	0
Current provisions	61	50
Trade payables	205	2
Tax liabilities	39	0
Liabilities to credit institutions	10	0
Other financial liabilities	112	0
Other liabilities	69	61
Deferred tax liabilities	720	147
<b>TOTAL LIABILITIES</b>	<b>1,516</b>	<b>260</b>
<b>NET ASSETS</b>	<b>5,500</b>	<b>747</b>
Consideration	5,500	747
Cash and cash equivalents received	1,890	27
<b>ACTUAL CASH OUTFLOWS FROM ACQUISITIONS</b>	<b>3,610</b>	<b>720</b>

## C. Consolidation

### a) Subsidiaries

Subsidiaries are companies that are directly or indirectly controlled by adesso. A company is deemed to be controlled by adesso if adesso has decision-making powers over this company, adesso is exposed and/or entitled to variable returns and it can use its decision-making power to influence the variable returns. adesso has decision-making powers over a company if existing rights mean that adesso has the ability to direct the relevant activities of the company. Relevant activities are activities that significantly affect the company's variable returns. Potential voting rights from options or convertible bonds need to be taken into account in addition to current voting rights, irrespective of whether these are held by adesso AG itself or one of its subsidiaries.

Subsidiaries are fully consolidated from the date on which adesso obtains control. This means that assets, liabilities, income and expenses are recognised in the consolidated financial statements from that date. Subsidiaries are deconsolidated as soon as the company is no longer controlled by adesso.

Pursuant to IFRS 3, mergers are reported using the acquisition method. The consideration for the acquired shares is comprised of the fair values of the assets acquired, received and acquired debt, equity instruments issued and any agreed contingent consideration, each measured at fair value. Pursuant to IAS 9, assets and liabilities from contingent considerations are measured at fair value, while income and expenses are recognised in the consolidated income statement. Where contingent consideration is to be classified as equity, current changes in value are not recognised, and differences are recognised in equity when the contingent consideration is paid. During company mergers, shares previously held in a subsidiary (successive share purchase) are considered at fair value. The resulting income and expenses are recognised in the consolidated income statement. The acquisition costs of a business combination are recognised directly in the consolidated income statement. Pre-existing relationships at the time of acquisition of control have to be eliminated prior to consolidation. The resulting profit contributions are recognised directly in the consolidated income statement.

The acquired assets and liabilities have to be recognised insofar as they meet the definition of an asset or a liability. In general, the acquired assets and liabilities are recognised at fair value. Non-controlling interests can be valued according to the pro-rata net assets measured pursuant to IFRS 3 or at fair value. The latter option also includes the recognition of goodwill for the non-controlling interest. adesso values non-controlling interests according to the pro-rata net assets measured pursuant to IFRS 3. The goodwill allocated to the parent company's shareholders generally corresponds to the difference between the value of consideration paid plus the fair value of the shares held in the subsidiary prior to the business combination and the pro-rata acquired assets measured in accordance with IFRS 3.

Insofar as the identification and measurement of the acquired assets and liabilities and/or the determination of the consideration paid have not been completed by the reporting date following the business combination, the business combination must be provisionally reported in the consolidated financial statements. Reporting for the business combination has to be completed within twelve months of the business combination date (measurement period).

Intra-group relationships between the consolidated companies are eliminated. As part of the consolidation of capital, participations in subsidiaries are offset against the acquired pro-rata equity of the respective subsidiary allocated to adesso. Obligations between the companies included in the consolidated financial statement are eliminated in the course of debt consolidation. Intercompany profit and loss from intragroup transactions included in the assets and liabilities is eliminated as part of the elimination of interim results; income and expenses from intercompany transactions are eliminated in the course of income and expense consolidation.

Changes in the participating interest in a subsidiary that does not result in a loss of control are recognised as equity transactions. Differences between the fair value of the consideration and the carrying amount of the pro-rata equity are recorded in capital reserves.

A company is deconsolidated when adesso no longer controls it. From this date onwards, the assets and liabilities, as well as income and expenses, are no longer attributed to adesso. Any share in the former subsidiary remaining with adesso is measured at fair value. The difference between the net assets attributable to the remaining shares at the date of deconsolidation and the fair value of the shares is reported in the consolidated income statement.

adesso holds the majority of the voting rights in all subsidiaries. This enables adesso to direct the relevant activities of the subsidiaries.

The number of fully consolidated subsidiaries increased to 24 (previous year: 21)

adesso's consolidated financial statements do not include any material minority interests.

As regards the list of companies included in the consolidated financial statements, we refer to the list of shareholdings according to Article 313 (2) HGB under "L. Subsidiaries" and "M. Associated companies and joint ventures" in Section "VI. Supplementary Information".

adesso's foreign subsidiaries in Barcelona, Spain and Sofia, Bulgaria were founded on 23 January 2018 and 08 March 2018, respectively. The newly founded companies will be integrated into adesso Group's sales organisation to maximise the potential of the local markets.

On 07 August 2018, adesso IT+ GmbH, Berlin was renamed to adesso Transformer Deutschland GmbH and its registered office relocated to Dortmund.

On 22 November 2018 adesso acquired the outstanding shares in adesso Transformer GmbH, Vienna, Austria for EUR 750 thousand. At the same time, non-controlling interests were increased by EUR 22 thousand. The difference of EUR 772 thousand between the purchase price for the additional shares and the amount of the non-controlling shares is recorded in the capital reserve.

#### b) Joint arrangements and associates

Pursuant to IFRS 11, joint arrangements are classified as joint operations or joint ventures. Joint operations are joint arrangements where the joint operators have rights to the assets and liabilities relating to the joint arrangements. In the case of joint ventures, the partner companies have rights to the net assets included in the arrangement. In the case of joint operations, the joint operator accounts for the assets and liabilities, including its share of those held jointly, its income and its share of the joint income of the arrangement, as well as its expenses, including its share of any expenses incurred jointly. Pursuant to IFRS 11, interests in joint ventures are consolidated using the equity method described in IAS 28.

A company is considered to be an associate of adesso if adesso has significant influence over the company, does not control the company and does not control the company together with another. Where adesso holds 20% to 50% of the shares in a company, it is assumed under IAS 28 that adesso can exert a significant influence on the company. Like joint ventures, associates are consolidated using the equity method.

According to the equity method, the interests are recognised at cost when they are recognised. If, at the time that the company is consolidated using the equity method for the first time, the cost exceeds the pro-rata fair value of the net assets of the company, the share must include fair value. An amount equal to the difference is to be recognised if the reverse is true. As a result, the results of joint ventures and associated companies are recognised pro rata in adesso's financial statements, while any hidden reserves and encumbrances discovered upon acquisition are carried forward.

The profits and losses of the joint venture and associated companies are recognised pro rata in the consolidated income statement, while other comprehensive income of the joint venture and associated companies is to be recognised pro rata in other period sales results; in both cases, an adjustment is to be made to the carrying amount of the shares. Dividend distributions from joint ventures and associates reduce with no overall effect on outcomes the carrying amount of the interests in equity. The losses that exceed net investments will not be recognised so long as the pro-rata losses recognised exceed net investment in the joint venture or associated companies (shares plus long-term loans, for example). Negative equity is carried forward in a separate account. It is included in the consolidated balance sheet once it turns positive again.

If an associate becomes a joint venture as a result of a change in the amount of the investment, or a change in contractual arrangements, or if a joint venture becomes an associate as a result of a change in contractual arrangements, the equity amount will only be adjusted only for any shares acquired or disposed of. Shares

are not revalued. If shares in associates or joint ventures are sold and they continue to be consolidated using the equity method, the amounts recognised in other comprehensive income are reported pro rata in the consolidated income statement, provided that this would also be the case with the disposal of the corresponding assets and/or liabilities.

Under IAS 28, adesso conducts a check on each balance sheet date to determine whether there is any objective evidence that the carrying amount of the net investments is impaired. The impairment test is then conducted in accordance with IAS 36. An impairment loss is to be recognised in the amount of the difference between the recoverable amount of the net investment in the joint venture or associated company and the carrying amount of the net investment. As the impairment relates to the entire carrying amount and not the carrying amount of the individual assets included in the carrying amount, a reversal of impairment losses pursuant to IAS 36 may have to be recognised in the future.

Intercompany profits and losses from upstream and downstream transactions with associates and joint ventures are eliminated on a pro-rata basis.

adesso does not hold any significant interests in associates and joint ventures. Information about these companies is published under III.A.3.

#### c) Foreign currency translation

Each of the companies included in the consolidated financial statements prepares its separate financial statements in its respective functional currency. The functional currency of a company corresponds to the currency of the primary economic environment in which the company operates. This functional currency for the companies included in the adesso consolidated financial statements corresponds to the respective currency of the country where the company has its registered office. Transactions conducted in a currency other than the functional currency are translated into the functional currency using the spot and/or respective exchange rate. The expenses and income resulting from this and from the settlement of such transactions are recognised in the consolidated income statement, provided that the amounts are not recognised as respective profit amounts in other comprehensive income.

Conversion of the financial statements prepared in the national currency of companies whose functional currency is not the euro is performed according to the modified closing rate method. The equity of the companies with functional currencies other than the euro included in the consolidated financial statements is translated using historical exchange rates. All assets and liabilities are translated using the spot rate. The income and expenses, as well as the result for the year recognised in the consolidated income statement, are generally translated at the transaction rate; for reasons of simplification, where permissible, at the average rate. The translation differences arising in the current year are recognised correspondingly in other comprehensive income. In the following, the prices are quoted according to the usual quantitative quotes. This means, for example, that on 31 December 2018 1 euro was worth 1.13 Swiss francs.

FOREIGN CURRENCY AT EUR 1	Spot rate		Average rate	
	2018	2017	2018	2017
Swiss franc (CHF)	1.13	1.17	1.15	1.11
British pound (GBP)	0.89	0.89	0.88	0.88
US dollar (USD)	1.15	1.20	1.18	1.13
Turkish lira (TRY)	6.06	4.55	5.70	4.12
Bulgarian leva (BGN)	1.96	-	1.96	-

#### D. Accounting policies

##### a) Revenue

Revenue is recognised in accordance with IFRS 15. Prerequisites for revenue recognition are as follows: a valid contract, identifiable performance obligations, clear terms of payment, the contract must have economic substance and it must be likely that the agreed consideration will be received. Where different contracts with customers that have been agreed at the same time or in a timely manner are not independent of each other, they shall be analysed as one contract. Subsequently, revenue is recognised as soon as a performance obligation has been fulfilled. Under IFRS 15, revenue is recognised at one point in time. Deviating from this, revenues are recorded over a period of time where the customer directly consumes the benefits, or adesso creates or improves an asset that is controlled by the customer, or adesso creates an asset without alternative use for a customer and adesso acquires a claim to remuneration for the respective services rendered, as is common with a contract for work and services. On this basis, revenue from performance obligations are recognised as follows.

- > Licence sales, no further obligation on the part of adesso: Once the licence key has been delivered and the customer can access the licence. This applies irrespective of whether the right of use transferred to the customer is limited in time. As far as adesso acts as an intermediary or agent in the sale of a licence, adesso only recognises a commission from the sale of the software. Invoices are always issued after delivery of the software. The payment terms are typically not longer than 14 days.
- > The right of the customer to access software that is regularly updated by adesso: Over a period of time. In principle, payments are made on a monthly basis.
- > Consulting projects:
  - Where consulting projects are agreed as time & material projects (actual number of hours worked and the resources deployed are billed), revenue is recognised based on billable hours and expenses incurred. Invoices are issued monthly and the payment terms are typically no longer than 14 days.
  - Where consulting projects are agreed as fixed-price projects, revenue is recognised on the basis of the progress made in terms of performance or the stage of completion over the term of the project. The percentage of completion generally corresponds to the costs incurred as at the reporting date as a proportion of the expected total costs for the project. Revenues cannot be recognised using the percentage-of-completion method if the expected total costs and/or the expected total income cannot be reliably estimated. In this case, revenues are recognised in an amount not exceeding the amount of expenses incurred. If the expected total expenses of a fixed-price project exceed the expected total revenue, meaning that there is a risk that the project will incur losses, the loss has to be recognised directly and in full in other operating expenses irrespective of the percentage of completion by recognising a provision for contingent losses from pending transactions. If a licence is sold together with the consulting project, the revenue for the license is recognised at the time of delivery of the licence. Deviating from this, the revenue for the license is recognised as part of consulting project revenue (a performance obligation), provided that the source code of the software is not materially adjusted as part of the consulting project. For some fixed-price contracts, progress payments are contractually agreed. The final invoice will be issued after acceptance with typical payment terms of 14 days.



> Maintenance and hosting services are usually time-based: Revenues are recognised over the corresponding period. Payments are usually made quarterly in advance.

In determining the amount to be recognised as revenue for performance obligations, variable components of the agreed consideration are taken into account. These include, for example, discounts, performance incentives, bonuses or penalties. Revenues from variable components may only be recognised to the extent that it is highly probable that they will not be withdrawn in the future. If several performance obligations are agreed in one contract, the agreed consideration is to be allocated to the individual performance obligations for the purpose of revenue recognition on the basis of the relative individual selling prices. For example, if a contract sees a software licence being disposed of and the same contract also concludes a maintenance contract for the software licence, the revenue from the sale of the licence is recognised immediately if the conditions are met. The income attributable to the maintenance contract is to be deferred and generally recognised on a pro-rata basis. For revenue recognition purposes, the purchase price agreed in the contract is allocated to the performance-based components included in the contract. adesso typically negotiates the individual performance-based components separately. The negotiations usually cover prices, which are in the same league as the retail price.

Under IFRS 15, the transaction price attributable to unfulfilled performance obligations, which will be recognised as revenue in the future must be disclosed. Here, adesso uses the simplified approach to indicate this for contracts which have an original term of more than one year. Under the simplified approach, the transaction price of time & material projects is also not taken into account in this specification.

#### b) Borrowing costs

Borrowing costs are generally included as an expense in the consolidated income statement. Under IAS 23, the borrowing costs of qualifying assets make up part of the cost. A qualifying asset is an asset that necessarily takes a substantial period of time to get ready for its intended use or sale. adesso did not identify any qualifying assets in the reporting period for which not insignificant borrowing costs had to be capitalised.

#### c) Goodwill

In case of a business combination, goodwill is the positive difference between the consideration rendered in the business combination plus the fair value of the shares previously held as well as the non-controlling interests measured as pro-rata net assets and the pro-rata equity of the acquired company at the time of the business combination measured according to IFRS 3. For impairment testing purposes, goodwill is not amortised, but instead assigned to the (groups of) cash-generating units that benefit from the business combination. According to IAS 36.80, the highest allocation level in the company is the level on which goodwill is observed by management, and no higher than the level of operating segments pursuant to IFRS 8 before they are combined into reportable segments. For details on the impairment test, please refer to “(f) Impairment of non-financial assets.”

#### d) Tangible and intangible assets

Tangible and intangible assets are recognised at historical cost. Where applicable, they are stated at amortised cost or historical cost. Assets are depreciated or amortised on a straight-line basis over their expected useful life. Where applicable, residual values are taken into account when calculating depreciation on tangible assets. For intangible assets, residual values are only taken into account insofar as a third party is obligated to assume the intangible asset at the end of its useful life. Furthermore, residual values are taken into account when there is an active market for the intangible asset, the residual value can be established in reference to said market and the active market is expected to exist at the end of the useful life of the intangible asset.

Whenever possible, the recognition of non-current intangible assets is broken down into a research and a development phase. Expenditure in the research phase must always be recognised as expenses. Expenditure in the development phase is to be capitalised from the date on which the following can be satisfied:

> The technical feasibility of completing the intangible asset so that it is available for use or sale;

- > The intention to complete the intangible asset and use or sell it;
- > The ability to use or sell the intangible asset;
- > How the intangible asset will generate future economic benefits;
- > adesso has sufficient resources to complete the intangible asset; and
- > The cost of the intangible asset can be measured reliably.

Intangible assets are typically amortised on a straight-line basis over three years. Exceptions are additions through business combinations such as customer contracts, software and order backlogs. The carrying amount of the order backlog is written off as soon as the revenue on the respective order is realised. Customer lists have a useful life of three to six years. The PSLife software acquired in 2015 is being amortised over ten years.

Property, plant and equipment is classified as technical equipment and machinery, which is generally depreciated over three years, as well as office and other equipment, which is depreciated on a straight-line basis over five to 20 years.

Depreciation and amortisation is reported on the consolidated income statement under depreciation and amortisation.

The total development expense recognised in the financial year is the amortisation of internally generated intangible assets. This amounts to EUR 109 thousand (previous year: EUR 105 thousand).

Please refer to section f) for impairment of tangible and intangible assets.

#### e) Costs of obtaining a contract

Costs of obtaining a contract (commissions) are capitalised in accordance with IFRS 15 to the extent that they are directly attributable to the conclusion of a contract with a customer. adesso uses the simplified approach to capitalise and amortise the costs of obtaining a contract only for those contracts for which the amortisation period is longer than one year. They are reported under intangible assets. adesso amortises these costs of obtaining a contract on a straight-line basis over the life of the underlying contract. If, as a result, the expected term of the contract deviates significantly from the originally estimated term of the contract, the residual carrying amount of the costs of obtaining a contract is amortised over the newly estimated residual term. When calculating impending losses from a contract, the carrying amount of the costs of obtaining a contract will be recognised as contract costs. The costs of obtaining a contract amounted to EUR 605 thousand (01 January 2018: EUR 566 thousand). The amortisation for the financial year amounted to EUR 477 thousand.

#### f) Impairment of non-financial assets

Under IAS 36, goodwill, non-current tangible and intangible assets all have to be tested for impairment. A review must be performed to determine at the balance sheet date if there are indications of an impairment. An impairment test is to be performed where such indications exist. In derogation of this, impairment tests are performed at least once a year for goodwill, intangible assets with an indefinite useful life and intangible assets not yet available for use. The date on which the mandatory impairment tests are performed can be selected at will and must be applied consistently. For all assets within the scope of IAS 36, an impairment test should also be performed if there are indications of impairment.

Impairment tests are performed for individual assets. If the impairment test cannot be performed, it will be performed at the level of a cash-generating unit. Such a unit is the smallest group of assets that comprise the asset to be tested and for which cash flows that are largely independent from other assets can be identified. Goodwill is always to be tested for impairment on the basis of a single cash-generating unit or a group of cash-generating units.

When testing for impairment, the carrying amount of an asset and/or a cash-generating unit including, where appropriate, the carrying amount of goodwill is compared to the recoverable amount of the cash-generating unit. The recoverable amount is the higher value in use and the fair value less disposal costs.

An impairment loss is to be recognised should the carrying amount be higher than the recoverable value. The carrying amount of an asset is to be reduced if an individual asset is tested for impairment. If an impairment loss is recognised in a cash-generating unit, the carrying amount of the goodwill may have to be reduced to EUR 0. If an additional impairment loss has to be recorded, the carrying amounts of the assets of the cash-generating units covered by IAS 36 have to be reduced on a pro-rata basis according to the total carrying amounts. This may not be lower than the recoverable amount of the respective asset. If the fair value rises again after an impairment loss has been recognised, the assets will be written up. A write-up of goodwill is not permitted.

#### g) Leasing

Lease transactions are classified as financing leases or operating leases based on the economic nature of the transaction. The transaction is classified as a financing lease insofar as all material risks and opportunities are transferred to the lessee, and otherwise as an operating lease.

When a lease transaction is classified as a financing lease, the lease object is recognised by the lessee at the present value of the minimum lease payments or the lower fair value. A lease liability of the same amount is recognised. The lease object is depreciated over the shorter of the economic useful life and the lease term. Since the lease payments are allocated to interest and redemption, interest on the remaining lease liability remains constant.

Gains on sale and leaseback transactions are deferred as liabilities and allocated over the lease term insofar as the new lease transaction is classified as a financing lease.

When a lease transaction is classified as an operating lease, the lease payments are recorded over the lease term on a straight-line basis. The benefits of agreed rent-free periods are allocated over the term of the rent term.

No hidden leasing relationships are present.

#### h) Financial assets

Financial assets include debt instruments (e.g. loans and receivables), equity instruments and cash and cash equivalents. They are recognised as soon as adesso becomes a contractual partner for a corresponding financial instrument. Depending on the classification of the cash flows arising from a financial asset and the business model within which the financial asset is held, the financial asset is classified after initial recognition as follows:

- > Measured at amortised cost (AC)
- > Measured at fair value through other comprehensive income (FVOCI)
- > Measured at fair value through profit and loss (FVPL)

##### Debt instruments, classification

Debt instruments are classified in the AC and FVOCI measurement categories if the cash flows arising from the debt instrument qualify as principal and interest payments. Where future cash flows contain speculative components in addition to principal and interest payments, the IASB is of the opinion that this is not consistent with a “basic lending arrangement” and the debt instrument should, therefore, be classified in the FVPL category. Where the cash flows arising from the debt instrument are classified as payments of principal and interest, further classification will depend on the specific business model. IFRS 9 identifies the following types of business models:

- > “Hold to collect”: The objective is to collect principal and interest, rather than to sell the debt instruments. Typically classified under the AC category

- > “Hold to collect and sell”: The objective is to collect interest and principal and to sell the debt instruments. Typically classified under the FVOCI category
  - > “Other business models.” Rather than collecting principal and interest, the objective of this business model is to sell debt instruments. Classified under the FVPL category.
- An entity may use different business models to pursue different objectives for different debt instruments.

If debt instruments are typically classified under the AC or FVOCI categories, under the so-called fair value option, entities are permitted to elect to measure debt instruments at FVPL if doing so would eliminate or significantly reduce a measurement or recognition inconsistency.

#### Initial and subsequent measurement

Debt instruments are initially recognised at fair value (typically the transaction price) plus transaction costs. Only with respect to debt instruments classified under the FVPL category are transaction costs recognised directly as expenses.

Where debt instruments have been classified under the AC or FVOCI category, interest, impairments and foreign currency translation differences recognised on the basis of the effective interest method must be recognised in the consolidated income statement (identical effect on earnings). In the case of debt instruments classified under FVOCI, changes in value that go beyond the above changes are recognised in other comprehensive income. The debt instrument amounts recognised in OCI classified as FVOCI must be recognised in the consolidated income statement upon derecognition. According to the effective interest method, interest is recorded on the basis of the so-called effective interest rate. This reflects the interest rate at which the present value of the future expected contractual cash flows corresponds to the initial carrying amount of the debt instrument upon recognition.

#### Impairment

Impairment losses are recognised based on a three-stage impairment model. They are measured as the probability-weighted present value of future cash shortfalls. On initial recognition, debt instruments are assigned to Stage 1 of the impairment model. In stage 1, interest is calculated on the gross carrying amount (before impairment). Impairment is determined on the basis of the possible loss events occurring within twelve months, taking into account the relevant probability.

If the default risk of a debt instrument has increased significantly compared to the default risk on initial recognition, the debt instrument is allocated to stage 2 of the impairment model. Interest revenue is calculated on the gross carrying amount as in stage 1, but impairment is determined by reference to any loss event that may occur throughout the life of the debt instrument and its related probability.

If there is also objective evidence of impairment (the debt instruments have an impaired credit rating), the debt instrument is allocated to stage 3 of the impairment model. Objective indications are or can be, for example, the opening of insolvency proceedings, a significant deterioration in creditworthiness or rating, trading in the debtor’s securities far below the nominal amount or other identified financial difficulties of the debtor. The amount of the impairment is determined as in stage 2, but interest is recognised on the basis of the net carrying amount, i.e. after taking the impairment into account. When calculating interest based on the net carrying amount, interest income on the gross carrying amount of the debt instrument is (usually) set off against interest expense arising from the carryforward of the impairment. This does not, therefore, have any effect on earnings, but merely on disclosure. The change in the classification of debt instruments between stages is symmetrical. This means that a change to a higher stage is just as possible as a change to a lower stage if the conditions are met.

adesso uses a simplified approach for certain trade receivables as well as contract assets. Accordingly, trade receivables and contract assets are allocated to stage 2 of the impairment model upon initial recognition. The term of these financial assets is usually a maximum of one year, so that the determination of the impairment

in stages 1 and 2 would be largely identical. As a result, there is no need to monitor for significant increases in default risk.

If there is objective evidence of impairment for debt instruments at the time they are acquired or issued, the impairment is immediately classified as stage 3 of the impairment model. These debt instruments may not be subsequently reclassified to stage 1 or 2. adesso does not hold any debt instruments, which were already impaired upon issuance or acquisition.

A loss event occurs when a company is no longer able to meet its payment obligations or has filed for insolvency. In addition, there is a presumption that a loss event has occurred if a financial asset is more than 90 days past due. In addition to bank balances of EUR 46 million, adesso holds only a few debt instruments that cannot be classified directly in stage 2 of the impairment test due to the simplified approach it uses. These include security deposits of EUR 1,094 thousand, loans to holdings measured using the equity method of EUR 350 thousand and short-term employee loans of EUR 154 thousand. The carrying amounts and impairments of these debt instruments are not considered to be material. As a result, adesso does not have a differentiated system for assessing whether the credit risk has increased significantly. adesso takes into account publicly available information about debtors, industry-related and macroeconomic information, and, where available, internal information about debtors. adesso does not have any information that would indicate that the credit risk of one of these debt instruments has increased significantly. This type of financial asset has not defaulted in the past. For the calculation of the impairment (EUR 5 thousand), adesso applies the impairment rate determined for trade receivables and contract assets.

The impairment of trade receivables and contract assets is measured primarily on the basis of past defaults on such claims. Forward-looking, industry-related and macroeconomic information is also taken into account.

The credit quality is considered to be impaired, when an event with a negative impact on future cash flows has occurred, e.g. significant financial difficulties, breaches of contract or the acquisition of debt instruments of the company far below the nominal amount.

#### Equity instruments

Under IFRS, equity instruments are measured at fair value, with value changes recognised in the consolidated income statement. If the equity instruments are not held for trading purposes, there is an option to present value changes in other comprehensive income. A future reclassification of amounts recognised in other comprehensive income to the consolidated income statement is not permitted.

#### Derecognition/write-offs

Financial assets are to be derecognised either when rights to future cash flows no longer exist or the asset is transferred to a third party. A financial asset is classed as having been transferred when adesso no longer has any rights to future cash flows or if adesso still has such rights but is at the same time obligated to pass these payments on to a third party.

A debt instrument is written off and derecognised if adesso has no reasonable expectations of recovering the debt instrument in its entirety or a portion thereof. In this case, the gross carrying amount is reduced rather than recognising an impairment in the amount of the virtually certain default. Where legal steps are taken to recover cash flows on a debt instrument, the instrument will not be derecognised.

#### i) Other assets and other liabilities

The accruals and other receivables and liabilities reported under this item are generally measured at nominal value.

#### j) Contract assets/contract liabilities

Under IFRS 15, claims against customers that are not recognised as receivables are reported as contract assets. Receivables are recognised insofar as the right to payment is merely dependent on the passage of time. adesso mainly recognises contract assets for fixed-price projects in which revenue is recognised based on the progress made. Payments from customers (or due payments) are deducted when determining the amount of contract assets. If these payments from customers exceed the underlying claim, they will be recognised as a contract liability.

#### k) Cash at bank and in hand

This item includes cash in hand and bank balances as well as current, highly liquid assets with a residual term of no more than three months from the acquisition date. These assets can be converted into a specific amount of cash at any time and are subject to immaterial valuation risk only.

#### l) Financial liabilities

Financial liabilities are recognised as soon as the adesso Group becomes a contractual partner for a corresponding financial instrument. Current liabilities are measured at amortised cost, which largely corresponds to the repayment amount. Non-current liabilities are recognised at the fair value of the consideration received on the transaction date. Transaction costs are included in the carrying amount of liabilities when they are recognised. Non-current liabilities are valued at amortised cost using the effective interest method.

A financial liability is to be derecognised when the contractual obligation ends, is met or is lifted.

The company did not make use of the option under IFRS 9 to classify financial liabilities as measured at fair value through profit or loss.

#### m) Provisions

Provisions are recognised for actual, legal or factual obligations arising from past events which are likely to result in an outflow of economic resources and the amount of which can be estimated reliably. For similar obligations, such as product guarantees, the probability of utilisation is considered on the basis of the overall group of obligations. Provisions for pending losses from pending transactions are valued on the basis of the excess obligation. If the compensation or fines resulting from non-fulfilment are less than the excess obligation, the provision is to be valued on the basis of the compensation or fine.

Provisions may be discounted when the discount amount is material. The interest rate to be applied is an interest rate before taxes, which reflects current market expectations with regard to the interest effect and the risks pertaining to the debt. Provisions are generally valued at the cash value of future expected cash flows required to settle the obligation. The determination of future cash flows must take into account cost increases.

When the amount of a provision is expected to be reimbursed, for example based on insurance coverage, a reimbursement is only recognised as a separate asset if it is as good as certain. The income of reimbursement is not offset against expenses.

#### n) Provisions for pensions

Provisions for pensions are measured at the present value of the defined benefit obligation. Plan assets were not endowed by adesso. Pursuant to IAS 19.120 (c), actuarial gains and losses are recorded in other comprehensive income in the course of the remeasurement of the net liability. The present value of provisions for pensions is determined using the projected unit credit method in accordance with IAS 19. The calculations are based on the biometric parameters of the Heubeck 2018 G mortality tables. adesso commissioned external experts to value the pension obligation as at 31 December 2018. The applied discount rate corresponds to the interest rate on corporate bonds with the best credit rating and a term corresponding to the provisions for pensions.

#### o) Share-based payment transactions

In the past, adesso has issued employee options to buy shares in adesso AG (so-called “equity-settled share-based payment transactions”). The vesting period of the options issued in accordance with IFRS 2 is four years. Total personnel costs to be recognised are determined by multiplying the fair value of the option on the grant date by the number of options expected to be exercisable after the end of the vesting period. In general, the total personnel costs are recognised on a straight-line basis against the capital reserve over the vesting period. The number of options expected to be exercised after the end of the vesting period has to be adjusted to current estimates on each reporting date.

Debt from share-based payment issued in payment instruments is remeasured at present value on each reporting date. Changes in the amount of this liability are recognised in the consolidated income statement. In this context, adesso has in the past issued virtual stock options and so-called phantom shares to employees and members of the Executive Board.

#### p) Income tax

Income taxes include both actual income taxes and deferred taxes. The actual tax liabilities and taxes receivable encompass all obligations and claims for domestic and foreign income tax. They are calculated based on the applicable tax laws.

Deferred taxes are recognised on deductible or taxable temporary differences. These are positive or negative differences between the carrying amount according to IFRS and the tax value of an asset or liability with a future impact on taxable income. Deferred taxes are measured at the future tax rate expected to be applicable on the date when the difference reverses. Furthermore, deferred tax assets have to be recognised for the benefit associated with a tax loss carryforward. Deferred tax assets on deductible temporary differences are recognised at least in the amount applicable to taxable temporary differences with the same tax authority and that reverse in the same period as the deductible temporary differences. Furthermore, deferred tax assets are recognised in the amount of the corresponding future economic benefit that is expected to be realised. The benefit of tax loss carryforwards eligible for capitalisation is determined by adesso over a maximum period of five years.

#### q) Government grants

According to IAS 20, government grants have to be classified as investment grants or grants for expenses. Grants are only recognised according to IAS 20 (Accounting for Government Grants and Disclosure of Government Assistance) when there is sufficient certainty that the related conditions will be met and the grants issued. They are allocated through profit or loss in the periods in which the expenses compensated by the grants are incurred. Investment grants are deducted from the acquired assets. Grants for expenses are recorded through profit or loss in the period in which the corresponding expenses are recognised.

#### r) Dividends

Dividends are recognised as liabilities as soon as a binding dividend proposal has been resolved.

#### s) Fair values

Numerous IASB regulations demand that financial and non-financial assets and liabilities be recognised at fair value or be included in the notes. According to IFRS 13, fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants on the measurement date. Determining fair values of financial assets and liabilities is based on observable parameters wherever possible. If none are available, non-observable parameters are to be applied. IFRS 13 defines a valuation hierarchy for determining fair value, which comprises three levels. Allocation to level depends on the valuation parameters.

The parameters are allocated to the following levels:

> Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities which the company can access at the valuation date.



- > Level 2: Input parameters other than the quoted prices on level 1 which are either directly or indirectly observable for the asset or liability.
- > Level 3: Non-observable input parameters for the asset or liability.

If parameters of different levels are used for measurement, the fair value is to be assigned to the same level as the input parameter of the lowest level used for measurement.

Fair values are either determined by adesso or external specialists.

At the end of the financial year, adesso did not have any material assets or liabilities subject to the scope of IFRS 13 which are measured at fair value regularly or on the reporting date.

#### E. Estimates and assumptions

Numerous estimates and assumptions have to be made by the management of adesso AG in preparing the consolidated financial statements. These relate to the following in particular:

- > Personnel expenses vs. third-party services: Fees for agreed services are to be reported as consideration for third-party services and thus as material expenses or as remuneration for employees and thus as personnel expenses, depending on the respective agreement. During the financial year, adesso analysed the relevant issues at adesso Schweiz AG, with the result that the salaries payable under numerous fixed-term employment contracts must be recognised as personnel expense rather than third-party services. The previous year's figures have been adjusted accordingly to improve the comparability of the financial statements. Third-party services and thus the cost of materials will be reduced by EUR 5,957 thousand for the 2017 financial year, and as a result personnel expenses will increase by the same amount.
- > Business combinations: In general, the identifiable assets and liabilities acquired in a business combination are measured at fair value. Since there is no active market for many assets and liabilities, the fair values have to be determined on the basis of recognised measurement methods. For example, these include the relief from royalty method and the multi-period excess earnings method. Significant valuation parameters that have to be estimated for these methods are the future cash flows resulting from the assets and liabilities as well as the applicable discount rates. In the financial year under review, as a result of business combinations adesso acquired customer lists in the amount of EUR 631 thousand (previous year: EUR 1,936 thousand), software in the amount of EUR 381 thousand (previous year: EUR 0 thousand) and order backlogs in the amount of EUR 1,132 thousand (previous year: EUR 848 thousand). For the measurement of contingent payment obligations related to mergers, assumptions have to be made regarding the values of parameters underlying the valuation.
- > Consolidated companies: adesso will have the opportunity in October 2019 to obtain control of MediOne GmbH (formerly: re:Doc GmbH) with 78.4% of the shares by exercising a call option for 21.8% of the shares in MediaOne GmbH. Up to that point, adesso will not be able to direct the relevant activities of MediOne GmbH without the partner. According to the management of adesso AG, MediOne GmbH should, therefore, be classified as a joint venture.

Non-current assets: The useful life of non-current assets subject to depreciation and amortisation has to be estimated. An estimate of the residual value, which has to be taken into account in calculating depreciation and amortisation, is also required.

- > Costs of obtaining a contract: adesso capitalises the cost of obtaining contracts with customers with an original term of more than one year. The sales commissions are not always directly attributable to individual customer contracts. adesso allocates the sales commissions which are not individually attributable based on commissioned revenue from a customer contract divided by the total commissioned revenue of an employee

multiplied by the employee's total commission. The management of adesso AG is of the opinion that the costs of obtaining a contract are appropriately assessed on this basis.

- > Leasing: For the presentation of future lease payments (operating leases) and the impact of IFRS 16, it is necessary to estimate whether and to what extent future lease extension options will be used. A consideration is only permissible, where the extension of the contract by exercising the option is sufficiently certain. The same applies to open-ended leases. The management of adesso AG is of the opinion that a rent extension option that can be exercised in more than ten years is generally not exercised with a sufficient level of certainty. Therefore, adesso typically does not take such extension options into consideration. In the run up to the upcoming application of IFRS 16, the management of adesso AG has reassessed whether rental extension options will be exercised in the future. In some cases, this new assessment leads to longer rental periods compared to the previous year. This does not have any impact on the consolidated balance sheet or the consolidated income statement.
- > Impairment test: According to IAS 36, numerous parameters have to be estimated for the impairment test to verify the recoverability of the assets held by adesso. These primarily include estimates of future cash flows, growth rates as well as the interest rate applicable for the future cash flows. Here, risks are primarily associated with goodwill (carrying amount: EUR 46,228 thousand; previous year: EUR 42,823 thousand). Information on the impairment test is available in Section III.A.1).
- > Receivables: Assessment of the recoverability of trade receivables (EUR 80,253 thousand; previous year: EUR 61,818 thousand) and contract assets (EUR 12,946 thousand; reported in the previous year as PoC receivable: EUR 19,641 thousand). This requires an estimate of the extent to which adesso customers meet their payment obligations.
- > Provisions and contingent liabilities: Recognising provisions often requires an assessment of whether the grounds for recognising a provision are met. For example, this applies to possible provisions for contingent losses on orders, warranty provisions, provisions for removal, shut-down or similar obligations, as well as provisions for legal risks and other provisions. The measurement of provisions requires an estimate and assumptions regarding the future amount required to redeem or settle the debt. This also applies to employee benefits after the end of the employment relationship. If a reliable estimate for the amount of an obligation cannot be made, it needs to be disclosed in the notes as a contingent liability. Discount rates must also be estimated in connection with provisions. There are no contingent liabilities at the reporting date.
- > Provisions for pensions and the related income/expenses are determined on the basis of actuarial calculations. The calculation of provisions for pensions (EUR 165 thousand; previous year: EUR 168 thousand) is based on actuarial assumptions (probability of death and disability, interest rate and other biometric assumptions).
- > Deferred taxes: The measurement and realisation of deferred tax assets on loss carryforwards requires a management estimate of the extent to which the benefit associated with the tax loss carryforward can be realised. The benefit of the tax loss carryforwards can only be realised to the extent these are approved by the fiscal authorities. To benefit from tax loss carryforwards in the future, a deferred tax asset is recognised in the consolidated financial statements for the tax loss carryforwards to be set off against tax loss carryforwards within a maximum of five years. Further benefits are not capitalised.
- > Current taxes: In the 2016 financial year, a market entry compensation and sales promotion agreement was concluded between e-Spirit Inc. and e-Spirit AG. This results in a reduction in the total tax burden of adesso AG (as the controlling entity of the group taxation relationship for income tax purposes with, among others, e-Spirit AG) as well as the adesso Group, as the income recognised in the USA was set off against tax loss carryforwards. In the 2018 financial year, e-Spirit AG made payments of EUR 712 thousand to e-Spirit

Inc. under this agreement, totalling EUR 4.2 million. The management of adesso AG assumes that the specified e-spirit AG expenses are fully tax deductible.

As of 31 December 2018, a tax audit for the years 2016 and 2017 is pending at adesso AG. It is currently not foreseeable when this audit will be completed. After consultation with tax advisers, adesso's management believes that uncertain positions in this ongoing process cannot be recognised.

- > Revenue: adesso provides services to its customers. The resulting revenue is recognised based on the progress made. This means that revenues are realised according to the percentage of completion. Estimating the percentage of completion is of particular importance with this method. Furthermore, it is necessary to estimate the entire project costs that will be incurred up to completion, the entire project income, the risks associated with the project and other key parameters.
- > Share-based payment expenses: To recognise personnel costs from share-based payments, the management has to estimate how many rights are expected to be vested and thus exercisable after the end of the vesting period.
- > adesso aggregates the operating segments into reportable segments for segment reporting purposes. Such aggregation requires an assessment as to whether the individually identified operating segments have similar economic characteristics and whether they also qualify as similar in terms of products or services and types of customers.

### III. Notes to the Consolidated Balance Sheet and Consolidated Income Statement

#### A. Information on the consolidated balance sheet

##### 1. Goodwill and intangible assets

Goodwill and intangible assets developed as follows:

2018   in EUR k	Goodwill	Customer contracts	Order backlog	Internally generated intangible assets	Other intangible assets	Total
Carrying amount 31/12/2017	42,823	6,097	49	237	7,566	56,772
Adjustments 01/01/2018 – IFRS 15	-	-	-	-	566	566
Gross value 01 January	45,219	8,576	3,534	499	18,790	76,618
Accumulated amortisation 01 January	2,395	2,479	3,485	262	10,658	19,279
Carrying amount 01 January	42,824	6,097	49	237	8,132	57,339
Currency translation differences	370	43	-	-	4	417
Company acquisitions	3,034	631	1,132	-	402	5,199
Additions	-	-	-	532	1,654	2,186
Amortisation	-	1,937	139	109	2,773	4,958
Disposals	-	-	-	-	-	-
Gross value 31 December	48,623	9,298	2,121	1,032	20,447	81,521
Accumulated amortisation 31 December	2,395	4,464	1,080	371	13,028	21,338
<b>CARRYING AMOUNT 31 DECEMBER</b>	<b>46,228</b>	<b>4,834</b>	<b>1,041</b>	<b>661</b>	<b>7,419</b>	<b>60,183</b>
2017   in EUR k	Goodwill	Customer contracts	Order backlog	Internally generated intangible assets	Other intangible assets	Total
Gross value 01 January	43,376	15,469	2,784	452	17,735	79,816
Accumulated amortisation 01 January	2,395	9,722	2,646	157	8,467	23,387
Carrying amount 01 January	40,981	5,747	138	295	9,268	56,429
Currency translation differences	-865	-137	-	-	-2	-1,004
Company acquisitions	2,708	1,935	848	-	-	5,491
Additions	-	-	-	47	336	383
Amortisation	-	1,448	936	105	2,037	4,526
Disposals	-	-	-	-	0	0
Gross value 31 December	45,219	8,576	3,534	499	18,062	75,889
Accumulated amortisation 31 December	2,395	2,479	3,485	262	10,496	19,117
<b>CARRYING AMOUNT 31 DECEMBER</b>	<b>42,823</b>	<b>6,097</b>	<b>49</b>	<b>237</b>	<b>7,566</b>	<b>56,772</b>

Intangible assets mainly comprise PSLife software acquired in 2015 (EUR 3,283 thousand; previous year: EUR 3,797 thousand) and customer contracts acquired as a result of business combinations (EUR 4,834 thousand; previous year: EUR 6,097 thousand). The average remaining useful life of customer contracts is 3.4 years. Amortisation includes impairment of EUR 391 thousand (previous year: EUR 0 thousand) on customer contracts acquired as a result of business combinations. These mainly result from impending insolvency and the resulting lower number of orders from a customer. A write-down of receivables was not recognised.

For impairment testing purposes pursuant to IAS 36, goodwill has to be assigned to the (groups of) cash generating units that benefit from the business combination. Under IAS 36.80, the highest allocation level in the company is the level on which goodwill is observed by management, and no higher than the level of operating segments before they are combined into reportable segments. At adesso, this corresponds to the legal units listed in the table (cash-generating units). The table also shows the parameters used in the impairment test. The interest rates stated for the previous year correspond to those after revision of the calculation of the interest rate at the end of 2017, in particular with regard to the selection of the necessary peer group to calculate a beta factor. This improves the comparability of the specified interest rates.

in EUR k	2018			2017		
	Carrying amount	Interest before tax in %	Gross margin in %	Carrying amount	Interest before tax in %	Gross margin in %
<b>IT SERVICES SEGMENT</b>						
adesso AG	7,371	8.51	4.2	7,371	8.12	3.26
adesso Austria GmbH	3,552	7.83	6.3	3,552	7.20	-1 bis 4.6
ARITHNEA GmbH	5,054	8.25	10.3	5,054	7.52	10.2
adesso Schweiz AG	9,959	7.54	12.6	9,588	6.97	11.7
Total IT Services segment	25,936	-	-	25,565	-	-
<b>IT SOLUTIONS SEGMENT</b>						
smarthouse adesso financial solutions GmbH	16,794	9.71	10.8 bis 11.2	16,794	9.28	11.8 bis 13.5
medgineering GmbH	464	11.14	-25.4 bis 69.6	464	9.04	-3 bis 76.9
adesso insurance solutions GmbH	3,034	10.43	8.2	-	-	-
Total IT Solutions segment	20,292	-	-	17,258	-	-
<b>TOTAL</b>	<b>46,228</b>	<b>-</b>	<b>-</b>	<b>42,823</b>	<b>-</b>	<b>-</b>

The increase in goodwill in the IT Solutions segment results from the acquisition of FABIS, which was merged into adesso insurance solutions GmbH in the second half of the year, and from the acquisition of the business operations of Collogia Trianova GmbH. The increase in goodwill in the IT Services segment results from currency translation effects at adesso Schweiz AG.

An impairment test for goodwill has to be performed on this basis at least once a year and whenever there are indications of impairment. Since 2017, the mandatory impairment test is performed every year by 30 June. If goodwill was acquired during the financial year, the cash-generating unit to which it was allocated is tested for impairment in the year of acquisition.

The realisable value of the operating segments is the value in use determined using the discounted cash flow method, based on after-tax cash flows. The management of adesso believes that the value in use of the

cash-generating units mainly responds to changes in the estimated revenue growth, the estimated gross margin and the discount rate.

Estimating the value in use and therefore also estimating cash flow is based on management's most recent operational planning. Detailed planning covers one to three years. Revenue growth is calculated separately for each operating segment. If it is apparent with one year of planning and an expected increase of incoming cash flows that an impairment will not have to be recognised, further detailed planning is omitted. The average revenue growth per segment is between -10.5% and 17.3%. At the upper end of the range of revenue forecasts is medgingering GmbH with 392%. Future sales revenues growth estimates are based on past sales revenues development, expected sales revenues growth in the operating segments and the future development of the market and the overall economy. As in the previous year, adesso expects cash flows to grow by 1% p.a. in the long-term. This growth rate does not exceed the expected long-term growth rate of the markets in which adesso operates. adesso uses external analyses as far as possible to estimate future cash flows. The gross margin ((EBT/(revenues less cost of materials)) results from the planning for individual segments. In addition to revenues, they also result from the expected expenses incurred by the segments. These are determined individually on the basis of historical performance and expected future developments.

adesso conducts its impairment test based on an after tax assessment. The interest rate before taxes is then calculated in accordance with the IFRS. This is the interest where the cash value of cash flows before taxes corresponds to the amount calculated according to an after tax assessment. This interest rate after taxes corresponds to the weighted average cost of capital determined using the capital asset pricing model. Key parameters for this calculation are the risk-free interest rate (1% to 1.25%, previous year: 1.24%), a beta factor derived separately for the IT Services and IT Solutions segments from a representative peer group (to illustrate the systematic risk), a market risk premium (6.5%; previous year: 6.3%; the difference between the expected yield of a reference market and the risk-free interest rate), the tax rate and the cost of debt. The parameters underlying the calculation of the weighted average cost of capital are based on external sources.

As part of a sensitivity analysis, adesso examined whether goodwill would have to be written down in the event of a possible change in key parameters of the impairment test. An increase in the weighted average cost of capital by 1 percentage point before taxes, 10% lower cash flows and a 1 percentage point lower gross margin (EBT/(revenues less cost of materials)) were assumed as possible changes. A change in variables would not result in an impairment loss, which would have to be recognised. Last year's report is provided below:

30/06/2017	Amount by which the recoverable amount exceeds the carrying amount (in EUR k)	Parameter, the possible change in which caused an impairment loss, plus the amount	Required change in the parameter to ensure that the recoverable amount equals the carrying amount
adesso Austria GmbH	483	Interest rate; 6.4 %	+0.7 percentage points
		Gross margin (3.0 % to 4.6 %)	-0.5 percentage points

## 2. Fixed assets

Property, plant and equipment developed as follows:

<i>in EUR k</i>	2018	2017
Gross value 01 January	22,543	17,099
Accumulated amortisation 01 January	13,815	10,432
Carrying amount 01 January	8,728	6,667
Currency translation differences	-22	-55
Additions	5,369	5,751
Company acquisitions	14	59
Disposals	66	27
Amortisation	4,139	3,667
Gross value 31 December	26,045	22,543
Accumulated amortisation 31 December	16,161	13,815
<b>CARRYING AMOUNT 31 DECEMBER</b>	<b>9,884</b>	<b>8,728</b>

Property, plant and equipment mainly comprises factory and office equipment as well as IT hardware and leasehold improvements.

## 3. Shareholdings recognised at equity

adesso does not hold any shares in significant joint ventures or associates. The carrying amount as well as the comprehensive income for the period were comprised as follows:

<i>in EUR k</i>	2018		2017	
	<i>Joint ventures</i>	<i>Associates</i>	<i>Joint ventures</i>	<i>Associates</i>
<b>CARRYING AMOUNT 31 DECEMBER</b>	<b>936</b>	<b>2,386</b>	<b>206</b>	<b>1,910</b>
Share in the comprehensive income for the period	50	-221	-43	220
Share in the other comprehensive income of the financial period	0	0	0	0
<b>SHARE IN THE TOTAL</b>	<b>50</b>	<b>-221</b>	<b>-43</b>	<b>220</b>

## 4. Non-current other financial assets

Non-current other financial assets consist of the following items:

<i>in EUR k</i>	2018	2017
Deposits	844	563
Loans	364	300
Employee loans	0	66
<b>CARRYING AMOUNT</b>	<b>1,208</b>	<b>929</b>



Non-current financial assets are not overdue.

#### 5. Receivables and liabilities from income taxes as well as deferred taxes

Deferred tax assets and liabilities were comprised as follows as at the balance sheet date:

<i>in EUR k</i>	<i>2018</i>	<i>2017</i>
<b>DEFERRED TAX ASSETS</b>		
Tangible and intangible assets	584	401
Receivables and other assets	21	
Provisions	907	752
Other debts	14	69
Loss carryforwards	848	662
<i>Total (of which current: EUR 1,074 thousand; previous year: EUR 806 thousand).</i>	<i>2,374</i>	<i>1,884</i>
Set-offs	-1,349	-974
<b>Carrying amount</b>	<b>1,025</b>	<b>910</b>
<b>DEFERRED TAX LIABILITIES</b>		
Intangible assets	2,039	2,353
Companies recognised at equity	8	9
Trade receivables	43	133
Receivables PoC	2,119	1,505
Provisions	380	352
<i>Subtotal (of which current: EUR 3,139 thousand; previous year: EUR 2,000 thousand)</i>	<i>4,589</i>	<i>4,352</i>
Set-offs	-1,349	-974
<b>Carrying amount</b>	<b>3,240</b>	<b>3,378</b>

Deferred taxes are measured based on the applicable future tax rates for the respective companies. The applicable overall tax rate is 32.8% (previous year: 32.8%). It is comprised of the corporate tax rate of 15.0%, the solidarity surcharge of 5.5% and the trade income tax rate of 16.98%. A tax rate of 21.3% was applied to the subsidiary adesso Schweiz AG, 25.0% to the subsidiary in Austria, 29.15% to ARITHNEA, Neubiberg, Germany, 22% to the subsidiary in Turkey, 10% to the company in Bulgaria and 25% to the companies in the USA and Spain. Deferred tax assets and liabilities are offset in accordance with IAS 12.74.

Deferred tax assets on tax loss carryforwards are capitalised based on medium-term planning over a period of one year of operation. The planning results are considered sustainable unless material reasons speak against that. Deferred tax assets on tax loss carryforwards are recognised for the benefit that can most likely be realised within the next five years. The future benefits are not sufficiently certain for further capitalisation. Recognition of deferred tax assets on tax loss carryforwards at adesso Austria (EUR 453 thousand, previous year: EUR 382 thousand), adesso Transformer Österreich (EUR 107 thousand, previous year: EUR 30 thousand), alleato assekuranzmakler (EUR 73 thousand) and medgineering GmbH (EUR 80 thousand, previous year EUR 34 thousand) based on the future development of the companies, which is considered sustainable.

The tax loss carryforwards can be carried forward perpetually. No deferred taxes were recognised on the tax loss carryforwards of companies based in Germany in the amount of EUR 122 thousand (previous year: EUR 271 thousand) and the tax loss carryforwards of companies based outside Germany of EUR 1,873 thousand (previous year: EUR 2,125 thousand).

The deferred tax assets on loss carryforwards changed as follows:

<i>in EUR k</i>	2018	2017
01 January	662	552
Addition of business combinations	0	22
Utilisation	-171	-276
Addition for previous years	67	315
Addition for current tax losses	289	68
Currency difference	1	-19
<b>31.12.</b>	<b>848</b>	<b>662</b>

In accordance with IAS 12.39, a deferred tax liability of EUR 216 thousand (previous year: EUR 149 thousand) for temporary differences of EUR 13,160 thousand (previous year: EUR 9,084 thousand) in connection with shares in subsidiaries was not recognised on 31 December 2018 (outside basis differences), as adesso's management can control their reversal, which is not planned in the foreseeable future.

Income tax receivables (EUR 1,836 thousand, previous year: EUR 1,453 thousand) and income tax liabilities (EUR 7,719 thousand, previous year: EUR 4,201 thousand) are due in full within twelve months.

#### 6. Cash at bank and in hand

Cash in hand and at bank is EUR 45,912 thousand (previous year: EUR 46,497 thousand).

#### 7. Trade receivables

Trade receivables in the amount of EUR 80,253 thousand are all due within one year. The following table provides information on trade receivables for the previous year. The new information on impairment of financial assets to be disclosed as a result of the adoption of IFRS 9 and the related amendments to IFRS 7 is included in Section VI.B..

The impairment of trade receivables at risk of default developed as follows in 2017:

<i>in EUR k</i>	2017
As at 01 January	181
Utilisation	16
Reversal	1
Addition	161
<b>AS AT 31 DECEMBER</b>	<b>325</b>

The following table shows the maturity structure of unimpaired trade receivables at the end of 2017:

2017   in EUR k	Carrying amount	Neither impaired, nor overdue	Not impaired and overdue as follows				
			Not more than 3 months	More than 3 months and not more than 6 months	More than 6 months and not more than 1 year	More than 1 year	Value-adjusted
Trade receivables	61,818	48,078	12,809	353	227	351	0

#### 8. Contract assets

Contract assets amounted to EUR 12,946 thousand (previous year: PoC receivables: EUR 19,641 thousand). Information on recognised impairments is provided in Section VI.B.

#### 9. Current financial assets

Current financial assets include:

in EUR k	2018	2017
Deposits	250	258
Employee loans	154	56
<b>CARRYING AMOUNT</b>	<b>404</b>	<b>314</b>

#### 10. Other current assets

Other current assets comprise:

in EUR k	2018	2017
Accruals	3,442	2,728
Receivables from input tax surpluses	1,237	561
Receivables from employees	45	72
Miscellaneous	151	273
<b>CARRYING AMOUNT</b>	<b>4,875</b>	<b>3,634</b>

#### 11. Equity

##### Subscribed capital

The subscribed capital of adesso AG, Dortmund, Germany, amounted to EUR 6,176,093 (previous year: EUR 6,174,203). It is divided into 6,176,093 (previous year: 6,174,203) bearer shares (no-par value shares). The nominal value per share is EUR 1. The EUR 1,890 increase in subscribed capital is due to the issue of 1,890 shares as a result of an option conversion under the employee stock option programme. This change was entered into the commercial register on 08 February 2019. The issued shares are fully paid up.

### *Authorised capital*

The authorised capital 2013 (EUR 2,538,456) expired on 03 June 2018. The new authorised capital 2018 (EUR 2,469,681) approved by the Annual General Meeting on 5 June 2018 remained unchanged at EUR 2,469,681 as at 31 December 2018.

The Executive Board is authorised to increase the share capital until 04 June 2023 with the consent of the Supervisory Board in the amount of up to EUR 2,469,681 by issuing 2,469,681 new no-par bearer shares, on one or more occasions, in exchange for cash contributions and/or contributions in kind (authorised capital 2018). Shareholders are generally entitled to subscription rights. The new shares may be assumed by one or more banks with the obligation to offer subscription rights to the shareholders. In certain individual cases, the Executive Board, with the consent of the Supervisory Board, has the right to exclude shareholder subscription rights one or more times.

The Executive Board also has the right to establish additional details of the capital increase and its realisation with the consent of the Supervisory Board. The Supervisory Board is authorised to amend Article 3 of the Articles of Association after the increase in share capital is realised in full or in part according to the respective utilisation of the authorised capital and, if the authorised capital is not utilised in whole or in part by 04 June 2023, after the end of the authorisation period.

### *Conditional capital*

As at 31 December 2018, conditional capital amounted to EUR 508,729 (conditional capital 2009 and 2015), of which EUR 8,729 was no longer exercisable as at 31 December 2018, and the exercisable conditional capital, therefore, amounts to EUR 500,000. The conditional capital is intended to exercise subscription rights granted to employees and members of the Executive Board of affiliated companies under the share option plans. A detailed overview of the composition and development of equity in the consolidated financial statements is provided in the consolidated statement of changes in equity.

### *Other reserves*

The capital reserves primarily include all premiums received from the issue of shares. The differences between the price for shares and the proportional net assets when acquiring non-controlling amounts or disposing of shares in subsidiaries, if adesso AG does not lose the controlling position with this subsidiary as a result of such a transaction, are also recognised. The retained annual results as well as actuarial gains and losses from performance-based retirement plans are recorded in other reserves. The other reserves reported in the consolidated financial statements in accordance with IFRS only provide a limited indication of the possibility of future distributions. With regard to the possibility of a future distribution as well as any existing restrictions on distribution, reference is made to the financial statements of adesso AG. The reserve for currency conversion contains differences from the conversion of the financial statements of subsidiaries to euros, whose functional currency does not correspond to the functional currency of adesso AG. Non-controlling interests contain the shares of the adesso Group's net assets attributable to the non-controlling shareholders.

## 12. Share-based payment

### *a) Equity-settled share-based payment*

#### Share option plans

No options could be issued from the "conditional capital 2009" in the financial year under review. The exercise price of the last 1,890 options exercised from the "conditional capital 2009" in 2018 was EUR 7.31.

In the financial year under review, 13,000 options from the "conditional capital 2015" were issued with an average fair value of EUR 10.72 (previous year: EUR 10.52). The vesting period of these options is 48 months. The maximum total term is 84 months. The options can be exercised, if the beneficiary has worked for adesso for 48 months and adesso AG's share price at the time the option is exercised is 10% over the exercise price. The exercise price corresponds to the average price of the adesso share in the ten trading days prior to the commitment of the option. The exercise prices for the outstanding options from the "conditional capital 2015"

range between EUR 55.20 and EUR 62.10 (previous year: EUR 51.14 and EUR 55.07). The average weighted residual term of the outstanding options is 5.4 years (previous year: 5.8 years). The outstanding options have a total term of seven years. The number of outstanding options developed as follows:

	2018		2017	
	Number	Average exercise price per option in EUR	Number	Average exercise price per option in EUR
As at 01 January	31,390	39.55	20,170	17.11
Committed	13,000	56.74	18,000	52.70
Exercised	-1,890	7.31	-6,780	7.70
Expiry date	-4,000	47.25		
As at 31 December	38,500	46.13	31,390	39.55
Vested and exercisable on 31 December.	0		1,890	7.31

The issued options were valued using the trinomial model. The valuation was based on the following factors:

	2018	2017
Average share price (in EUR)	57.00	52.60
Average exercise price (in EUR)	56.15	52.70
Average expected volatility (in %)	33.00	33.00
Maximum term of the options (in years)	7.00	7.00
Expected dividend yields (in %)	1.00	1.00
Average risk-free interest rate over the contractual option term (in %)	0.09	-0.06

The expected volatility corresponds to the “long run forecast” based on the GARCH model (generalised autoregressive conditional heteroscedasticity). The valuation assumes that the options are exercised as soon as the market price of the shares is 10 % above the exercise price, or the options are “in the money” at the end of the term.

An expense of EUR 74 thousand (previous year: EUR 45 thousand) for the share option programme was recognised in the financial year. The weighted average market price of the adesso share was EUR 56.50 (previous year: EUR 54.89) when the options were exercised.

#### *b) Cash-settled share-based payment Phantom share programme*

A phantom share programme was adopted in the 2009 financial year. The valuation of the resulting liability is based on the market value of the shares of adesso AG as of 31 December 2018. Redemption of the phantom shares in exchange for payment from the company is normally possible no earlier than eight years (vesting period) after the start of the commitment, whereby the holder of the phantom shares may also return them at a later point in time. adesso AG has the right to pay the due amount in three annual tranches. The amount payable is accumulated during this period in profit or loss over the vesting period. The phantom shares are used to make payments to the holders of the phantom shares to secure their value, which are consistent with the approved dividends per share. These payments are expensed. During the financial year, 57,145 phantom

shares were returned against payment of EUR 2,857 thousand. Expenses from the phantom share programme in the amount of EUR 656 thousand (previous year: EUR 1,182 thousand) were recognised in the financial year. Total provisions of EUR 5,410 thousand (previous year: EUR 7,611 thousand) resulting from 152,221 (previous year: 207,942) phantom shares have been recognised. In the 2019 financial year, provisions in the amount of EUR 576 thousand from the phantom share programme are classified as current. Whether a payment is due depends on whether the holder of the phantom shares returns them to the company. In the financial years 2020 to 2023, EUR 4,120 thousand will be payable from the phantom share programme and a further EUR 713 thousand will be payable thereafter. Earned claims amounting to EUR 828 thousand will be reported as at the reporting date.

#### Virtual stock options plan

At the end of 2018, as in the previous year, 3,885 virtual stock options were issued. The corresponding provision is fully vested at EUR 168 thousand. The difference of EUR 17 thousand to the carrying amount of the previous year (EUR 151 thousand) was recognised as an expense. No further virtual stock options will be issued.

In the financial year under review, the total expenses arising from share-based payments amounted to EUR 747 thousand (previous year: EUR 1,344 thousand).

### 13. Financial liabilities

Financial liabilities include the following items with the indicated maturities:

in EUR k	2018				2017			
	Carrying amount	Residual term up to 1 year	Residual term 1 to 5 years	Residual term > 5 years	Carrying amount	Residual term up to 1 year	Residual term 1 to 5 years	Residual term > 5 years
Loans	45,943	13,604	23,433	8,906	44,770	13,405	22,193	9,172
Other financial liabilities	2,165	1,404	761	0	1,385	472	913	0
<b>TOTAL</b>	<b>48,108</b>	<b>15,008</b>	<b>24,194</b>	<b>8,906</b>	<b>46,155</b>	<b>13,877</b>	<b>23,106</b>	<b>9,172</b>

Liabilities from loans result from loans taken out at fixed interest rates to acquire subsidiaries. The effective interest rate depends on the type of agreement as well as the term, and it ranges between 1.00% and 2.31%. Loans totalling EUR 6,944 thousand (previous year: EUR 6,781 thousand) were repaid as scheduled in the reporting year. Other financial liabilities mainly include accumulated liabilities relating to the acquisition of subsidiaries and recognised in the profit or loss in the amount of EUR 1,749 thousand (previous year: EUR 646 thousand) and a conditional purchase price obligation (EUR 116 thousand) measured at fair value.

Financial liabilities can be reconciled as follows:

in EUR k	2018	2017
<b>FINANCIAL LIABILITIES AS AT 01 JANUARY</b>	<b>46,155</b>	48,098
Repayments	-7,437	-8,519
Addition of soccerwatch.tv GmbH	-	1,074
Additions arising from business combinations	116	310
Other additions	1,157	699
Use of loans	7,700	5,500
Changes recognised in profit or loss	-	-74
Currency translation differences	417	-933
<b>TOTAL LIABILITIES AS AT 31 DECEMBER</b>	<b>48,108</b>	<b>46,155</b>

#### 14. Trade payables and other liabilities

Trade payables are all due within twelve months. Of the contract liabilities of EUR 6,478 thousand at the beginning of the year, EUR 5,929 thousand were recognised as revenue in the financial year under review.

#### 15. Provisions

Provisions are comprised as follows:

<i>in EUR k</i>	01/01/ 2018	Addition	Company acqui- sitions/ disposals	Utili- sation	Reclassi- fication	Currency difference	Com- pounding	Reversal	31/12/ 2018
Warranty	1,320	696	-	427	-	5	-	161	1,433
Other provisions	5,656	5,187	97	5,383	2,092	6	-	152	7,503
<b>TOTAL, CURRENT</b>	<b>6,976</b>	<b>5,883</b>	<b>97</b>	<b>5,810</b>	<b>2,092</b>	<b>11</b>	<b>-</b>	<b>313</b>	<b>8,936</b>
Warranty	783	111	-	-	-	-	3	-	897
Other provisions	6,708	424	-	-	-2,092	-	2	8	5,034
<b>TOTAL NON-CURRENT</b>	<b>7,491</b>	<b>535</b>	<b>-</b>	<b>-</b>	<b>-2,092</b>	<b>-</b>	<b>5</b>	<b>8</b>	<b>5,931</b>

Other non-current provisions include provisions for the phantom share programme (EUR 4,834 thousand; previous year: EUR 6,464 thousand). The amount ultimately paid and therefore the change in provisions for the phantom share programme is closely related to the change in the price of adesso AG shares. For future payment dates, see no. 12. The warranty provisions have a maximum term of two years. No significant effect was recorded from the amendment of the applicable discount rates.

Other current provisions mainly consist of provisions from the phantom share programme (EUR 576 thousand, previous year: EUR 1,147 thousand), operating provisions (bonuses, discounts, etc.) (EUR 3,603 thousand, previous year: EUR 2,731 thousand). The remaining provisions are primarily comprised of outstanding obligations (Chamber of Industry and Commerce, Employer's Liability Insurance Association contributions, insurance premiums, taxation of corporate events and similar).

#### 16. Other liabilities

Other current liabilities are due within twelve months. They mainly consist of amounts payable to personnel (under variable salary agreements, premiums and obligations for accumulated holiday time) in the amount of EUR 35,322 thousand (previous year: EUR 27,165 thousand), VAT payable of EUR 5,461 thousand (previous year: EUR 5,842 thousand), payroll taxes payable of EUR 6,691 thousand (previous year: EUR 5,352 thousand). Deferred income for maintenance and hosting for the following financial year, which was reported under other liabilities in the previous year, is reported under contractual liabilities from 1 January 2018 in accordance with IFRS 15.

#### 17. Pensions and similar liabilities

As at 31/12/2018, adesso has provisions for pensions for two former employees. They cover claims for (advanced) old age pension, disability pension and orphan's pension. Interest expense from compounding the obligation is included in the interest result. The pension obligations are recognised on the basis of an actuarial analysis prepared by an external expert. Plan assets are not endowed by adesso. The carrying amount of the pension provision thus corresponds to the so-called defined benefit obligation.



Provisions for pensions developed as follows:

<i>in EUR k</i>	
<b>CARRYING AMOUNT AS AT 01/01/2017</b>	<b>186</b>
Interest expenses	1
Payments	-14
Actuarial gain	-5
of which due to changes in financial parameters	-10
of which due to experience adjustments	5
<b>CARRYING AMOUNT AS AT 31/12/2017</b>	<b>168</b>
Interest expenses	2
Payments	-14
Actuarial loss	9
of which due to changes in financial parameters	0
of which due to changes in demographic assumptions	3
of which due to experience adjustments	6
<b>CARRYING AMOUNT AS AT 31/12/2018</b>	<b>165</b>

The calculation of provisions for pensions is based on the following parameters:

<i>in %</i>	2018	2017
Interest rate	1.53	1.51
Rate of pension progression	2.00	2.00

Future medical care is not part of the commitment.

The amount of provisions for pensions depends on the calculation of the underlying parameters. The following table shows the sensitivity of pension provisions to changes in parameters.

2018   <i>in EUR k</i>	Change	Increase in parameter	Decline in parameter
Interest rate	+/- 0.5 p. p.	-6	7
Rate of pension progression	+/- 0.25 p. p.	3	-3
Residual life expectancy	+/- 1 year	18	-18
2017   <i>in EUR k</i>	Change	Increase in parameter	Decline in parameter
Interest rate	+/- 0.5 p. p.	-6	7
Rate of pension progression	+/- 0.25 p. p.	3	-3
Residual life expectancy	+/- 1 year	17	-18

A sensitivity analysis shows the change in the provision according to a change in a specific parameter. The same method is used for calculating the carrying amount of provisions for pensions. It should be noted that a doubling in the change of a parameter for example, does not automatically result in a doubling of the effect of the carrying amount of the provisions for pensions. If several parameters change, this actual change in provisions for pensions does not automatically correspond to the total of the changes stated.

The expected payments from provisions for pensions are EUR 15 thousand in 2019, EUR 55 thousand in 2020 through 2023 and a total of EUR 117 thousand from 2024 onwards. The weighted average residual term of the defined benefit obligations is 7.7 years.

For amounts recognised from statutory pension schemes under defined contribution plans, see no. 22.

## B. Information on the consolidated income statement

The consolidated income statement has been prepared using the nature of expense method. An overview of the earnings structures by segments is provided in segment reporting.

### 18. Revenue

Revenue comprises service revenues and licence sales.

<i>in EUR k</i>	2018	2017
Services	358,030	306,350
<i>of which maintenance/hosting revenues</i>	23,594	18,941
Licence revenue	17,440	15,240
<b>TOTAL</b>	<b>375,470</b>	<b>321,590</b>

Revenues recognised in 2018 include amounts of EUR 5,929 thousand that were included in contract liabilities as of 1 January 2018.

The following table shows the transaction price (order backlog) attributable to unfulfilled performance obligations as of 31 December 2018 and when this is expected to be recognised as revenue. Contracts with an original term of up to one year and time & material projects billable monthly in accordance with the simplified approach set out in IFRS 15 are not taken into account:

<i>in EUR k</i>	2018
Order backlog as at 31 December from contracts with an original term of more than one year	29,888
expected to be recognised in 2019	20,411
expected to be recognised in 2020	9,040
expected to be recognised in 2021 and later	437

### 19. Other operating income

Other operating income is comprised as follows:

<i>in EUR k</i>	2018	2017
Income from translation differences	1,556	833
Income from derecognised receivables	410	0
Grants for expenses	408	303
Income from the reversal of provisions	321	597
Miscellaneous	2,386	1,402
<b>TOTAL</b>	<b>5,081</b>	<b>3,135</b>

The reversal of provisions results largely from a number of individual items in the course of ordinary business activities.

### 20. Changes in inventories and own work capitalised

Changes in inventories include the production costs of work in progress. Under IFRS 15, revenues are not recorded over a period of time, but, as the performance has an alternative use to adesso in this case, at a point in time in the future at which the relevant performance obligation is fulfilled. Own work capitalised includes the cost of self-produced software.

### 21. Cost of materials

<i>in EUR k</i>	2018	2017
Expenses for purchased merchandise	1,882	1,356
Cost of purchased services	41,414	36,034
<b>TOTAL</b>	<b>43,296</b>	<b>37,390</b>

### 22. Personnel costs

Personnel costs are comprised as follows:

<i>in EUR k</i>	2018	2017
Wages and salaries	206,335	177,145
Social security contributions	36,717	29,121
of which pension insurance or pension scheme (defined contribution)	16,674	14,426
<b>TOTAL</b>	<b>243,052</b>	<b>206,266</b>

On average, the adesso Group had 2,946 FTE (full-time equivalents) in 2018 (previous year: 2,445 FTE), of which 2,804 were salaried employees (previous year: 2,329 salaried employees).

### 23. Other operational expenses

An overview of the other operating expenses is provided in the following table:

<i>in EUR k</i>	2018	2017
Travel expenses	16,010	14,063
Business premises expenses	9,537	8,259
Motor vehicle expenses	6,868	5,920
Personnel recruitment	5,087	3,552
Marketing	4,155	4,083
Further training	2,570	2,628
Telephone/Internet costs	2,364	2,341
Expenses for licences and concessions	1,622	1,595
Insurance policies	400	398
Other	15,372	12,899
<b>TOTAL</b>	<b>63,985</b>	<b>55,738</b>

The expenses listed in the table under “Other” include a range of different expenses. Expenses from foreign currency differences amounting to EUR 1,186 thousand (previous year: EUR 1,272 thousand) are also included in these expenses. The expense recognised under minimum lease payments under operating leases amounted to EUR 10.9 million (previous year: EUR 9.7 million).

#### 24. Depreciation and amortisation

In the financial year under review, depreciation and amortisation of non-current assets amounted to EUR 8,706 thousand (previous year: EUR 8,193 thousand). Of this amount, EUR 2,164 thousand (previous year: 2,853 thousand) is accounted for by the amortisation of intangible assets capitalised in the course of business combinations. Amortisation includes write-downs of EUR 391 thousand (previous year: EUR 0 thousand) on customer lists capitalised in connection with acquisitions.

#### 25. Result from investments measured using the equity method and financial result

Income from participations includes pro-rata profits from shares recognised using the equity method. Total interest income for the reporting year is EUR 131 thousand (previous year: EUR 22 thousand) with EUR 64 thousand affecting payment; total interest expenses are EUR 742 thousand (previous year: EUR 754 thousand) with EUR 571 thousand affecting payment.

#### 26. Taxes on income

Income taxes are comprised as follows:

<i>in EUR k</i>	2018	2017
Current tax expense	8,311	5,826
Deferred tax income	-444	-526
<b>TOTAL</b>	<b>7,867</b>	<b>5,300</b>

Current taxes include a tax expense from adjustments in previous years of EUR 603 thousand (previous year: EUR 11 thousand). The benefit from utilising the tax loss carryforwards, for which deferred taxes were not recognised at the end of the previous financial year, is EUR 0 thousand (previous year: EUR 163 thousand). The deferred tax revenue from the change in the temporary difference amounts to EUR 259 thousand (previous year: EUR 419 thousand).

The table below shows the reconciliation of the theoretically expected tax expense to actual reported income tax expense pursuant to IAS 12.81 (c):

<i>in EUR k</i>	2018	2017
Consolidated earnings before income taxes	21,202	16,631
<b>EXPECTED TAX EXPENSE BASED ON ADESSO AG'S TAX RATE OF 32.8 %</b>	<b>6,954</b>	<b>5,455</b>
Effect of different tax rates	-539	-516
Non-deductible expenses	1,307	866
Tax-free income and expenses only recognised for tax purposes	-431	-107
Capitalisation of deferred taxes not recognised in previous years	-117	-315
Utilisation of loss carryforwards for which deferred taxes were not recognised in the previous year	0	-163
Non-capitalised deferred taxes on tax losses in the current financial year	15	31
Other taxes from the previous year	603	11
Miscellaneous	75	38
<b>TAX EXPENSE REPORTED</b>	<b>7,867</b>	<b>5,300</b>

Deferred tax revenue of EUR 2 thousand (previous year: tax expense of EUR 2 thousand) was included in other comprehensive income in the financial year.

## 27. Earnings per share

	2018	2017
Consolidated earnings attributable to shareholders of adesso AG (in EUR k)	13,382	11,025
Average number of shares outstanding in the financial year	6,175,143	6,170,888
Effect of dilutive options	5,971	7,520
Average number of shares outstanding, including the dilution effect of outstanding options	6,181,114	6,178,408
Undiluted earnings per share (in EUR)	2.17	1.79
Diluted earnings per share (in EUR)	2.16	1.78

## IV. Information on the Consolidated Cash Flow Statement

In accordance with IAS 7, the cash flow statement shows the change in cash and cash equivalents of the Group during the reporting year as a result of inflows and outflows. Cash and cash equivalents are comprised of cash on hand and at bank. According to IAS 7 (Statement of Cash Flows), the cash flows are classified into operating, investment and financing activities.

In the 2018 financial year, cash inflows from operating activities were EUR 3,672 thousand lower than in the previous year and amounted to EUR 16,593 thousand. The higher cash outflow from investing activities was mainly due to higher payments for companies measured using the equity method (EUR 2,007 thousand, previous year: EUR 578 thousand) and acquisition of intangible assets (EUR 2,186 thousand, previous year: EUR 380 thousand). The lower cash outflow from financing activities is mainly attributable to the EUR 2.2 million increase in borrowings.

Significant non-cash transactions involve the increase in liabilities from the acquisition of SP Integration GmbH, UnitCon GmbH and medgineering GmbH, recognised through profit and loss, totalling EUR 1,157 thousand (previous year: EUR 699 thousand).

## V. Information on Segment Reporting

adesso's consolidated balance sheet and consolidated income statement present data in aggregate form. In order to better identify the risks and opportunities of the adesso business activities, information on the basis of reportable segments are disclosed in segment reporting. The first step is to determine the operating segments. According to IFRS 8, a business area is an operating segment if it is engaged in business activities that generate income and expenses, the operating earnings are monitored regularly by a person in charge and separate financial information is available.

These criteria are met by adesso AG and its subsidiaries. For segment reporting purposes, similar operating segments based on similar products and services are combined in a second step into the reportable segments IT Services and IT Solutions. InQventures GmbH, which supports start-ups operating in adesso's core industries, is a separate, non-reportable operating segment.

The IT Services segment focuses on industry-specific, individual IT consulting as well as software development. Consulting develops concepts for the optimum and efficient support of business processes through IT systems.

The IT Solutions segment distributes standard software products and industry-specific or industry-neutral solutions.

The individual companies are assigned to these segments as follows:

<i>IT-Services</i>	<i>IT-Solutions</i>
adesso AG	adesso insurance solutions GmbH*
adesso as a service GmbH	adesso mobile solutions GmbH
adesso Austria GmbH	e-Spirit AG
adesso Bulgaria EOOD	e-Spirit Inc.
adesso Schweiz AG	e-Spirit Schweiz AG
adesso Spain Consultoria y Soluciones Tecnologicas S.L.	e-Spirit UK Ltd.
adesso Transformer Deutschland GmbH (vormals: adesso it+ GmbH)	gativ GmbH
adesso Transformer GmbH	medgineering GmbH
adesso Turkey Bilgi Teknolojileri Ltd. Şti.	smarthouse adesso financial solutions GmbH
alleato assekuranzmakler GmbH	
ARITHNEA GmbH	
A3A Strategy Consulting GmbH	
nhs Informatik GmbH	
percision services GmbH	
SunnyTrail Consulting S.L.	

\* In the financial year under review, the FABIS companies acquired in 2018 merged with adesso insurance solutions GmbH.

IFRS 8 consistently implements the so-called management approach for segment reporting. That means that the same information reported for internal purposes is disclosed externally. As figures are reported in accordance with local accounting regulations, segment reporting also includes figures in accordance with these local accounting regulations. Exceptions include information on revenues from external customers based on the customer's registered office and information on non-current assets based on the location of the assets. These disclosures must be based on the IFRS figures.

The published segment reporting shows the data presented to the leading decision makers in the course of internal reporting. The reported figures are determined in accordance with respective local laws. The amortisation of goodwill from mergers in non-consolidated financial statements is eliminated for the purpose of internal reporting. Accordingly, this is the same in segment reporting.

Non-consolidated figures are reported for each operating segment. This means, for example, that revenues between the individual companies are not eliminated in segment reporting. HGB accounting differs from IFRS accounting in significant points. Material differences for the purpose of segment reporting are discussed below:

- > Revenues for services are generally recognised according to the completed contract method under HGB. This means that revenue is only recognised when the contract is 100% completed. Under IFRS, revenues for services and the corresponding expenses are recognised based on the percentage of completion on the reporting date. This results in a deviation in the allocation of earnings from service agreements. For clarification, it should be noted that this does not mean that revenues reported in accordance with IFRS are generally higher than revenues reported in accordance with HGB.
- > Production costs according to IFRS encompass the full production-related costs. Other expenses, such as general administrative costs, can be included in production costs according to HGB but not according to IFRS.
- > Impairment of receivables is to be recognised in accordance with HGB. Under IFRS, impairment of receivables is to be recognised in the amount of the weighted, expected discounted amount.



- > According to IFRS, liabilities are not measured at the redemption amount but at the fair value of the consideration received less incidental costs. They are subsequently valued using the effective interest method.
- > According to IFRS 2, expenses from equity-settled share-based remuneration are recognised through profit or loss against the capital reserve over the vesting period.

The total figures reported for the segments differ from the figures reported in the group. Differences result primarily from accounting differences between local laws and IFRS, from consolidation measures and from amounts not allocated to the reportable segments. The column “Reconciliation local laws/IFRS” included in the segment reporting contains the accounting differences between IFRS and the respective local law. The column “Consolidation/other” contains the other differences.

Transactions between the operating segments are settled at market prices.

#### SEGMENT REPORTING 2018

<i>in EUR k</i>	<i>IT Services</i>	<i>IT Solutions</i>	<i>Reconciliation local laws/ IFRS</i>	<i>Consolidation/ other</i>	<i>Group</i>
Revenue from external clients					
Services	300,451	50,189	7,575	-185	358,030
Licences	1,282	16,158	-	-	17,440
Revenue from other operating segments	48,074	11,581	-	-59,655	-
<b>TOTAL REVENUE</b>	<b>349,807</b>	<b>77,928</b>	<b>7,575</b>	<b>-59,840</b>	<b>375,470</b>
Changes in inventories	5,544	1,347	-6,560	-	331
Own work capitalised	-	-	415	117	532
Other operating income	11,314	3,262	-5,474	-4,021	5,081
Cost of materials	-86,841	-15,733	982	58,296	-43,296
Personnel costs	-203,447	-47,408	8,008	-205	-243,052
Other operational expenses	-51,754	-13,530	-2,484	3,784	-63,985
Other taxes	-30	-1	31	-	-
<b>EBITDA</b>	<b>24,592</b>	<b>5,865</b>	<b>2,493</b>	<b>-1,868</b>	<b>31,081</b>
Depreciation and amortisation	-4,389	-1,749	-217	-2,742	-9,097
Amortisation of goodwill	-3,045	-476	3,521	-	-
<b>EBIT</b>	<b>17,158</b>	<b>3,640</b>	<b>5,796</b>	<b>-4,611</b>	<b>21,984</b>
Income from participations	4,999	-912	-11	-4,247	-171
Interest income	121	133	536	-659	131
Interest expense	-1,336	-53	0	647	-742
Financial results	-1,215	80	536	-12	-611
<b>EARNINGS BEFORE TAXES (EBT)</b>	<b>20,942</b>	<b>2,808</b>	<b>6,321</b>	<b>-8,869</b>	<b>21,202</b>
Amortisation of goodwill	3,045	476	-3,521	-	-
EBT before amortisation of goodwill	23,987	3,284	2,800	-8,869	21,202

Amortisation for the year 2018 includes write-downs of EUR 391 thousand (previous year: EUR 0 thousand) on customer lists capitalised. Of this amount, EUR 105 thousand is attributable to the IT Solutions segment and EUR 286 thousand to the IT Services segment.

## SEGMENT REPORTING 2017

<i>in EUR k</i>	<i>IT Services</i>	<i>IT Solutions</i>	<i>Reconciliation HGB/ IFRS</i>	<i>Consolidation</i>	<i>Group</i>
Revenue from external clients	252,534	48,832	4,937	44	
Services					306,348
Licences	588	14,654	-	-	15,242
Revenue from other operating segments	37,414	9,341	-	-46,755	-
<b>TOTAL REVENUE</b>	<b>290,537</b>	<b>72,827</b>	<b>4,937</b>	<b>-46,711</b>	<b>321,590</b>
Changes in inventories	3,286	-1,192	-2,094	-	-
Own work capitalised	-	-	-	47	47
Other operating income	10,120	3,776	-6,270	-4,491	3,135
Cost of materials	-75,618	-13,690	-558	46,519	-43,347
Personnel costs	-165,058	-40,244	5,491	-498	-200,309
Other operational expenses	-46,241	-13,260	-297	4,060	-55,738
Other taxes	-17	-2	19	-	-
<b>EBITDA</b>	<b>17,008</b>	<b>8,215</b>	<b>1,229</b>	<b>-1,074</b>	<b>25,378</b>
Depreciation and amortisation	-3,762	-1,381	150	-3,200	-8,193
Amortisation of goodwill	-3,087	-265	3,352	-	-
<b>EBIT</b>	<b>10,159</b>	<b>6,568</b>	<b>4,732</b>	<b>-4,275</b>	<b>17,185</b>
Income from participations	6,089	-1,676	-601	-3,634	178
Interest income	12	139	601	-730	22
Interest expense	-1,447	-37	12	718	-754
Financial results	-1,434	101	613	-12	-732
<b>EARNINGS BEFORE TAXES (EBT)</b>	<b>14,814</b>	<b>4,993</b>	<b>4,745</b>	<b>-7,921</b>	<b>16,631</b>
Amortisation of goodwill	3,087	265	-3,352	-	-
EBT before amortisation of goodwill	17,901	5,259	1,393	-7,921	16,631

The following table shows the breakdown of external revenues by domicile of the customer and non-current assets by domicile of the assets by geographical segments as required by IFRS 8.

<i>in EUR k</i>	<i>External revenues by domicile of the customer</i>		<i>Non-current assets</i>	
	<i>2018</i>	<i>2017</i>	<i>2018</i>	<i>2017</i>
Germany	308,566	259,990	54,182	50,244
of which goodwill			32,717	29,683
Austria	7,106	6,741	3,654	3,650
of which goodwill			3,552	3,552
Switzerland	48,366	43,008	11,684	11,438
of which goodwill			9,959	9,588
Other	11,432	11,851	547	168

More than 10% of revenues generated by adesso were not applicable to any one customer in the financial years 2018 and 2017.

## VI. Supplementary Information

### A. Other financial obligations

Other financial obligations are comprised as follows:

<i>2018 in EUR k</i>	<i>Total amount</i>	<i>of which due in year 1</i>	<i>in year 2 to 5</i>	<i>after 5 years</i>
Space and equipment rental	77,808	9,289	28,593	39,926
Other leases	6,774	3,232	3,541	1
Other long-term contracts	19,914	4,163	8,418	7,333
Insurance policies	301	300	1	0
<b>TOTAL</b>	<b>104,797</b>	<b>16,984</b>	<b>40,553</b>	<b>47,260</b>

<i>2017 in EUR k</i>	<i>Total amount</i>	<i>of which due in year 1</i>	<i>in year 2 to 5</i>	<i>after 5 years</i>
Space and equipment rental	50,004	6,234	20,889	22,881
Other leases	5,528	2,417	3,111	-
Other long-term contracts	4,270	2,463	1,807	-
Insurance policies	870	700	168	2
<b>TOTAL</b>	<b>60,672</b>	<b>11,814</b>	<b>25,975</b>	<b>22,883</b>

The increase in other financial obligations from leasing space and equipment results primarily from a long-term lease concluded by adesso AG. adesso has leased the main administration building for 15 years. The company has an option right to extend the lease by two additional terms of five years at the respective current market conditions. In addition, some lease extension options have been reassessed as part of changes in accounting treatment of leases under IFRS 16.

There are no significant further financial obligations such as order commitments on the reporting date.

There were no reportable contingent liabilities as at the end of the 2018 financial year.

## B. Financial instrument disclosures

As in the previous year, financial assets held by adesso will be valued at amortised cost as at the balance sheet date (“Amortised cost” category). In the previous year, they were allocated to the “Receivables and loans” category in accordance with IAS 39. Financial liabilities are generally measured at amortised cost. This does not apply to a contingent purchase price obligation of EUR 116 thousand (previous year: EUR 0 thousand) and EUR 1,749 thousand (previous year: EUR 646 thousand) in contingent liabilities from business combinations where the future payment is linked to the performance of the seller.

The table below shows the carrying amounts measured at (amortised) cost as well as the fair value of the financial assets and liabilities. Determining fair values of financial assets and liabilities is based on the market rates of similar financial instruments.

in EUR k	Measure- ment	2018			2017		
		Carrying amount	Fair value	Fair value level*	Carrying amount	Fair value	Fair value level*
<b>ASSETS</b>							
Cash and cash equivalents	AC	45,912	45,912		46,497	46,497	
Trade receivables	AC	80,253	80,253		61,818	61,818	
Financial assets	AC	1,612	1,612		1,243	1,243	
<b>TOTAL</b>		<b>127,777</b>	<b>127,777</b>		<b>109,558</b>	<b>109,558</b>	
<b>LIABILITIES</b>							
Trade payables	AC	14,651	14,651		12,713	12,713	
Loans	AC	45,943	46,138	3	44,770	45,103	3
Other financial liabilities		2,165	2,165		1,385	1,385	
of which measured at fair value	FV	1,865	1,865	3	636	636	3
of which other	AC	300	300		749	749	
<b>TOTAL</b>		<b>62,759</b>	<b>62,954</b>		<b>58,868</b>	<b>59,201</b>	

\* Explanation in Section II under accounting policies (s)

AC: Measured at amortised cost

FV: Measured at fair value

The fair value of the loans is calculated by discounting future cash flows from the loans by adesso’s current borrowing rate.

Die They are composed as follows:

2018 / in EUR k	From interest	Impairment	Write-up/ derecognition	Total
Financial assets carried at amortised cost	65	-620	-144	-699
Financial liabilities carried at amortised cost	-742	-	-	-742

2017 / in EUR k	From interest	Impairment	Write-up/ derecognition	Total
Loans and receivables	22	-161	1	-138
Financial liabilities carried at amortised cost	-754	0	0	-754

The net result of the category “Financial assets measured at amortised cost” is based on compounding of non-current financial assets, from the interest-bearing investment of financial assets, from the impairment and the derecognition of defaulted financial assets. The net result of the category “Financial liabilities measured at amortised cost” is based on interest expenses.

The Group is exposed to a variety of risks due to its business activities. These include default risk, liquidity risk and market risk.

#### a) Default risks/impairments

The Group is exposed to default risks mainly due to trade receivables, contract assets and other financial assets. Existing and major customers continued to dominate the customer portfolio in the financial year under review.

The following table shows the change in impairment of debt instruments in 2018. Stage 2 contains only trade receivables and contract assets, which were directly assigned to this stage using the simplified approach.

Angabe in EUR k	Impairment based on 12 months (stage 1)	Impairment based on total duration (stage 2)	Credit- impairment (stage 3)	Total
<b>AS AT 01/01/2018</b>	<b>4</b>	<b>351</b>	<b>175</b>	<b>530</b>
Changes from recognised or derecognised receivables	1	445	174	620
Reclassification	-	-1	1	-
Other changes				
arising from business combinations	-	2	-	2
Currency translation differences	-	-	-	-
<b>AS AT 31/12/2018</b>	<b>5</b>	<b>797</b>	<b>350</b>	<b>1,152</b>

The following table shows the development of the gross carrying amounts (without value adjustment) of the financial assets in 2018:

<i>Angabe in EUR k</i>	<i>Gross amount (stage 1)</i>	<i>Gross amount (stage 2)</i>	<i>Gross amount (stage 3)</i>	<i>Total</i>
<b>AS AT 01/01/2018</b>	<b>1,243</b>	<b>73,270</b>	<b>209</b>	<b>74,722</b>
Changes from recognised or derecognised receivables	374	20,705	-	21,080
Reclassification	-	-198	198	-
Changes from derecognition of financial assets	-	-144	-27	-171
Other changes				
arising from business combinations	-	393	-	393
Currency translation differences	-	-60	-	-60
<b>AS AT 31/12/2018</b>	<b>1,617</b>	<b>93,966</b>	<b>380</b>	<b>95,964</b>

adesso has not identified any noteworthy concentrations of risk associated with its financial assets. The following table shows the maturity structure of the gross carrying amounts of financial assets:

<i>2018 in EUR k</i>	<i>Not overdue</i>	<i>Not more than 3 months</i>	<i>More than 3 months and not more than 6 months</i>	<i>More than 6 months and not more than 1 year</i>	<i>More than 1 year</i>
Trade receivables	55,794	22,307	1,728	653	842
Contract assets	13,024	-	-	-	-
Other financial assets	1,617	-	-	-	-

#### b) Liquidity risks

adesso is exposed to liquidity risk due to the possibility that future financial obligations may not be met. Medium and long-term liquidity management is centralised in Dortmund, Germany, under the responsibility of the CFO. All Group companies independently plan and monitor their liquidity. Central cash management has not been implemented. Liquidity is mainly assured by cash flow from operating activities as well as a high level of cash and cash equivalents. The Group companies periodically report their short, medium and long-term liquidity to adesso AG based on various time horizons.



The tables below show the carrying amounts and cash flows (interest and repayments) of the financial liabilities. The difference between the carrying amount and the total of future cash flows corresponds to the interest due in future:

2018 in EUR k	Carrying amount	Maturity up to 1 year	> 1 and < 5 years	> 5 years
Trade payables	14,651	14,651	-	-
Loans of which interest	45,943	14,186 581	24,782 1,349	9,216 311
Other financial liabilities	2,165	1,404	761	
<b>TOTAL</b>	<b>62,759</b>	<b>30,241</b>	<b>25,543</b>	<b>9,216</b>

2017 in EUR k	Carrying amount	Maturity up to 1 year	> 1 and < 5 years	> 5 years
Trade payables	12,713	12,713	0	0
Loans of which interest	44,770	13,985 580	23,522 1,329	9,646 474
Other financial liabilities	1,385	472	913	0
<b>TOTAL</b>	<b>58,868</b>	<b>27,170</b>	<b>24,435</b>	<b>9,646</b>

### c) Market risk

Revenues are largely realised in the national currencies of the respective companies. The exchange rate risk can therefore continue to be considered low. The interest rate risk can also be classified as low. The loans taken out are subject to fixed interest rates. In addition, interest expense is low in relation to cash and cash equivalents.

### d) Information about capital management

The equity ratio of adesso is 35 % (previous year: 33 %). Active capital management is not performed. The Executive Board manages the company using earnings, yield and liquidity indicators. No capital measures other than the authorised and conditional capital disclosed in Section 11 have currently been approved.

## C. Executive Board

### a) Composition of the Executive Board

The following persons were members of the Executive Board of adesso AG in the reporting year:

- > Michael Kenfenheuer, Frechen, Germany, Chairman of the Executive Board  
(business areas: Banking, Health and Insurance)
- > Dipl.-Wirtschaftsingenieur (graduate industrial engineer)  
Christoph Junge, Münster, Germany, member of the Executive Board  
(business areas: Finance, Personnel, Administration and Law as well as Mergers & Acquisitions)
- > Dipl.-Betriebswirt (graduate business economist)  
Dirk Pothen, Düsseldorf, Member of the Executive Board (since 01 October 2018)  
(business areas: Automotive & Transportation and Manufacturing Industry (since 01 January 2019))
- > Dipl.-Statistiker (graduate statistician) Andreas Prenneis, Dortmund, Germany,  
member of the Executive Board  
(business areas: Cross Industries, Public Administration, Microsoft,  
IT Management Consulting and Data & Analytics (since 01 January 2019))

All Executive Board members are authorised to represent the company alone, and are exempt from the restrictions of Article 181 of the German Civil Code (BGB).

#### b) Remuneration of members of the Executive Board

The Executive Board remuneration contains short-term and share-based components. The following tables illustrate the components of the Executive Board remuneration and benefits as well as reconciliation of the expenses to be reported in accordance with IAS 19 and IAS 24.

Remuneration for members of the Executive Board is mainly determined according to business performance and accepted industry standards. It is based on arrangements that have been contractually agreed with the Supervisory Board. In addition to the basic salary, there are other performance-related remuneration components.

In market and corporate standards, the Company grants further benefits to all members of the Board from their contracts that are partly viewed as non-cash benefits and taxed accordingly. Especially the provision of a company car and payments to social insurance are to be named.

The Executive Board remuneration principles as well as other details are presented in the Remuneration Report contained in the Management Report.

In 2018, the total remuneration (inflow) of all members of the Executive Board of adesso AG appointed during this period amounted to EUR 4,231 thousand (previous year: EUR 1,248 thousand). The year-on-year increase is due to the payment of EUR 2,857 thousand for phantom shares to Michael Kenfenheuer. The total remuneration (inflow) includes dividends from the phantom share programme amounting to EUR 39 thousand (previous year: EUR 35 thousand).

The tables below provide an overview of remuneration and benefits paid to the members of the Executive Board that are recognised as an expense. The long-term variable compensation includes the liabilities from the phantom stock programme and a liability for 3,885 stock options granted to Mr Kenfenheuer in the past.



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**REMUNERATION AND BENEFITS PAID**

in EUR k	Michael Kenfenheuer Chairman of the Executive Board				Christoph Junge Member of the Executive Board				Andreas Prenneis Member of the Executive Board				Dirk Pothen* Member of the Executive Board			
	2017	2018	2018 (min)	2018 (max)	2017	2018	2018 (min)	2018 (max)	2017	2018	2018 (min)	2018 (max)	2017	2018	2018 (min)	2018 (max)
<b>Performance-independent remuneration</b>																
Fixed remuneration	240	242	242	242	194	225	225	225	184	215	215	215	-	50	50	50
Fringe benefit	20	22	22	22	13	17	17	17	15	15	15	15	-	4	4	4
Benefit expense	9	9	9	9	9	9	9	9	7	7	7	7	-	2	2	2
<b>Total</b>	<b>269</b>	<b>273</b>	<b>273</b>	<b>273</b>	<b>216</b>	<b>251</b>	<b>251</b>	<b>251</b>	<b>206</b>	<b>237</b>	<b>237</b>	<b>237</b>	<b>-</b>	<b>56</b>	<b>56</b>	<b>56</b>
<b>Performance-related remuneration</b>																
Short-term performance-related variable remuneration	168	187	-	187	168	192	-	192	168	192	-	192	-	48	-	48
Long-term performance-related variable remuneration	601	279	-	279	406	212	-	212	-	-	-	-	-	-	-	-
<b>Total</b>	<b>769</b>	<b>466</b>	<b>-</b>	<b>466</b>	<b>574</b>	<b>404</b>	<b>-</b>	<b>404</b>	<b>168</b>	<b>192</b>	<b>-</b>	<b>192</b>	<b>-</b>	<b>48</b>	<b>-</b>	<b>48</b>
<b>Total remuneration (equivalent to the expense for the year)</b>	<b>1,038</b>	<b>739</b>	<b>273</b>	<b>739</b>	<b>790</b>	<b>655</b>	<b>251</b>	<b>655</b>	<b>374</b>	<b>429</b>	<b>237</b>	<b>429</b>	<b>-</b>	<b>104</b>	<b>56</b>	<b>104</b>
<b>Other disclosures</b>																
Number of phantom shares issued	57,145	-	-	-	40,000	40,000	-	-	-	-	-	-	-	-	-	-
Provision for phantom shares	2,619	-	-	-	1,124	1,320	-	-	-	-	-	-	-	-	-	-
Provision for 3,885 virtual share options	150	168	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\* since 01/10/2018

## BENEFITS PAID

in EUR k	Michael Kenfenheuer Chairman of the Executive Board		Christoph Junge Member of the Executive Board		Andreas Prenneis Member of the Executive Board		Dirk Pothen* Member of the Executive Board	
	2018	2017	2018	2017	2018	2017	2018	2017
<b>PERFORMANCE-INDEPENDENT REMUNERATION</b>								
Fixed remuneration	242	240	225	194	215	184	50	-
Fringe benefit	22	20	17	13	15	15	4	-
Benefit expense	9	9	9	9	7	7	2	-
<i>Total</i>	273	269	251	216	237	206	56	-
<b>PERFORMANCE-BASED VARIABLE REMUNERATION</b>								
Short-term variable remuneration	172	174	172	174	172	174	-	-
Long-term variable remuneration	2,880	21	16	14	-	-	-	-
<i>Total</i>	3,052	195	188	188	172	174	-	-
<b>TOTAL REMUNERATION</b>	<b>3,325</b>	<b>464</b>	<b>439</b>	<b>404</b>	<b>409</b>	<b>380</b>	<b>56</b>	<b>-</b>

\* since 01/10/2018

Liabilities for Executive Board remuneration amounted to EUR 619 thousand as at the reporting date (previous year: EUR 504 thousand); this amount will be paid in the subsequent financial year as well as the liabilities from share-based remuneration indicated above. The 3,885 virtual share options were granted to Mr Kenfenheuer in an individual agreement.

The members of the Executive Board of adesso AG held the following adesso AG shares as at 31 December 2018:

Executive Board	Number of no-par bearer shares
Michael Kenfenheuer, Frechen, Germany	26,238
Christoph Junge, Münster, Germany	12,904
Dirk Pothen, Dusseldorf, Germany	-
Andreas Prenneis, Dortmund, Germany	-
<b>TOTAL</b>	<b>39,142</b>

In the financial year under review, the Executive Board members received EUR 18 thousand in dividends from the shares held in adesso AG. During the financial year under review, Christoph Junge exercised his fully vested 1,890 stock options at a strike price of EUR 7.31.

Former members of the Executive Board do not receive any remuneration and were not granted any pension commitments. A former member of the Executive Board continues to work in the company holding a different position and receives market pay rates. No loans or advances were granted to members of the Executive Board.

The members of the adesso AG Executive Board also hold the following positions on supervisory boards and other governing bodies within the meaning of Article 125 (1) clause 5 AktG:

Michael Kenfenheuer, Frechen, Germany  
 Chairperson of the Supervisory Board of e-Spirit AG, Dortmund, Germany

#### D. Supervisory Board

##### a) Composition of the Supervisory Board

The members of the Supervisory Board in 2018 were as follows:

- > Prof. Dr. Volker Gruhn, Dortmund, Germany, Chairman of the Supervisory Board  
 Head of the Software Engineering Department at University of Duisburg-Essen, Germany
- > Dr. Friedrich Wöbking, Pullach, Germany, Deputy Chairman of the Supervisory Board  
 Management consultant
- > Prof. Dr. Gottfried Koch, Stein, Switzerland  
 Professor of Insurance Information Technology at Leipzig University
- > Dipl.-Kfm. (business management graduate) Hermann Kögler, Bonn, Germany  
 Management consultant
- > Dipl.-Math. (graduate mathematician) Heinz-Werner Richter, Dortmund, Germany  
 Actuarial trustee, management consultant
- > Dipl.-Inform. (graduate computer scientist) Rainer Rudolf, Dortmund, Germany  
 Member of the Executive Board of W3L AG, Dortmund, Germany

The members of the adesso AG Supervisory Board also hold the following positions on supervisory boards and other governing bodies within the meaning of Article 125 (1) clause 5 AktG:

- > Prof. Volker Gruhn  
 Member of the Supervisory Board of e-Spirit AG, Dortmund, Germany
- > Dipl.-Kfm. Hermann Kögler  
 Member of the Supervisory Board of Cognos AG, Cologne, Germany
- > Prof. Dr. Gottfried Koch  
 Chairman of the Executive Board of automoblie AG, Bühler/Switzerland Chairman of the Executive Board of Pfefferbeere AG, Bühler/Switzerland
- > Dr. Friedrich Wöbking, Pullach, Germany  
 Member of the Supervisory Board of Erste Financial Service GmbH (EFS), Düsseldorf, Germany

##### b) Remuneration of members of the Supervisory Board

Total remuneration in calendar year 2018 for all members of the adesso AG Supervisory Board appointed in this period was EUR 51 thousand (previous year: EUR 46 thousand).

## Supervisory Board remuneration paid in the financial year

<i>in EUR k</i>	<i>Basic remuneration</i>	<i>Variable share</i>	<i>Total</i>
Prof. Dr. Volker Gruhn	8	0	8
Prof. Dr. Gottfried Koch	5	4	9
Hermann Kögler	5	5	10
Heinz-Werner Richter	5	5	10
Rainer Rudolf	5	0	5
Dr. Friedrich Wöbking	5	4	9
<b>TOTAL</b>	<b>33</b>	<b>18</b>	<b>51</b>

All transactions with related parties are concluded at market terms and conditions. Liabilities to members of the Supervisory Board on the reporting date were EUR 190 thousand (previous year: EUR 185 thousand). Liabilities for Supervisory Board remuneration of EUR 33 thousand were created in the current financial year. Expenses of EUR 386 thousand (previous year: EUR 548 thousand) for commissions, fees and allowances were recognised.

adesso has neither granted loans to members of the Supervisory Board nor issued bonds or guarantees on their behalf. There are no family ties between members of the Supervisory Board, nor between members of the Supervisory Board and the Executive Board. There are no service agreements between the Supervisory Board members and adesso or its subsidiaries that call for remuneration upon termination. Former members of the Supervisory Board do not receive any remuneration, nor were any pension commitments made.

The members of the Supervisory Board of adesso AG held the following adesso AG shares as at 31 December 2018.

	<i>Number of no-par bearer shares</i>
Prof. Dr. Volker Gruhn, Dortmund, Germany (indirectly via Setanta GmbH, Dortmund, Germany)	1,719,767
Rainer Rudolf, Dortmund, Germany	1,088,195
Prof. Dr. Gottfried Koch, Stein, Switzerland	15,921
Dr. Friedrich Wöbking, Pullach, Germany	7,000
Herrmann Kögler, Bonn, Germany	-
Heinz-Werner Richter, Dortmund, Germany	-
<b>TOTAL</b>	<b>2,830,883</b>

The Supervisory Board members (excluding Setanta GmbH) received dividends of EUR 444 thousand (previous year: EUR 400 thousand).

#### E. Related Party Disclosures

In addition to the members of the Executive Board and Supervisory Board, the following companies are considered to be related parties of adesso:

Joint ventures/associates:

> Barmenia IT+ GmbH, Wuppertal, Germany



- > com2m GmbH, Dortmund, Germany
- > MediOne GmbH (formerly: re:Doc GmbH), Dortmund, Germany
- > soccerwatch.tv GmbH, Essen, Germany
- > SPS Personalized Nutrition GmbH, Berlin, Germany
- > TRILUX Digital Solutions GmbH, Arnsberg, Germany
- > 1Buch GmbH, Gütersloh, Germany

Other:

- > CampusLab GmbH, Essen, Germany
- > ForenService Holding, Leipzig, Germany
- > it factum GmbH, Munich, Germany
- > Setanta GmbH, Dortmund, Germany (wholly owned by Prof. Dr. Volker Gruhn)
- > Versicherungsforen Leipzig GmbH, Leipzig, Germany

Receivables from and liabilities to related parties were as follows as at 31 December:

in EUR k	2018		2017	
	Receivables	Liabilities	Receivables	Liabilities
Joint ventures	326	-	87	-
Associates	67	-	439	9
Other	2	37	-	172
<b>TOTAL</b>	<b>395</b>	<b>37</b>	526	181

The following income (primarily from service agreements) and expenses with related parties were recognised in the financial year:

in EUR k	2018		2017	
	Revenues	Expenses	Revenues	Expenses
Joint ventures	495	110	73	-
Associates	34	32	294	-
Other	10	506	3	262
<b>TOTAL</b>	<b>539</b>	<b>648</b>	370	262

For transactions with members of the Executive Board and Supervisory Board, see sections C. and D adesso received dividend payments of EUR 537 thousand (previous year: EUR 478 thousand) from a company measured using the equity method. Setanta GmbH received dividends from adesso AG in the amount of EUR 688 thousand (previous year: EUR 619 thousand), which were paid in full. No other transactions took place with Setanta GmbH in the financial year, as was the case the previous year.

#### F. Auditor's fee

Under German law, the auditors are elected by the Annual General Meeting on the proposal of the Supervisory Board. Once the auditor has been chosen, the Supervisory Board issues the mandate, approves the conditions and scope of the audit, as well as all audit fees, under its own responsibility, and monitors the independence of the auditor.

The Annual General Meeting elected Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Dortmund, Germany, as auditors for 2018 on the proposal of the Supervisory Board.

The activities of Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Dortmund, are subject to reporting and are disclosed in the table below.

<i>in EUR k</i>	<i>2018</i>	<i>2017</i>
Audit of the financial statements	148	168
Tax consulting services	-	14
Other consulting services	1	-
<b>TOTAL</b>	<b>149</b>	<b>182</b>

#### G. Events occurring after the balance sheet date

On 7 January 2019, the Executive Board and the Supervisory Board of adesso AG have resolved to prepare the transformation of the company into a European Company (Societas Europaea, SE).

#### H. Appropriation of profits

On 05 June 2018, the Annual General Meeting of adesso AG resolved to pay a dividend of EUR 0.40 per no-par bearer share for the 2017 financial year. The dividend payment made by adesso AG in the reporting period totalled EUR 2,470 thousand.

For the 2018 financial year, the Executive Board and Supervisory Board will propose to the Annual General Meeting of adesso AG a dividend payment of EUR 2,779,241.85, or EUR 0.45 per no-par bearer share. The distribution of dividends has no income tax consequences for adesso.

#### I. Statement of compliance with the German Corporate Governance Code in accordance with Article 161 AktG

Pursuant to Article 161 AktG, the Executive Board and Supervisory Board of adesso AG hereby declare that adesso AG is compliant with the recommendations of the "Government Commission on the German Corporate Governance Code" in the current version published by the Federal Ministry of Justice in the official section of the electronic Federal Gazette (Bundesanzeiger). Possible deviations from the recommendations are listed and commented on in the compliance statement.

The Executive Board and Supervisory Board of adesso AG report on corporate governance for the company annually, and publish this information as part of the management report. The report and statement, including the declaration of conformity, have been made available online under [www.adesso-group.de/corporate-governance/](http://www.adesso-group.de/corporate-governance/) for an unlimited period.

### J. Notification obligations

adesso AG received the following reports pursuant to Article 19 (1) MAR for financial year 2018:

<i>Transaction</i>	<i>Name</i>	<i>Type</i>	<i>Shares</i>	<i>Price</i>
07/06/2018	Michael Kenfenheuer	Sale	7,000	57.80
20/06/2018	Christoph Junge	Acquisition from share options program	1,890	7.31
26/06/2018	Dr. Friedrich Wöbking	Purchase	200	52.59

### K. Shareholder structure

The shareholder structure was as follows as at the balance sheet date:

<i>Shareholder</i>	<i>Date the threshold was transgressed</i>	<i>Share in%</i>
Prof. Dr. Volker Gruhn (Setanta GmbH)	13/08/2007	27.9
Rainer Rudolf	02/10/2007	17.6
Ludwig Fresenius	18/04/2017	9.9
Michael Hochgürtel (MIH Hochgürtel UG & Co. KG)	19/12/2016	4.8

Based on Deutsche Börse AG's definition, the free float is 44.6%.

In the 2018 financial year, adesso AG did not receive any notification in accordance with Article 33 or Articles 38, 39 of the German Securities Trading Act (WpHG).

## L. Subsidiaries

Company	Registered office	Equity <sup>3)</sup>	Result for the year <sup>3)</sup>	Shareholding
adesso as a service GmbH	Dortmund, Germany	1,102 T€	712 T€	100 %
adesso Austria GmbH	Vienna, Austria	-3,813 T€	-303 T€	100 %
adesso Bulgaria EOOD	Sofia, Bulgaria	65 TBGN	-35 TBGN	100 %
adesso insurance solutions GmbH <sup>2)</sup>	Dortmund, Germany	4,721 T€	823 T€	100 %
adesso mobile solutions GmbH <sup>1)</sup>	Dortmund, Germany	343 T€	0 T€	100 %
adesso Schweiz AG	Zurich, Switzerland	2,911 TCHF	2,210 TCHF	100 %
adesso Spain Consultoria y Soluciones Tecnologicas S. L.	Barcelona, Spain	-147 T€	-172 T€	100 %
adesso Transformer Deutschland GmbH (formerly: adesso it+ GmbH)	Dortmund, Germany	-62 T€	-86 T€	100 %
adesso Transformer GmbH	Vienna, Austria	64 T€	-291 T€	100 %
adesso Turkey Bilgi Teknolojileri Ltd. Şti.	Istanbul, Turkey	4,443 TTRY	4,913 TTRY	100 %
alleato assekuranzmakler GmbH <sup>4)</sup>	Dortmund, Germany	-242 T€	-73 T€	74 %
ARITHNEA GmbH	Neubiberg, Germany	5,577 T€	1,594 T€	100 %
A3A Strategy Consulting GmbH	Cologne, Germany	-98 T€	41 T€	100 %
e-Spirit AG <sup>1)</sup>	Dortmund, Germany	4,895 T€	0 T€	100 %
e-Spirit Inc.	Delaware, USA	614 TUSD	129 TUSD	100 %
e-Spirit Schweiz AG	Zurich, Switzerland	74 TCHF	140 TCHF	100 %
e-Spirit UK Ltd.	London, UK	-1,400 TGBP	-44 TGBP	100 %
gativ GmbH	Much, Germany	310 T€	119 T€	61 %
InQventures GmbH <sup>5)</sup>	Berlin, Germany	23 T€	-1 T€	85 %
medgineering GmbH	Dortmund, Germany	-197 T€	-142 T€	100 %
nhs Informatik GmbH	Bern, Switzerland	141 TCHF	-4 TCHF	100 %
percision services GmbH	Dortmund, Germany	-1,457 T€	911 T€	100 %
smarthouse adesso financial solutions GmbH	Karlsruhe, Germany	4,446 T€	1,217 T€	100 %
SunnyTrail Consulting S.L.	Madrid, Spain	14 T€	11 T€	100 %

1) Result for the year EUR 0 thousand due to a profit and loss transfer agreement with adesso AG.

2) In the 2018 financial year, FABIS companies were merged into adesso insurance solutions GmbH.

3) Equity and the result for the year are stated in accordance with the respective national laws.

4) At the beginning of 2019, the stake in alleato assekuranzmakler GmbH increased to 76 %.

5) At the beginning of 2019, the company acquired the remaining shares in InQventures GmbH.

## M. Associates and joint ventures

<i>Company name</i>	<i>Registered office</i>	<i>Associate/ joint venture</i>	<i>Pro-rata equity<sup>1)</sup></i>	<i>Pro-rata result for the year<sup>1)</sup></i>	<i>Shareholding</i>
com2m GmbH 1)	Dortmund, Germany	GU	-78 T€	77 T€	58.7 %
MediOne GmbH (formerly: re:Doc GmbH)	Dortmund, Germany	GU	174 T€	-35 T€	56.7 %
Barmenia IT+ GmbH	Wuppertal, Germany	AU	920 T€	469 T€	24.0 %
soccerwatch.tv GmbH	Essen, Germany	AU2)	324 T€	-688 T€	36.0 %
SPS Personalized Nutrition GmbH	Berlin, Germany	AU	4 T€	-3 T€	7.0 %
TRILUX Digital Solutions GmbH	Arnsberg, Germany	AU	32 T€	-8 T€	20.0 %
1Buch GmbH	Gütersloh, Germany	AU	25 T€	-7 T€	30.0 %

1) Equity and the result for the year are stated in accordance with the respective national laws.

2) soccerwatch.tv GmbH was reported as a joint venture in 2017.

## N. Use of exemption provisions

The following domestic group companies in the legal form of a joint-stock company satisfied the necessary conditions to make use of the exemption provisions pursuant to Article 264 (3) HGB and will thus not be preparing a management report and notes to the financial statements, nor will the annual financial statements be audited by an auditor or be disclosed for the 2018 financial year:

> e-Spirit AG

> adesso mobile solutions GmbH



## STATEMENT OF THE LEGAL REPRESENTATIVES

We confirm that the consolidated financial statements, in accordance with the applicable accounting principles and to the best of our knowledge, present a true and fair view of the group's net assets, financial position and results of operations, and that the consolidated management report presents a true and fair view of the group's results of operations and position in addition to describing the material opportunities and risks for the expected development of the group.

Dortmund, Germany, 21 March 2019

adesso AG



Michael Kenfenheuer



Christoph Junge



Dirk Pothen



Andreas Prenneis

## REPRODUCTION OF THE AUDITOR'S REPORT

For the consolidated financial statements and the consolidated management report, we have issued the following auditor's report:

“Independent auditor's report

To adesso AG

Note on the audit of the consolidated financial statements and the consolidated management report

### Audit opinions

We have audited the consolidated financial statements of adesso AG, Dortmund, and its subsidiaries (the Group) – consisting of the consolidated balance sheet as of 31 December 2018, the consolidated income statement, the consolidated statement of comprehensive income, the consolidated cash flow statement and the consolidated statement of changes in equity for the financial year from 1 January 2018 to 31 December 2018, as well as the consolidated notes including a summary of significant accounting methods. In addition, we have audited the consolidated management report of adesso AG for the financial year from 1 January 2018 to 31 December 2018.

In our opinion, based on the findings of our audit,

> the consolidated financial statements attached comply in all material respects with the IFRS applicable in the EU and the supplementary applicable German regulations according to Section 315a (1) of the German Commercial Code (HGB) and give a true and fair view of the asset and financial situation of the group as of 31 December 2018, as well as its results for the financial year from 1 January 2018 to 31 December 2018, in accordance with these regulations, and

> imparts an overall accurate impression of the group's position. In all material respects, this consolidated management report agrees with the consolidated financial statements, complies with the German legal requirements, and gives a true and fair view of the opportunities and risks associated with future developments.

In accordance with Section 322 (3) (1) HGB, we declare that our audit has not led to any objections to the regularity of the consolidated financial statements and the consolidated management report.

### Basis of the audit opinions

We have carried out our audit of the consolidated financial statements and consolidated management report in accordance with Section 317 HGB and the EU Audit Regulation (no. 537/2014) in accordance with the generally accepted German standards for the audit of financial statements determined by Institut der Wirtschaftsprüfer (IDW). Our responsibilities under these regulations and principles are further described in the section of our auditor's report entitled 'Responsibility of the auditor for the audit of the consolidated financial statements and the consolidated management report'. We are independent of the group companies in accordance with the European and German commercial and professional regulations and have fulfilled our other German professional obligations in accordance with these requirements. In addition, in accordance with Article 10 (2) (f) of the EU Audit Regulation, we declare that we have not performed any prohibited non-audit services under Article 5 (1) of the EU Audit Regulation. In our opinion, the audit evidence we have obtained is sufficient and appropriate to serve as a basis for our audit opinions on the consolidated financial statements and the consolidated management report.



### Particularly important audit matters in the audit of the consolidated financial statements

Particularly important audit matters are those matters that, in our best judgement, were most significant in our audit of the consolidated financial statements for the financial year from 1 January 2018 to 31 December 2018. These matters have been taken into account in the context of our audit of the consolidated financial statements as a whole and in forming our audit opinion; we do not deliver a separate opinion on these matters.

Below we describe what we consider to be particularly important audit matters:

#### 1. Impairment of goodwill

##### *Reasons for determination as a particularly important audit matter*

adesso AG performs the impairment test to be carried out in accordance with IAS 36, Impairment of Assets, as of 30 June of the financial year and additionally on an ad hoc basis. There, the recoverable amount must be compared with the recoverable amount of a goodwill-bearing cash-generating unit. The company determines this using a discounted cash flow method. Against the background of the associated complexity and discretionary scope, the impairment test for goodwill was a particularly important issue during our audit.

The impairment test is based on assumptions that are derived from corporate planning and that are influenced by expected future market and economic conditions. The impairment test is also significantly based on the appropriate accrual of the cash-generating units carrying the goodwill. Each recoverable amount depends in particular on the future cash flows in the medium-term planning of the cash-generating units as well as on the assumed discount and growth rates. The definition of these parameters is the responsibility of the legal representatives and is discretionary. There is a risk that changes to these discretionary decisions could result in material changes to the impairment tests of the respective cash-generating units.

##### *Auditing procedure*

As part of our auditing procedures, we have reconstructed the process established by the company for conducting impairment tests with regard to its ability to determine potential depreciation needs. In doing so, we have dealt with the planning process and the applicable integration of individual planning into group planning. As part of this, we have discussed and documented the key planning assumptions with the legal representatives of the parent company, in consultation with our valuation experts. The focus here was on the assessment of the expected future cash flows in the medium-term planning of the major cash-generating units as well as on the discount rates and growth rates used. For this purpose, we have reconstructed the premises underlying the impairment test by comparing them with general and industry-specific market expectations. In this context, we have also reconstructed the planning loyalty of the cash-generating units by comparing the medium-term plans of the previous years with the actual figures for the financial year. In addition, we have compared the medium-term plans used in the impairment tests with the medium-term plans approved by the Supervisory Board and assessed the mathematical correctness of the valuation models in random samples.

The focus of our audit activities was additionally the assessment of the information provided by adesso AG in the consolidated notes. In this regard, we have reviewed the information provided by the legal representatives regarding their completeness and compared them with our expectations. In particular, the legal representatives' statement regarding which changes in the main planning assumptions could lead to a possible need for impairment was a major focus of the audit within the consolidated notes. In this context, due to the material significance of goodwill, we conducted our own sensitivity analyses (book value in comparison to the recoverable amount) of significant cash-generating units in order to understand the impact of changes in certain parameters on the valuation models.

Our audit procedures found no objections with regard to the recoverability of goodwill.

*Reference to related information*

The information provided by adesso AG on goodwill is contained in Sections II. 'Summary of Material Accounting Principles' under 'Consolidation' and 'Estimates and Assumptions', III.A.1. 'Goodwill and Intangible Assets' and V. 'Information on Segment Reporting' of the consolidated notes.

**2. Implementation of the new accounting standard IFRS 15 – Revenues from Contracts with Customers**

*Reasons for determination as a particularly important audit matter*

The company has introduced the new accounting standard IFRS 15 – Revenues from Contracts with Customers, from 1 January 2018 using the modified retrospective approach. The identification of all income streams and the full recording of the Group-wide customer contracts behind them and the conversion effects are, due to their complexity, subject to increased risk of erroneous balancing of accounts. Against this background, we have classified the conversion of the accounting to IFRS 15 as one of the most significant matters for our audit of the consolidated financial statements.

*Auditing procedure*

As part of our audit, we have first of all assessed the process of identification of the significant income streams and the associated control environment, by studying the company documentation and comparing this with our knowledge of the company's business activities. In order to understand the completeness and correctness of the conversion effects recorded on 1 January 2018 with regard to the IFRS 15 criteria, we have performed spot checks to examine significant contracts and the contractual obligations contained therein using the materiality limits. In so doing, we have chiefly assessed whether the classification of the contracts, the allocation of revenues and costs on the contractual obligations, and the recording of sales revenues over time periods or specific points in time are in line with IFRS 15. In cases in which contracts contain several contractual obligations, we have in particular assessed whether these contractual obligations are to be classified as separate contractual obligations and whether the company has conducted this assessment in accordance with IFRS 15. For the contracts in spot checks that we chose, we inspected original documents and retraced the recording of the associated sales revenues in the accounting figures. We have retraced the activation of contractual costs using the associated service agreements in spot checks, which were selected according to dutiful discretionary power, by checking whether the criteria for activation according to IFRS 15 have been met and by calculating the activating contractual costs on 1 January 2018.

Lastly, we have retraced the representation of the conversion effects on 1 January 2018 in the company's consolidated notes and evaluated the documentation created by the company with regards to IFRS 15 as to whether it represents a suitable basis for consolidated financial statements to be prepared according to IFRS principles.

There have been no objections resulting from the conduct of our audit with regard to the implementation of the new IFRS 15 accounting standards on 1 January 2018.

*Reference to related information*

The company's details on the conversion effects from the IFRS 15 are to be found in section II. A. 'Summary of material accounting policies' contained within 'New accounting regulations' of the consolidated notes.

### 3. Accrual accounting and recognition of revenue

#### *Reasons for determination as a particularly important audit matter*

The significant revenue streams in the consolidated financial statements of adesso AG stem from licence sales, consulting projects and maintenance, SmartCloud and hosting contracts. Due to their complexity, the proper accrual and recognition of these different revenue streams are subject to an increased risk of incorrect accounting. Against this background, we have determined the accrued amortisation and recognition of significant revenue streams as one of the particularly important audit issues in our audit of the consolidated financial statements.

#### *Auditing procedure*

As part of our audit, we have first of all concerned ourselves with the accrued amortisation and recognition of significant income streams as well as the associated control environment with regard to the criteria of the IFRS 15 – Revenues from Contracts with Customers. In this context, we have tested the process-related controls for complete and accrued recognition of all billable services and underlying times – also using data analysis programs. In order to understand the regularity of revenue accrual as of the balance sheet date, we have reviewed key contracts, selected and obtained external customer confirmations and performed sample-based document checks of proofs of delivery, customer invoices and incoming payments as of the balance sheet date. Furthermore, we have inspected the relevant project documents, such as contracts, customer communication, project manager confirmations and acceptance reports. With the help of analytical analyses of the entire revenue-relevant data stock of the 2018 financial year, we have performed a correlation analysis using data analysis programs as well as reviewed daily revenue bookings based on these findings using spot checks. In doing so, we compiled our expectations on the basis of industry and market-related data as well as the previous year's figures and compared these with the results of the data analyses of adesso AG as the largest company in the Group.

The percentage of completion determined by the company for the application of the period-related recognition of sales revenues in the area of fixed-price projects has been examined using spot checks of the respective hourly calculations and project documents, such as contracts, customer communication and project manager confirmations. Furthermore, we have performed spot checks to make historical plan/actual comparisons of project calculations with the values actually achieved. Based on this, we have used the expenses estimated by the company and that still have to be paid before completion by confirming the expected overall project expenditure of each of the project managers to determine whether there is a need for impairment of the capitalised receivables.

The risk that manual revenue bookings could be made by the management in addition to the standardised revenue process was countered by relying on extensive surveys of legal representatives and the use of data analysis programs for our audit opinion. In this context, we randomly examined the database to assess whether unauthorized access was made in the 2018 financial year.

Our audit procedures found no objections with regard to accrual accounting and revenue recognition.

#### *Reference to related information*

The information of the company for the recognition of revenues is contained in Sections II. 'Summary of Material Accounting Policies' under 'Consolidation' and 'Estimates and Assumptions' and III. 'Explanations for Items on the Consolidated Balance Sheet and Consolidated Income Statement' are contained within point B.18. 'Sales revenues' of the consolidated notes.

### **Responsibility of the legal representatives and the Supervisory Board for the consolidated financial statements and the consolidated management report**

The legal representatives are responsible for the preparation of the consolidated financial statements in compliance, in all material respects, with the IFRS applicable in the EU and the supplementary applicable German regulations according to Section 315a (1) HGB and for ensuring that the consolidated financial statements give a true and fair view of the asset, financial and earnings situation of the group in accordance with these regulations. In addition, the legal representatives are responsible for the internal controls that they have determined to be necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether intentional or unintentional.

When preparing the consolidated financial statements, the legal representatives are responsible for assessing the group's ability to continue as a going concern. They also have responsibility to disclose matters relating to continuation as a going concern, if relevant. In addition, they are responsible for accounting for continuation as a going concern on the basis of the accounting principle, unless there is an intention to liquidate the group or discontinue business operations, or if there is no realistic alternative.

In addition, the legal representatives are responsible for the preparation of the consolidated management report, which imparts an overall accurate impression of the group's position, is in all material respects consistent with the consolidated financial statements, complies with German legal requirements and accurately reflects the opportunities and risks associated with future development. Furthermore, the legal representatives are responsible for the precautions and measures (systems) that they have deemed necessary to enable the preparation of a consolidated management report in accordance with the applicable German legal requirements and for being able to provide sufficient suitable evidence for the statements in the consolidated management report.

The Supervisory Board is responsible for overseeing the group's accounting process for preparing the consolidated financial statements and the consolidated management report.

### **Responsibility of the auditor for the audit of the consolidated financial statements and the consolidated management report**

Our objective is to obtain reasonable assurance as to whether the consolidated financial statements as a whole are free from material misstatement, whether intentional or unintentional, and whether the consolidated management report imparts an overall accurate impression of the group's position and corresponds to the consolidated financial statements and the findings of the audit in all material respects, that it complies with German legal requirements and accurately reflects the opportunities and risks associated with future development, and to issue an audit report that includes our audit opinions on the consolidated financial statements and the consolidated management report.

Sufficient security refers to a high degree of security, but no guarantee that a test conducted in accordance with Section 317 HGB and the EU Audit Regulation in accordance with the generally accepted German standards for the audit of financial statements determined by Institut der Wirtschaftsprüfer (IDW) will always reveal a material misstatement. Misstatements can result from breaches or inaccuracies and are considered material if they could reasonably be expected to influence, individually or collectively, the economic decisions of addressees made on the basis of these consolidated financial statements and this consolidated management report.

During the audit, we exercise due discretion and maintain a critical attitude.

Moreover,

- > we identify and assess the risks of material misstatement, whether intentional or unintentional, in the consolidated financial statements and the consolidated management report, plan and execute audit procedures in response to those risks and obtain audit evidence that is sufficient and appropriate to form the basis of our opinion. The risk that material misstatements may not be detected is higher for violations than for inaccuracies, as violations may include fraud, falsification, intentional incompleteness, misrepresentations or the discontinuation of internal controls;
- > we gain an understanding of the internal control system relevant to the audit of the consolidated financial statements and of the precautions and measures relevant to the audit of the consolidated management report in order to design audit procedures that are appropriate in the given circumstances, but not with the aim of expressing an opinion on the effectiveness of these systems;
- > we assess the appropriateness of the accounting methods used by the legal representatives and the reasonableness of the estimates and related information provided by the legal representatives;
- > we draw conclusions about the appropriateness of the accounting principle used by the legal representatives in continuation as a going concern and, on the basis of the audit evidence obtained, whether there is material uncertainty surrounding events or circumstances that could pose significant doubts about the group's ability to continue as a going concern. If we conclude that there is material uncertainty, we are required to draw attention in the auditor's report to the related information in the consolidated financial statements and the consolidated management report or, if this information is inadequate, to modify our audit opinion. We draw our conclusions on the basis of the audit evidence obtained up to the date of our auditor's report. However, future events or circumstances may lead to the group being unable to continue as a going concern;
- > we assess the overall presentation, structure and content of the consolidated financial statements including the information provided and whether the consolidated financial statements present the underlying transactions and events in such a way that the consolidated financial statements are prepared in compliance with the IFRS applicable in the EU and the supplementary applicable German regulations according to Section 315a (1) HGB and give a true and fair view of the asset, financial and earnings situation of the group;
- > we obtain sufficient audit evidence for the accounting information of the companies or business activities within the group in order to provide audit opinions on the consolidated financial statements and the consolidated management report. We are responsible for the guidance, supervision and execution of the audit of the consolidated financial statements. We are solely responsible for our audit opinions;
- > we assess the consistency of the consolidated management report with the consolidated financial statement, its legal conformity and the impression it imparts of the group's position;
- > we conduct audits of the forward-looking statements presented by the legal representatives in the consolidated management report. On the basis of sufficient suitable audit evidence, we, in particular, reproduce the significant assumptions on which the forward-looking statements are based, and assess the proper derivation of the forward-looking statements from these assumptions. We do not issue an independent opinion on the forward-looking statements and the underlying assumptions. There is a significant unavoidable risk that future events will differ materially from the forward-looking statements.

Among other things, we discuss with the supervisors the planned scope and timing of the audit, as well as significant audit findings that we identify during our audit, including any deficiencies in the internal control system.

We provide a statement to the supervisors that we have complied with the relevant independence requirements and discuss with them all relationships and other matters that can reasonably be expected to affect our independence and the protective measures taken for that purpose.

Of the matters we discussed with the supervisors, we determine those matters that were most significant in the audit of the consolidated financial statements for the current reporting period and are therefore the most important audit matters. We describe these matters in the audit report, unless laws or other legal provisions exclude public disclosure of the matter.

#### Other statutory and other legal requirements

##### Other information pursuant to Article 10 of the EU Audit Regulation.

We were elected as group auditors by the Annual Shareholders' Meeting on 5 June 2018. We were commissioned by the Supervisory Board on 30 October 2018. We are acting as the auditors of adesso AG continuously since the 2017 financial year.

We declare that the audit opinions contained in this auditor's report are consistent with the additional report to the Audit Committee pursuant to Article 11 of the EU Audit Regulation (audit report).

##### Responsible auditor

The auditor responsible for the audit is Andreas Muzzu.'

Dortmund, 21 March 2019

Ernst & Young GmbH  
Auditing firm

Muzzu  
German public auditor

Kavun  
German public auditor

## INVESTOR RELATIONS

### The Share

#### The Trading Year 2018 – General Conditions

The DAX, Germany's leading stock market index, closed at 10,559 points for 2018, marking a considerable drop of 18 % compared to double-digit growth of 13 % in the previous year. The TecDAX closed 3 % lower at the end of the year compared to 2017, thereby exhibiting the best performance among the selection indices. 2018 was a turbulent and volatile trading year after a comparatively calm previous year. Driven by positive economic data and a once again more favourable euro, the DAX initially had a successful start to the year, reaching a new all-time closing price high of 13,560 points on 23 January 2018. However, the "hot" stock markets cooled noticeably after that. Starting in the USA, many stock markets, including in Germany, saw a massive slump in prices. Within a few days, interest hikes in the bond market, a strengthened euro and growing fears of inflation even pushed the DAX below its level at the start of the year. Counter-moves soon faltered repeatedly, with the result that the DAX had already suffered a considerable loss of 9 % on 26 March 2018. A somewhat more solid rising trend only revealed itself in the last week of March, driving the DAX back up to slightly above its level at the start of the year until 22 May 2018. But this recovery did not last long either. In the remainder of the year, which was defined by volatility, the DAX gradually lost ground and reached its low for the year at 10,382 points on 27 December 2018, just one day before closing for the year. Deteriorating sentiment on the stock markets was driven mainly by worries about a slowing domestic and world economy, the intensifying trade dispute with the USA, the reintroduction of punitive tariffs and the approach of Brexit. In addition, decisions to ban diesel cars caused the share prices of German car makers in the DAX to fall. The Italian public debt and banking crisis caused fresh uncertainty in the autumn, especially also in regards to the major German banks. Fluctuations in sentiment also influenced the TecDAX. The spreads between high and low prices became increasingly extreme. An extended and more well-defined recovery phase from April to mid-June helped the TecDAX gain

16 % since the start of the year, of which 6 % at least was maintained until the end of June. While the next recovery phase of the DAX only lasted until the end of July, initiating the decline until the end of the year, the TecDAX continued to climb to its high for the year of 3,039 on 29 August 2018, at which point it had already gained 20 % compared to the close of the previous year. Worsening sentiment hit the TecDAX hard from this considerably higher level. By mid-October, the index had lost all its gains except for 1 percentage point. Several rallies notwithstanding, it slipped to a minus of 3 % by the close of the year after reaching the closing price low for the year at 2,400 points with a minus of 5 % the day before.

#### Development of the adesso Share

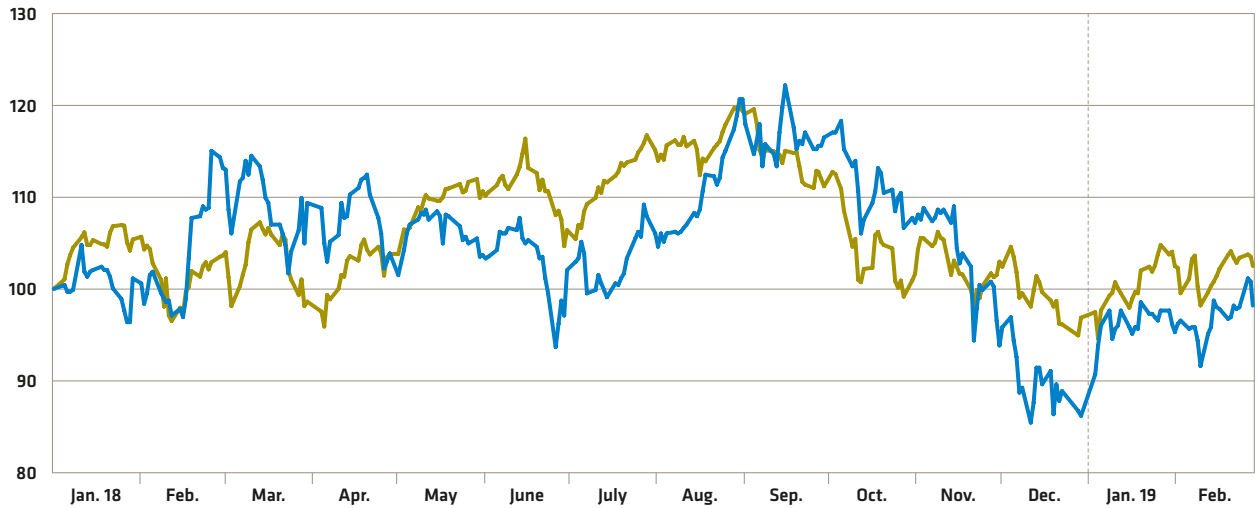
With a price drop of 14 % compared to the previous year's close, the development of the adesso share only outperformed the DAX slightly in 2018 and was beaten by its reference index, the TecDAX. While it too was in the loss zone at the end of the year, it fared 11 percentage points better compared to adesso's performance. The adesso share closed at EUR 47.10 for 2018, only slightly above its closing price low of EUR 46.70 for the year on 10 December 2018. Just under three months earlier, the adesso share reached a new all-time closing price high of EUR 66.80 on 14 September 2018. The highest trading price reached that same day was EUR 67.40.

The adesso share only followed general stock market trends to a limited extent in the first half of 2018. While the indices initially reached new highs, the price after gains at the start of the year was actually 4 % below the previous year's close. The adesso share did not receive significant support in high-volume trading until after the ad-hoc announcement, on 16 February 2018, of a strong fourth quarter and the expectation that forecasts that had been revised downward during the year would be exceeded. The price increased to EUR 58.90. Reports of another acquisition, recommendations in financial media and higher analyst estimates caused the share to increase further to EUR 62.90 on 23 February 2018. While, at the time, the adesso share was still outperforming the TecDAX by 12 %, that lead was lost completely by

DEVELOPMENT OF THE ADESSO SHARE COMPARED TO THE TECDAX

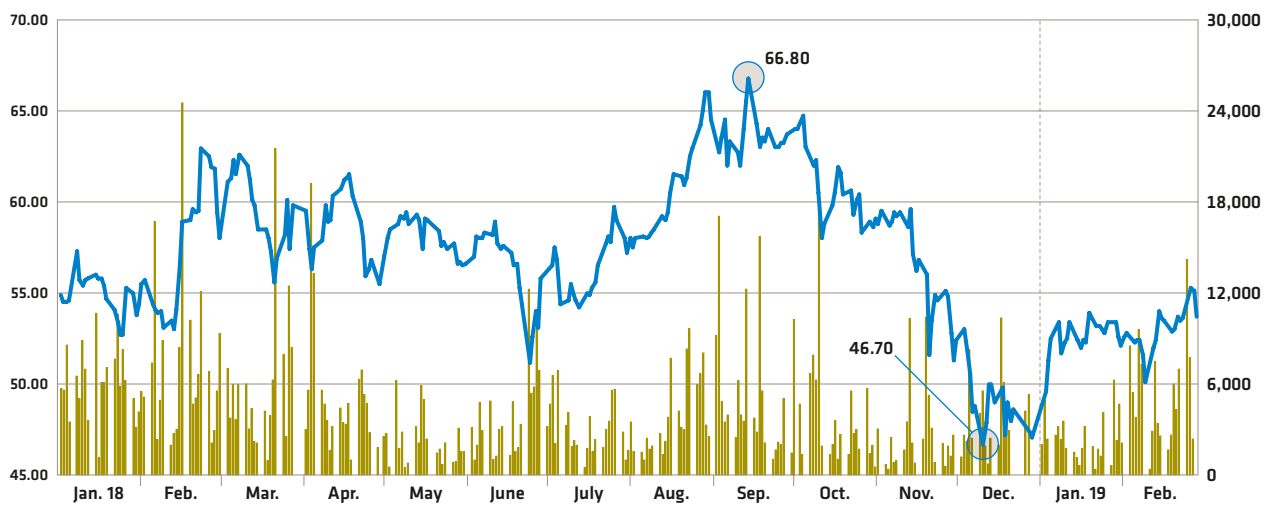
*indexed*

■ adesso AG ■ TecDAX



DEVELOPMENT OF THE ADESSO SHARE AND TRADING VOLUMES (XETRA)

*in EUR / trading volumes in shares*





the end of March. With falling trading volumes, there were price jumps in both directions. Price volatility continued in the following month, and the adesso share outperformed the significantly falling TecDAX most of the time. The share only partially benefited from the more sustainable recovery of the TecDAX that followed until mid-June. Starting with the second week of May, its price dropped slowly as trading volumes decreased further while the TecDAX continued to rise. As the mood on the stock markets worsened considerably starting in mid-June, the selection indices and the adesso share plummeted. The value of the adesso share dropped by 13 % in just nine trading days, listing at EUR 51.20 on 25 June 2018. The market recovery that followed benefited adesso in particular after announcing a major framework contract and based on strong half-year figures. Driven by high trading volumes, the price subsequently reached its high for the year on 14 September 2018. Although it outperformed the TecDAX in the interim, the adesso share lost this lead when the price dropped again considerably on 20 November 2018 as the stock market mood worsened in the autumn. Even adesso's strong nine-month figures with a positive outlook published just a few days before were unable to counteract the broad-based market pressure to sell shares. Without new impulses, the share continued to lose value until the end of the year in an increasingly pessimistic stock market environment. Trading of the share closed on 28 December 2018 just EUR 0.40 above the low for the year at EUR 47.10, a drop of 14 % compared to the closing price of the previous year.

As a result, adesso's market capitalisation fell from EUR 337.5 million at the end of 2017 to EUR 290.9 million.

### Trading Volume

There was another general increase in share trading compared to the previous year. Overall trading volumes of all shares on the spot market, including Tradegate, increased by 18.0 % to EUR 1.5 billion in the year under review. Investors continued to primarily invest in the top-ranking securities. Around 96 % of the total volume was transacted with securities from the selection indexes. This proportion increased considerably by 5 percentage points in 2018 compared to the previous year, to the detriment of other securities. Turnover with shares not listed in a selection index decreased disproportionately by 51 % with an overall higher trading volume in 2018.

After increasing sharply in the three previous years, the adesso share's trading volume dropped from EUR 170.0 million in the previous year to EUR 85.4 million in 2018, which is still 68 % above trading in 2016. February was the best trading month at EUR 11.5 million. Trading in May, on the other hand, was a mere EUR 3.8 million. An average of 5,877 shares changed ownership per trading day in 2018. On average, 123,423 adesso shares were traded monthly. As in the previous year, around 75 % of trading took place on the Xetra trading platform.

### Year to Date Development 2019

After the losses of the previous year, investors headed into the new year of 2019 with confidence. This was mainly due to expected progress in the customs negotiations between the USA and China. The DAX rose a respectable 7 % by 11 January 2019. On the other hand, the TecDAX took a bit longer to achieve an increase of 8 % by 25 January 2019. Given the renewed friendlier market situation and based on the favourable valuation of the adesso share, the price quickly recovered within the first few trading days of the new year. Driven by good news, including the successful conclusion of contracts for the in|sure product line and a recommendation in the financial media, the price rose by up to 14 % on 18 January 2019 compared to the previous year's close. From this level, the share gradually weakened again over the next three trading weeks. The generally positive stock market mood also worsened in the interim, due to mixed company reports and declining economic data. Profit taking led to a significant setback for the leading indices on 7 February 2019, also dragging down the adesso share to EUR 50.10 on 8 February 2019. The share recovered noticeably the very next day and exhibited strong growth in the last three weeks of February as the stock market climate became more friendly again, and thanks to the presentation of adesso at a capital market conference. A five-digit number of adesso shares was traded on Xetra again for the first time this year on 25 February 2019, helping the security reach its year-to-date high of EUR 55.30 on a closing price basis. The adesso share closed only slightly below that at EUR 55.10 at the end of February. Investors therefore had a large book gain of 17 % on a closing price basis thus far in 2019. Thus the share outperformed the TecDAX by 11 percentage points to date. The DAX closed with a plus of 9 % at 11,516 points on 28 February 2019.

The following table shows the most important share data for 2018 per quarter:

#### SHARE DATA

	Q1	Q2	Q3	Q4	2018
Price at the end of the period	59.80	55.80	59.10	47.10	47.10
Development (in%)	9	2	8	-14	-14
Development of TecDAX (in%)	-1	6	4	-3	-3
Highest price in EUR	62.90	61.50	66.80	64.70	66.80
Lowest price in EUR	52.70	51.20	54.20	46.70	46.70
Volatility (90 days at the end of the quarter in%)	30.9	33.4	28.0	36.3	36.3
Trading volumes in shares per trading day	8,674	4,708	5,515	4,584	5,877
Trading volumes in EUR per trading day	493,618	269,130	336,809	253,464	338,855
Number of shares	6,174,203	6,174,203	6,176,093	6,176,093	6,176,093
Market capitalisation in EUR million	369.2	344.5	365.0	290.9	290.9

#### BASIC SHARE DATA

		2018	2017
ISIN Code	DE000A0Z23Q5	6,176,093	6,174,203
WKN (national security identification number)	A0Z23Q	47.10	54.67
Symbol/Code	ADN1	290.9	337.5
Reuters Instrument Code	ADNGk.DE	2.17	1.79
Bloomberg Symbol	ADN1:GR	2.69	3.28
First day of trading	21.06.2000	21.7	30.5
Trading platforms	Xetra	17.5	16.7
Market segment	General Standard	0.45	0.40
Number of shares	6,176,093	1.0%	0.7%
Currency	EUR	* Subject to the approval of the Annual General Meeting in the year under review.	
Nominal value	Stückaktien ohne Nennbetrag; rechnerisch 1.00 €		
Share capital	6,176,093 €		
Voting rights per share	1		
Paying agent	DZ BANK AG, Frankfurt/Main		
Index	CDAX, DAXsector All Software, DAXsubsector All IT-Services, General All-Share, General Standard Index		
Reporting standard	IFRS		
End of financial year	31.12.		

### Capital Measures

Share capital increased from EUR 6,174,203 to EUR 6,176,093 in the reporting period after stock options from the company's stock options programme were exercised. The increase of EUR 1,890 took place in July of 2018.

### Dividends

The Annual General Meeting held on 5 June 2018 approved the proposal by the Supervisory Board and Executive Board on the appropriation of net income and distributed an 11 % higher dividend of EUR 0.40 per share. The dividend was credited to shareholders' custodian accounts from 8 June 2018.

### Shareholder Structure

The largest shareholder of adesso AG, with 27.9 % of the voting rights, is Professor Dr Volker Gruhn, who holds his shares indirectly via the Setanta GmbH investment company. Professor Dr Gruhn is the Chairperson of the Supervisory Board of adesso AG and its co-founder. Rainer Rudolf as co-founder, former Executive Board member and since 2013 also Supervisory Board member holds the second-largest share of voting rights at 17.6 %. adesso AG's Supervisory Board holds 45.8 % of the company's share capital, while its Executive Board holds 0.6 % of the share capital. 76.5 % of the assigned voting rights, and therefore the majority, is held by private investors. The proportion of institutional investors increased further to 19.8 %. The remaining 3.7 % of the company's shares cannot be clearly assigned to a specific class of investor. According to Deutsche Börse AG's definition, the free float is 44.6 %. It increased by 0.5 percentage points compared to the value in the 2017 annual report. This is due to the exercising of options under the company's stock option programme and the expiry of lock-up agreements.

### Investor Relations Activities

Our investor relations activities are dedicated to active communication and ensure that our business activities are transparent. We not only strive to offer ultimate transparency and ready access to information, but also actively seek dialogue with institutional and private investors, analysts and financial media. In doing so, we regularly present the development of the company in the course of one-on-one meetings or roadshows. We also take advantage of numerous investor conferences to present adesso AG and enhance our contact to the capital market.

adesso AG was presented at the German Equity Forum in Frankfurt in 2018, and at the Spring Conference initiated by the DVFA (Deutsche Vereinigung für Finanzanalyse und Asset Management e.V.), which was also held in Frankfurt. Furthermore, the company was presented at three additional conferences and investor events in Paris, Lyons and Hamburg. The financial calendar for 2019 features plans for a similarly high number of investor conferences. We also published information relevant to the capital market and presentations on our company regularly during the financial year. Interested capital market participants have access to comprehensive information in the "Investor Relations" section of the company website, which goes far beyond the mandatory disclosures. As a service, the menu item "Questions for the CFO" permits direct dialogue with the responsible Executive Board member. Distribution lists for mailing or electronically distributing company press releases and reports allow us to actively supply interested parties with the latest information on adesso AG. More than 520 individuals and companies have already taken advantage of this service. Especially for analysts, but also for all other interested investors, adesso offers an investor folder for download which, in addition to the regular publications for the past twelve months, includes a multi-period overview of the income statement and the most important performance figures on a quarterly and annual basis, as well as the consolidated and interim financial statements in Excel format. adesso was analysed regularly in 2018 by various analysts. Updates to analyst studies are offered on the adesso website.

adesso AG is a member of the German Investor Relations Association e.V. (DIRK).

### Analyses / Research

The adesso AG share has been evaluated regularly by Warburg Research with updates and comments since the publication of the baseline study in October of 2016. Furthermore, assessments are published by the independent analysts of SMC Research, who have been tracking adesso's development since May of 2013. As part of the merger of WGZ BANK with DZ BANK, the new financial institution operating under the name of DZ BANK has continued the coverage of adesso AG, which began in May 2012, starting in August 2016. Following a change of analyst, DZ BANK published a new baseline study in 2017.

Coverage, which had stopped in the intervening period, began again in the first quarter of 2018.

The latest updates from analysts were published in November of 2018 and March of 2019. Warburg Research issued a “buy” recommendation with a price target of EUR 73.50 (15 November 2018). SMC Research also issued a “buy” recommendation with a fair value of EUR 73.80 (15 November 2018). The DZ BANK analyst issued a “buy” recommendation for the adesso share with a target price of EUR 62.40 (4 March 2019).

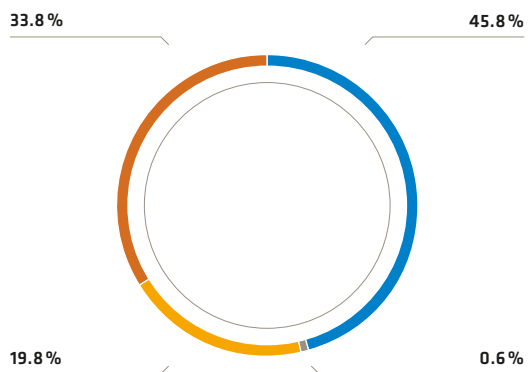
Since the beginning of 2011, trading of the adesso share has been supported by the designated sponsoring market leader, Oddo Seydler Bank AG (formerly: Close Brothers Seydler Bank AG).

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SHAREHOLDER STRUCTURE

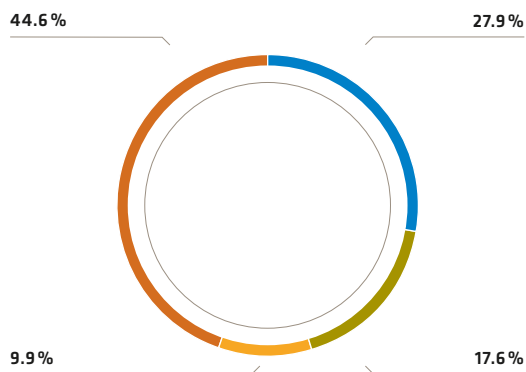
in %



■ Supervisory Board ■ Executive Board ■ Institutional Investors ■ Other

SHAREHOLDERS

in %



■ Prof. Dr. Volker Gruhn (Setanta GmbH)\* ■ Rainer Rudolf\*  
 ■ Ludwig Fresenius ■ Freefloat  
 \* Supervisory Board

## RECOMMENDATIONS FROM THE FINANCIAL MEDIA AND ANALYSTS' OPINIONS

<i>Date</i>	<i>Subject/ Recommendation</i>	<i>Evaluation</i>	<i>Source</i>
2019-03-13	adesso: short notated small	For two years, the price has been moving sideways between 50 and 60 euros, despite all the fundamental progress made. [...] Before the publication of the 2018 numbers on 29.03. let the news of the planned increase in the dividend to 0.45 (0.40) euros per share close to a good financial year. The outlook should be decisive for the short-term price development.	Nebenwerte Journal Extra
2019-03-04	Buy	Target Price: 62.40 €	DZ BANK
2019-01-11	Hot stock of the week: the time ist ripe	[...] If the Management Board can convert the currently prevailing positive mood into further increasing sales and sustainably increase the margin, nothing stands in the way of a resumption of the upward trend. In addition to the favorable valuation, the very likely surpassing of the 2018 forecast and the medium to long-term conclusion in the   sure sector, lucrative takeovers and successful internationalization should provide the necessary impulses in the short term. Target: 72.50 €, stop: 42.00 €.	Der Aktionär
2019-01-09	adesso – So it went on	[...] Since the end of the year, paper recovered again and gained almost 10%. For a re-entry, however, it is too early in our opinion. Therefore wait for adesso first.	Platow Börse
2018-12-21	adesso – still by mail: the exchange ranking for growth shops	As in N  7/18 after participation in the AGM of Adesso AG as well as after the 9M numbers 2018, we do not have to compromise our positive assessment. [...] On the stock market, however, the price development stagnates and leads to the realization that it was probably too fast in the jump two years ago and then air was released. In the meantime, however, the valuation is in a region that is significantly below the profit growth and provides the share with clear recovery potential in normal times.	Nebenwerte Journal
2018-11-28	adesso – Boosting new markets	[...] adesso has big plans. The Dortmund IT company is not only aiming for new industries, but also for greater internationalization. Recently, large orders for the automation of document processing in the healthcare sector brought significant growth. And the recent cooperation with Swiss Rail is also likely to delight investors [...]. Empf. On 2.11.2016, issue 45/2016, Empf.-Kurs 39.10 €, course cur. 51,50 €, +/- in%: +31,71, New Stop: 41,20 €.	Focus Money
2018-11-15	Buy	Target Price: 73.50 €	Warburg Research
2018-11-15	Buy	Target Price: 73.80 €	SMC Research
2018-08-02	Marathon shares: six titles running the field	[...] Analysts see earnings per share from 2017 to 2022 rise from € 1.79 to € 5.07. If adesso fulfills these targets, the status of a marathon AG would certainly be safeguarded in the future as well. Target: 70.00 €, stop: 48.00 €.	Börse Online
2018-04-23	adesso expects a strong year	Vorstandswoche's old favorite adesso has developed splendidly. [...] We advise the stock to stay invested. Uninvested investors are waiting for a weak trading day to buy the stock slightly cheaper. The growth story is fully intact!	Die Vorstandswoche



## MANAGEMENT AND DIRECTORS

### Executive Board



**Michael Kenfenheuer** | CEO

Michael Kenfenheuer (born in 1958) is a member of the Executive Board and responsible for the departments Banking and Insurance. In the Executive Board of adesso he is furthermore in charge of the adesso shareholdings adesso insurance solutions GmbH, A3A Strategy Consulting GmbH, e-Spirit AG and smarthouse adesso financial solutions GmbH. He was appointed as a member of the adesso AG Executive Board for these responsibilities in 2000. With his many years of business management and project management experience, Michael Kenfenheuer is having a major impact on the development and expansion of the company's network of technical and industry experts. From 2011 to mid-2015 Michael Kenfenheuer was the Co-Chairman of adesso AG. Since 1 July 2015 he assumes the Chairmanship.



**Christoph Junge** | Member of the Executive Board

Christoph Junge (born in 1970) is a member of the Executive Board and responsible for Finance, Human Resources, Administration and Legal Affairs also Mergers & Acquisition. He is furthermore in charge of the adesso shareholding alleato assekuranzmakler GmbH and CFO of e-Spirit AG. Before he was appointed as a member of the BOV AG (now adesso AG as the result of a merger) Executive Board in May 2005, he helped shape the company's business operations as Director of Finance and Company Development.



**Dirk Pothen** | Member of the Executive Board

Dirk Pothen (born in 1967) is a member of the Executive Board and responsible for adesso's Automotive and Transportation department, as well for Manufacturing Industry and the foreign company adesso Austria GmbH. Over this, he is in charge of the adesso shareholding Arithnea GmbH. Prior to his appointment to the Management Board of adesso AG in October 2018 Dirk Pothen most recently worked as Managing Director for Germany, Austria and Switzerland at SQS Software Quality Systems AG in Cologne. Before that, he spent fifteen years working in different management roles at Atos and T-Systems.



**Andreas Prenneis** | Member of the Executive Board

Andreas Prenneis (born in 1965) is a member of the Executive Board and responsible for adesso's Cross Industries, Public Administration, Health, Data & Analytics, Microsoft and IT management consulting. He is furthermore in charge of the adesso shareholdings adesso as a service GmbH, adesso mobile solutions GmbH, gadiv GmbH, percision services GmbH, com2m GmbH and medgineering GmbH. He was appointed as a member of the adesso AG Executive Board for these responsibilities in 2015. Andreas Prenneis joins adesso from CompuGroup Medical Germany, where he managed a number of business areas in his role as Area Vice President Telematik & AddOn.



## Supervisory Board

### Prof. Dr. Volker Gruhn

Chairperson of the Supervisory Board



Prof. Dr. Volker Gruhn (born in 1963) was a co-founder of adesso AG in 1997 and is now the Chairperson of the Supervisory Board. He is Head of the Software Engineering Department at University of Duisburg-Essen. His main researches focus on mobile applications and the examination of the effects of digital transformation, especially the development and operation of cyber physical systems. Prof. Dr. Gruhn is the author and co-author of more than 300 national and international publications and conference contributions. He is member of the University Council of Leipzig University and as well member of the advisory council of the BIPRO initiative. The BIPRO initiative is an association of finance companies that aim to optimize cross-company processes by developing functional and technical standards.

#### Further mandates in Supervisory Boards:

Besides being the chairperson of the Supervisory Board of adesso AG, Prof. Dr. Gruhn is a member of the Supervisory Board of e-Spirit AG, Dortmund.

### Dr. Friedrich Wöbking

Member of the Supervisory Board



Dr. Friedrich Wöbking (born in 1950) is a declared expert on information technology and the banks and insurance industries. He was member of the Executive Board at Dresdner Bank AG between 2003 and 2009 and took responsibility for the IT Services and Operations department. Previously, during the 1990s, he was member of the Executive Board at Allianz Versicherungs-AG/Allianz Lebensversicherungs-AG and Deutsche Versicherungs-AG where he was head of the Private Customer Business department as well as head of the departments IT and e-Business. Wöbking owns a doctor's degree in Information Technology and Mathematics and currently runs FW ADVISORY Management Beratung.

#### Further mandates in Supervisory Boards:

Besides being a member of the Supervisory Board of adesso AG, Dr. Wöbking is a member of the Supervisory Board of Erste Financial Services GmbH, Düsseldorf.



**Prof. Dr. Gottfried Koch**

Member of the Supervisory Board



Prof. Dr. Gottfried Koch (born in 1951) is a professor of insurance IT and member of the management board of the IT institute at Leipzig University. Before he took up the professorship in 1998, he worked at Helvetia insurance group in St. Gallen and Frankfurt, and was also active as a freelance consultant. In addition, he was managing director of FJA AG in Austria and Switzerland until 2000. He studied at the German Insurance Academy in Cologne, at Goethe University in Frankfurt, and at the University of St. Gallen, where he also received his doctorate. Having initially trained as an insurance clerk, he started his career at Frankfurter-Allianz Versicherungs AG.

**Further mandates in Supervisory Boards:**

Besides being a member of the Supervisory Board of adesso AG, Prof. Dr. Koch is chairperson of the Board of Directors of automobilie AG and of Pfefferbeere AG, both in Bühler, Switzerland.

**Hermann Kögler**

Member of the Supervisory Board



Hermann Kögler (Born 1955) was for over 12 years Director of Finance/Controlling and Spokesman of the Board at COGNOS AG, one of the biggest privately-owned, independent education groups in Germany. After his departure from the Board of Executive Directors at his own request, he was elected Member of the Supervisory Board at COGNOS AG in 2016. After studying Business Administration at the University of Cologne, he began his career as a self-employed wholesaler. He later held a number of senior management positions, including those at the Otto Wolff Group and Rhenus AG. In early 1996 he moved to the international steel distributor Klöckner & Co., where he was an executive until 2001, most recently as Director of Finance/Controlling. Before he joined COGNOS AG in 2004 the graduate business administrator worked as a consultant and interim manager.

**Further mandates in Supervisory Boards:**

Besides being a member of the Supervisory Board of adesso AG, Hermann Kögler is a member of the Supervisory Board of COGNOS AG, Hamburg.

**Heinz-Werner Richter**

Member of the Supervisory Board



Heinz-Werner Richter (born in 1951) has been a member of the management board of Barmenia Versicherungen from 1996 to 2013 and was responsible for the IT and mathematics divisions in the health and life insurance sectors. Additionally, he was a member of the management board of the German actuarial association for many years as well as a member of numerous bodies within the German Insurance Association, and the association of private health insurers. Today, Mr. Richter works as an actuarial trustee for private health insurers and performs an advisory function in IT projects. Before starting his career at Barmenia in 1977, Heinz-Werner Richter studied mathematics and informatics at the University of Bonn where he graduated with a degree in mathematics.

**Rainer Rudolf**

Member of the Supervisory Board



Rainer Rudolf (born in 1962) is member of the board of the software technology company W3L AG. The graduated computer scientist co-founded adesso AG in 1997 and led the company as CEO until the end of 2010. In this capacity, he was responsible for the management of the entire company until 2007, which comprised all business and administrative activities in addition to the company's HR and legal teams. His contribution played a major role in shaping adesso AG's solid economic growth and progress. From September 30, 2011, after stepping down from the Management Board, to October 2016, Rainer Rudolf was managing director of Stock Informatik GmbH & Co. KG, a leading software company in the field of occupational medicine and safety. The company was taken over in 2015 by CompuGroup Medical Deutschland AG and prepared for the complete integration under his direction.

## GLOSSARY

### Commercial terminology

#### Account clearing

The accumulation of the balances of various bank accounts in a target account, taking account of defined minimum levels. This produces a balance of available liquidity in the target account, which is used for various forms of investment.

#### Benchmark

Benchmarking describes comparative analysis on the basis of set reference values (benchmarks).

#### Cash flow

Cash flow is an economic measure that represents the net flow of liquidity resulting from sales and other continuing activities in a certain period.

#### Cash management

Cash management and liquidity management are terms used in commercial finance management. Cash management includes all measures relating to the current financial planning of a company

#### Cost of materials ratio

The cost of materials ratio represents the relationship between expenditure on materials and services and turnover. It is expressed as a percentage.

#### The DACH region

DACH is an acronym comprised of abbreviations of the German names of the countries in the region: Germany (D), Austria (A), and Switzerland (CH). The term is usually used to refer to the German speaking economic area.

#### Discounted cash flow method

The DCF method is used to determine the value of companies. Future cash flow is discounted by taking into account the cost of capital on a reporting date.

#### EBITDA

Earnings before interest, taxes, depreciation and amortisation.

#### EBITDA margin

The ratio of EBITDA to sales. The EBITDA margin is a measure of a company's productivity and is independent of its income from financial assets, extraordinary items, and taxes.

#### Factoring

Factoring is a financial service used to finance current sales. The factor purchases the accounts receivable of its factoring client vis-à-vis a debtor. In exchange for the accounts receivable the factor pays the factoring client the value of the receivable immediately.

#### Forecast

A forecast is a projection used in budget planning. During the progress of a period, forecasts are used to update expectations for the period compared the original budget.

#### Free float definition (of Deutsche Börse)

Deutsche Börse's definition for the classification of free floating and fixed share holdings. An example can be found in the "Guide to the Equity Indices of Deutsche Börse".

#### FTE

Abbreviation of Full Time Equivalent. The FTE value is used to compare the relative staffing levels of a company and as a basis for calculations; the FTE value is used to convert figures regarding absolute staffing levels to their equivalent in terms of full-time positions. For example, two 50 % contracts would be counted as one employee, even if two different individuals are employed.

#### German Corporate Governance Code

The German Corporate Governance Code (often shortened to DCGK) is a system of regulations established by a commission of the German Federal Government. It is primarily composed of guidelines regarding good corporate governance, including ethical employee behaviour and the leadership of companies and organisations.

**Goodwill**

Goodwill is the amount a purchaser is prepared to pay for a business or company with regard to its expected future earnings (= earnings value) above the value of individual assets after the deduction of debts (= net asset value).

**Gross domestic product (GDP)**

The value of all goods and services produced by an economy, as defined by its territorial border, within a given year. GDP includes the services of foreigners working in a country, whereas the services of natives working abroad are not included.

**Gross profit**

Gross profit is the difference between a company's revenue and its expenditure on goods and services.

**IAS International Accounting Standards**

See IFRS

**IASB**

The International Accounting Standards Board (IASB) is an independent international committee of legal experts which is responsible for the development, and where required, the revision of the International Financial Reporting Standards (IFRS).

**IFRS**

The International Financial Reporting Standards (IFRS) is a set of international standards used by organisations when reporting their financial results. They include the standards of the International Accounting Standards Board (IASB), International Accounting Standards (IAS), the International Accounting Standards Committee (IASC) and the interpretations of the International Financial Reporting Interpretations Committee (IFRIC).

**Impairment Test**

An impairment test is a mandatory test used to evaluate fixed assets. The accounting regulations US-GAAP and IFRS call for the periodic evaluation of possible indicators of sustained loss of value.

**Percentage of completion method (PoC)**

A method for estimating the progress of an assignment. This method allows the costs incurred during an assignment to be allocated to the revenue from the assignment according to the progress made. This produces a picture of expenses, revenue and results as regards the progress made.

**Working capital**

Working capital refers to the difference between current realisable assets (those that can be liquidated within a year) held by a company and its current liabilities. It is the portion of current assets which are not tied up in covering current liabilities, and can therefore be "put to work" in purchasing, production, and working processes.

**Xetra trading**

Xetra is an electronic trading system operated by Deutsche Börse AG for the spot market. Its central servers are located in Frankfurt.

## IT terminology

### Bitkom

The Bundesverband Informationswirtschaft, Telekommunikation und neue Medien e.V. (the German Federal Association for Information Technology, Telecommunications and New Media) is Germany's digital association. Founded in 1999 as a merger of individual industry associations in Berlin, it represents more than 2,600 companies in the digital economy.

### Content solutions

In the context of its expansion strategy, adesso is developing a portfolio of solutions. The focus is on functions that are of interest to a large number of clients in the same or similar form, and can therefore be marketed as a solution. adesso's Content Solutions include solutions for the generation and management of content.

### Enterprise Content Management

Enterprise Content Management (ECM) includes the methods and technologies and tools used to collect, manage, save, protect, and provide content and documentation for the support of organisational processes in a company.

### FirstSpirit

The name of content management system produced by the adesso subsidiary e-Spirit AG.

### Internet of Things

The term Internet of Things or in brief IoT describes that conventional personal computers (PC) are increasingly disappearing as a device and replaced with "smart objects". The "Internet of things" is meant to support people unnoticeably in their everyday activities. For this purpose, computers/sensors become smaller and smaller to be embedded in objects. Hence, they neither distract the users nor being noticed at all. They serve to collect and to process data, can be networked to communicate or initiate useful processes.

### Mobile solutions

In the context of its expansion strategy, adesso is developing a portfolio of solutions. The focus is on functions that are of interest to a large number of clients in the same or similar form, and can therefore be marketed as a solution. adesso classes all solutions that help make information, content and applications remotely accessible as mobile solutions.

## FINANCE CALENDAR

<i>Termine</i>	<i>Event</i>
2019-01-10	22nd ODDO BHF Forum, Lyon
2019-02-20	13th ODDO BHF German Conference, Frankfurt/Main
2019-03-29	Publication of the 2018 annual report, financial press/analyst conference, Dortmund
2019-05-13	Interim announcement of the group within the 1st half-year
2019-05-15	Spring Conference 2019, Frankfurt/Main
2019-05-17	Regular ASM, Dortmund
2019-08-30	Publication of the 2019 half-year figures
2019-10-14/15	European Large & MidCap Event, 19th edition, Paris
2019-11-13	Interim announcement of the group within the 2nd half-year
2019-11-25 to 27	Deutsches Eigenkapitalforum/One-on-Ones, Frankfurt/Main

## IMPRINT

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