

# ANNUAL FINANCIAL STATEMENT

2017





# TABLE OF CONTENTS

<b>SHAREHOLDERS, CORPORATE BODIES</b>	<b>4</b>
<b>STRUCTURE REPORT AND ORGANISATION CHART</b>	<b>6</b>
<b>REPORTS FROM THE CENTERS</b>	<b>10</b>
Energy	10
Health & Bioresources	12
Digital Safety & Security	14
Vision, Automation & Control	16
Mobility Systems	18
Low-Emission Transport	19
Technology Experience	21
Innovation Systems & Policy	23
Seibersdorf Labor GmbH	25
Nuclear Engineering Seibersdorf	25
Si.A Errichtungs-GmbH	25
<b>BUSINESS PERFORMANCE 2017</b>	<b>26</b>
Earnings Position	26
Expense Structure	27
Incoming Orders	28
Order Level	29
Work in Progress	30
Investments	31
Liquidity and Financial Position	31
Personnel	32
<b>REPORT ON THE PRINCIPAL RISKS AND UNCERTAINTIES</b>	<b>33</b>
Risk Management and Internal Control System	33
Risk Areas	36
Description of the main features of the AIT internal control and risk management system with regard to the accounting process	39
<b>INTERNAL AUDIT DEPARTMENT</b>	<b>40</b>
<b>FORECAST REPORT / FINANCIAL AND NON-FINANCIAL PERFORMANCE INDICATORS</b>	<b>41</b>
Strategic Development	41
Indicators for Scientific Success Measurement	42
<b>EVENTS AFTER THE BALANCE SHEET DATE</b>	<b>43</b>
<b>BALANCE SHEETS</b>	<b>45</b>
Group consolidated balance sheet	46
Group consolidated profit and loss statement	48

## SHAREHOLDERS

- **REPUBLIC OF AUSTRIA**  
(Austrian Federal Ministry of Transport, Innovation and Technology)  
with 50.46%
- **ASSOCIATION FOR THE PROMOTION OF RESEARCH AND INNOVATION**  
(Federation of Austrian Industries)  
with 49.54%

## CORPORATE BODIES

### MANAGEMENT

DI Anton PLIMON  
Prof. Dr. Wolfgang KNOLL

#### Authorised Signatories

Doz. Dr. Josef FRÖHLICH represented until 31 March 2017  
Mag. Alexander SVEJKOVSKY  
DI Helmut LEOPOLD  
Dr.in Brigitte BACH  
Mag. Christian MEIXNER  
DI Dr. Christian CHIMANI  
Prof.in Dr.in Elke GUENTHER  
DI Andreas VRABL representing since 21 March 2017  
DI Arno KLAMMINGER representing since 21 March 2017  
Univ.-Prof. Dr. Manfred TSCHELIGI representing since 21 March 2017  
DI Dr. Matthias WEBER, M.A. representing since 21 March 2017

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DI Dr. Franz Michael ANDROSCH  
Mag.a Mariana KAREPOVA  
Mag.a Hannah GLATZ as of 21 March 2017

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Christian GÄRTNER  
Dlin Christina TAMAS  
Thomas HUGER  
DI (FH) Hubert UMSCHADEN as of 17 January 2017

## STRUCTURE REPORT AND ORGANISATION CHART

As of 1 January 2017, the former five departments launched the new Center structure, now with eight Centers: Digital Safety & Security; Energy; Health & Bioresources; Innovation Systems & Policy; Low-Emission Transport; Mobility Systems; Technology Experience und Vision, Automation & Control. The reorganisation was worked out as part of the strategy process and took into account the development of the individual Centers and the corresponding bundling of topics.

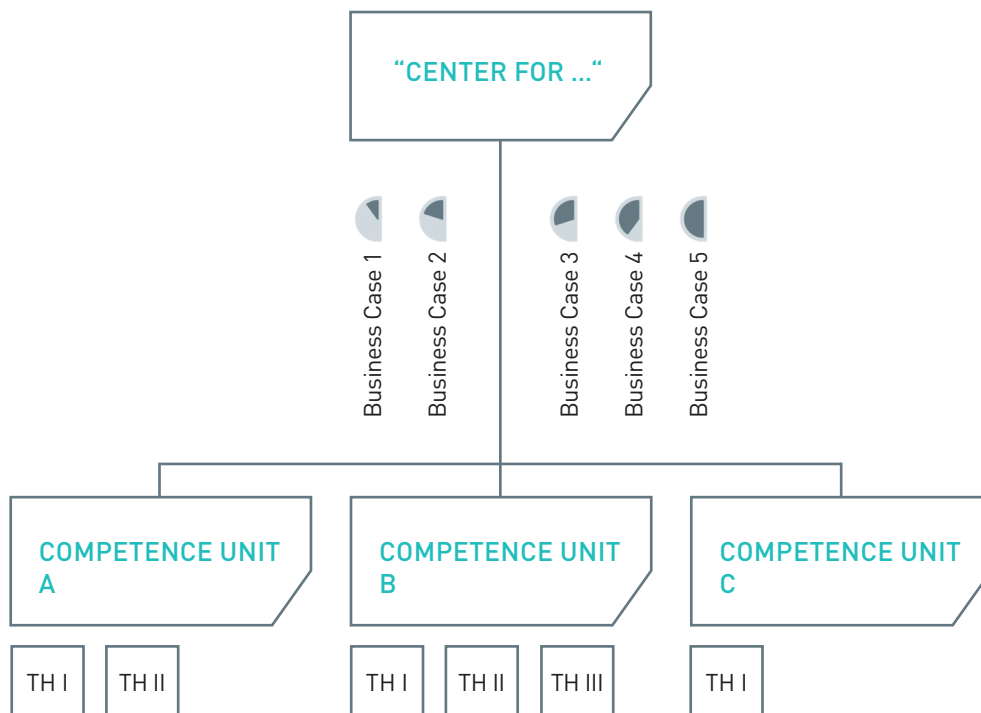
As of June 2017, AIT's strategy development entitled "Empowering Innovation" for the years 2018–2021 was completed after critical review by the SRAB (Strategic Research Advisory Council). This was followed by further implementation steps in order to implement the targeted changes as of 1 January 2018:

- Further development of the organisational structure
- Greater alignment along research topics and customers or fields of application, respectively
- Business Cases (BC) as a management tool for use with Business Manager
- Competence Unit (CU) with subject areas (TH) as the core for R&D handling
- CU as a cost center

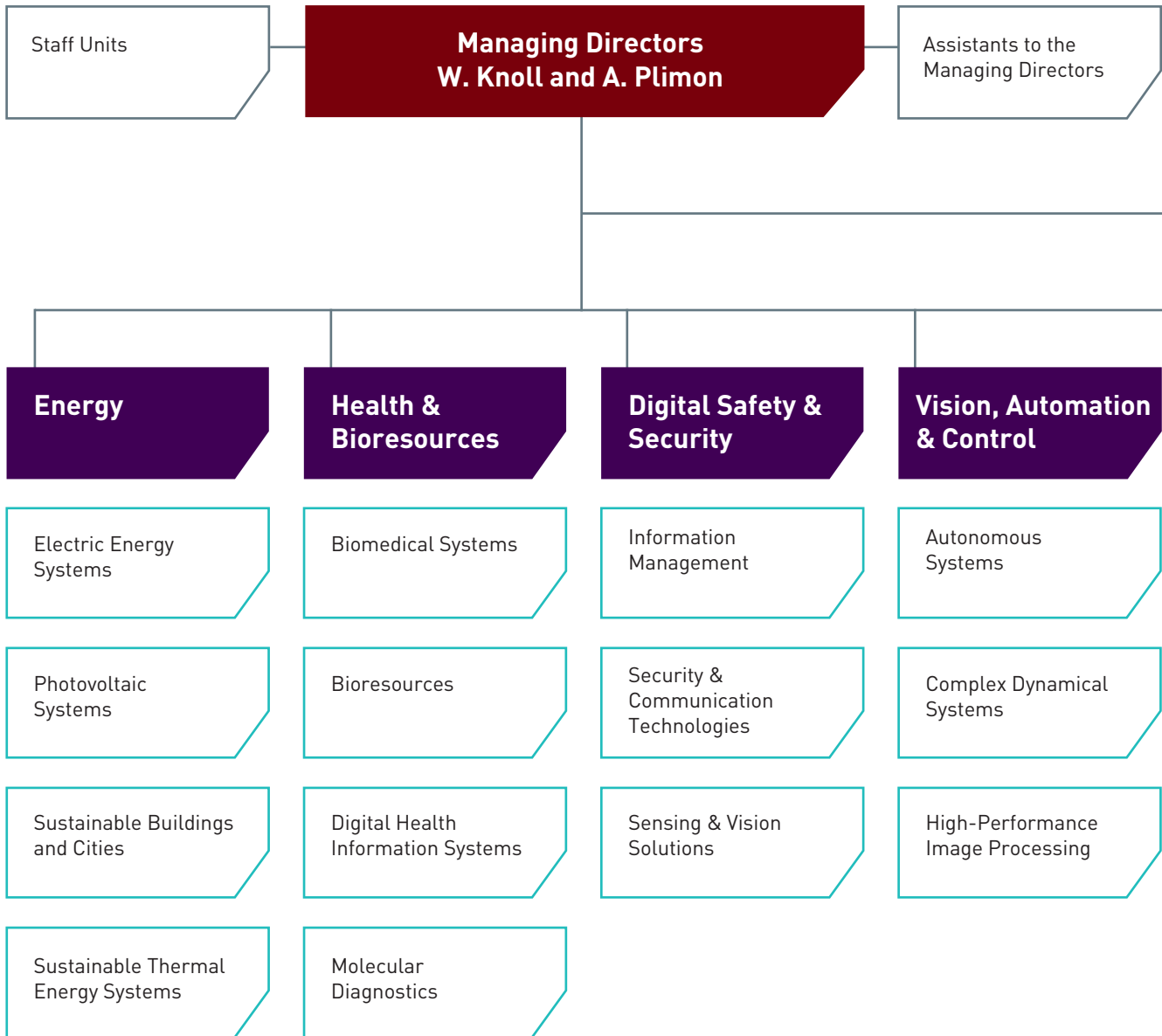
As part of the career model, the following strategic elements have been established:

- Revision of the functions of the AIT management
- Head of Center
- Head of Business Unit
- Definition of the role of “Business Manager”
- Definition of the new career level “Chief Research Engineer”
- Consistency check and adaptation of other functions (Business Development, Thematic Coordinator, Research Engineer, Project Manager)
- Development of a compensation model for Business Managers

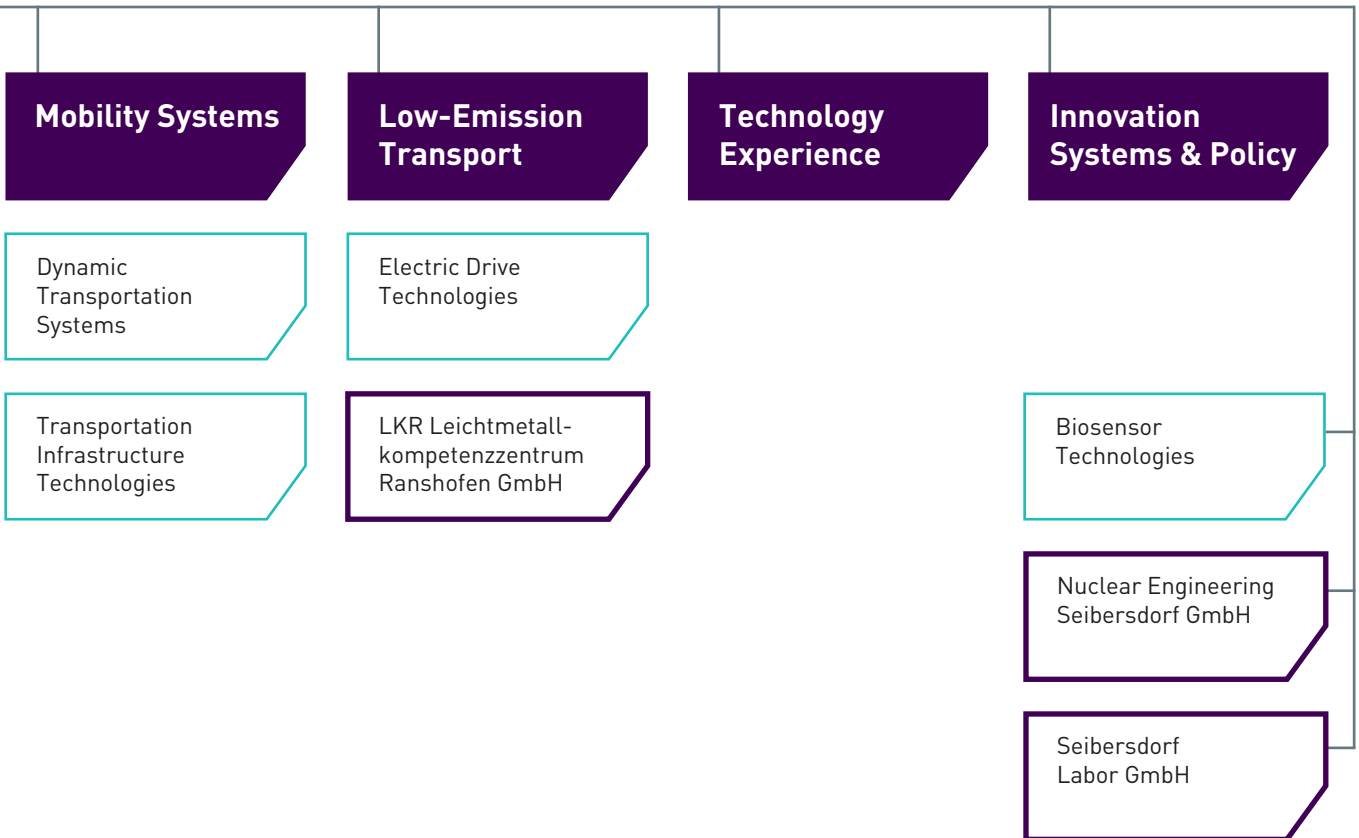
The cross-departmental collaboration was intensively evaluated in the course of the strategy process and reorganised for the 2018–2021 strategy period. The system now provides for cooperation in business cases that are chaired by a Center.



# AIT ORGANISATION CHART FEBRUARY 2018







## REPORTS FROM THE CENTERS ENERGY

In June 2017, the strategy process for the period from 2018 to 2021 was successfully completed. According to the Vision 2025 of the owners, the core topics of "decarbonisation" and "digitisation" have been anchored even more firmly in the Center portfolio for the next four years and the research profile has been sharpened accordingly. The Center for Energy primarily addresses three systems: Infrastructure, industry and cities. In the area of energy infrastructure, electricity, heat and relevant storage infrastructure (e.g. for electromobility) are considered as a whole in order to be able to optimally exploit flexibilities and synergies in accordance with the principle of sector coupling. Another focus is the development of efficient industrial processes and systems using renewable energy. This aims at helping energy-intensive industries reduce their CO<sub>2</sub> emissions while improving their competitiveness. A great success in this regard was the award of contract for the flagship region "NEFI – New Energy for Industry" coordinated by the AIT. In the subject area of sustainable and resilient cities and regions, the development of methods was significantly driven forward by the appointment of a Principal Scientist in Cognitive Urban Design Computing.

As part of the strategy process, solid structures were created to tackle the new tasks in an efficient and target-oriented manner. The Center for Energy has defined ten research fields and eight business cases to further strengthen contract research through a clear definition of utilisation models, customer target groups and services. The research infrastructure has been strategically expanded in all addressed areas in order to continue to fulfil the role of AIT as an innovation partner for business and the public sector. As a case in point, the simulation capacity of the SMARTest Lab has been extended by 16 AC simulators that can be operated in a network or individually. This makes it possible to investigate the coupling of different networks, such as the interaction of a microgrid with a larger network, under real conditions. The new system allows the simulation of network

states up to 800 kW and has been in full operation since July 2017. Large heat pumps and district heating transfer stations will play a key role in industry and cities in the future. In order to take this development into account, the AIT is building a common laboratory infrastructure for these key components for future energy systems. The planning and approval have already been completed, and the start of construction is planned for 2018. In addition, the preparatory planning for an "Urban Intelligence Lab" to be implemented next year started as well. The laboratory uses state-of-the-art technologies, such as augmented reality, to interactively visualise various urban planning scenarios, thus supporting stakeholders' decision-making processes with regard to smart cities.

At the beginning of the year, the Head position of the Sustainable Buildings and Cities business unit was successfully filled. The new Business Unit Director, Nikolas Neubert, brings along valuable practical experience through his work in a planning office so as to actively drive the competences in this area forward and to further develop the team. Head of Center Brigitte Bach was appointed honorary professor at the Vienna University of Technology in autumn 2017 and will continue to expand the existing cooperation between the university and AIT. The focus here is on innovative and interdisciplinary topics concerning energy and urban transformation, using, among other things, the "Living Labs" method, which has already been successfully used at the AIT. In addition to her position as chairperson of the expert panel Horizon 2020 Advisory Group on Energy, she was also appointed Vice Chair of the European Energy Research Alliance (EERA) in 2017 and will also contribute the know-how of AIT in this field at the European level.

## HIGHLIGHTS OF THE PORTFOLIO DEVELOPMENT 2017

To even better meet the need for sustainable, resilient and social urban development expertise, the Center for Energy added a Principal Scientist in Cognitive Urban Design Computing to thus be in a better position to be able to address future complex urban research issues. Together with his group, the trained architect and city planner Reinhard König will dedicate himself to Responsive Cities & Regions, Energy Conscious Cities & Regions, Smart Spatial Planning and Resilient Urban Systems. The focus is on the modelling of complex urban systems and societies, urban planning simulation and analysis techniques as well as the development of evolutionary design methods. Through his work at the Bauhaus University Weimar, the ETH Zurich and the Future Cities Lab at the Singapore ETH Center, he contributes valuable international know-how in these areas into the research portfolio.

The conversion of the energy system poses particular challenges to manufacturing and energy-intensive industry, which currently requires around 30% of Austria's energy demand. As already mentioned, the AIT-coordinated initiative "NEFI – New Energy for Industry" is dedicated to the energy innovations needed for this purpose, and in November it was awarded the contract by the Climate and Energy Fund to set up a topical flagship region. The consortium of over 80 companies, 14 research institutes and five public institutions wants to prove over the course of the coming eight years that a complete decarbonisation and the use of up to 100% renewable energy in industry with innovations from Austria is feasible, economically viable, and ecologically beneficial. The flagship region offers an important contribution to climate protection and simultaneously opens a great opportunity for all participating companies and the business location Austria as a whole. Over a period of eight years, NEFI is to generate projects with a funding volume of around 40 million EUR and thus trigger total investments of 100 to 120 million EUR.

## REPORTS FROM THE CENTERS HEALTH & BIORESOURCES

The two main systems addressed by the Center for Health & Bioresources (HB Center) are (i) the healthcare system which focuses on screening, diagnostics and therapy support, including animal health and, in some aspects, the lifestyle market and (ii) the bioeconomy with a clear focus on the improvement of plant systems and microbial production systems. The Digital Health Information Systems business unit, formerly part of the DSS Center, was assigned to the HB Center as the fourth unit from January 2017 on and ideally complements the research and development capabilities of the three existing units Molecular Diagnostics, Biomedical Systems and Bioresources. The Center now has core competencies in the fields of omics technologies and big data, nano and sensor technologies, modelling and simulation, and in-depth knowledge of regulatory markets. These competencies are being further developed along the value chain in a targeted manner so as to create added value for our customers and partners.

To strengthen scientific excellence, two Principal Scientists have been established in different business units: Doz.<sup>in</sup> Dr.<sup>in</sup> Claudia Jonak (Bioresources), who focuses on the metabolism and environmental stressors of plants and thus synergistically fits into the business unit research agendas on the interaction of plants and beneficial microorganisms; and Priv.-Doz. DI Dr. Winfried Neuhaus (Molecular Diagnostics), who focuses on the blood-brain barrier and the blood-saliva barrier in humans as well as the development of corresponding new in-vitro models and is closely networked with the Unit's biomarker research into different disease symptoms.

The already excellent scientific output of the HB Center could not only be maintained in 2017, but also markedly increased again. The methodological and scientific excellence of the Center is reflected in 90 publications in peer-reviewed journals and a cumulative impact factor of over four hundred (IF = 410). This includes about 20 publications in open access journals. Building on a competitive technology portfolio with a focus on the respective core topics and customer groups of the individual units, the Center has a strong patent portfolio. Especially in the Biomedical Systems business unit, the strengthening of the patent portfolio begun last year was systematically further pursued through the submission of new patents and the extension of existing national patents.

## HIGHLIGHTS OF THE PORTFOLIO DEVELOPMENT 2017

### SMART MOLECULAR APPROACHES AND MICROBIOME APPLICATIONS FOR ADAPTIVE AND ENVIRONMENTALLY SUSTAINABLE CROPS

New challenges in crop production due to climate change and demographic development are a key topic in the AIT business unit Bioresources. From a global perspective, crop yields must double by 2050. However, crop production is currently severely affected by environmental stress, such as extreme weather events, long dry spells, global warming and increasing pest pressure. Therefore, the securing of the yield is a key issue. Among other things, the HB Center is developing innovative methods to support modern plant breeding with suitable markers. For example, innovative, sustainable technologies that increase the yield potential and the resilience of plants to environmental stress are being developed under the direction of Claudia Jonak. The expertise of the team regarding stress signal transduction in plants is being further developed here within the scope of co-financed projects (e.g. in the FWF projects SWEETIMMUNITY, SALTSTRESSCHROMATIN, ROS) as well as targeted strategic research projects. For example, cellular energy sensors that rapidly coordinate metabolism with the current energy status in order to enable a rapid adaptation of plant growth to prevailing environmental conditions are being developed. Another focus of the HB Center is the research and use of plant-associated microbiomes. The totality of the microorganisms that colonise plants is also termed the secondary plant biome and is responsible for several beneficial functions. Similar to intestinal microflora, some microorganisms also support the health of the plant and can be used as biopesticides, while others stimulate plant physiology and thereby growth or increase stress resilience. The HB Center has extensive know-how in terms of functionality and criteria for successful field application of microorganisms, as well as developing formulations and specific application techniques. It investigates molecular interactions, especially in co-financed projects (e.g. the FWF projects GYBASE and SETARIA SEED MICROBIOME; the nfb project RAGCONTROL; the EU projects BESTPASS, MICROMETABOLITE, SOLACE), and also develops concrete applications in cooperation with companies.

### COMPLETE SYSTEMS FOR INNOVATIVE MOLECULAR DIAGNOSTICS IN VETERINARY MEDICINE

In the Molecular Diagnostics Business Unit, the entire diagnostic process from sampling to evaluation of the results is intensively researched and worked on in numerous development projects. In addition to increasingly saliva-based samples, test media also include classic media such as blood, milk or excreta. This consecutive expertise is gradually being extended by innovative ideas in order to be able to offer our industrial partners application-oriented solutions to questions in human and veterinary diagnostics. The focus in doing so is on utilising the know-how generated for customer-specific diagnostics and, in particular, on establishing so-called point-of-care (POC) rapid tests, which allow a prompt, precise and inexpensive diagnosis on site. To give an example from this area, the know-how of AIT is currently being further developed together with an internationally operating company in the animal health sector towards cutting edge infection diagnostics. The aim of these contract research projects is to establish diagnostic POC test systems in the livestock sector which can detect pathogens in milk and faeces at an early stage and in a specific manner using pathogen-specific biomarkers. Affected animals can thus be treated in a more targeted and gentle manner in terms of animal welfare and food safety. In order to implement these innovative diagnostics, four main sub-areas are combined in an overall system: sample preparation, test development and device design as well as data evaluation. After completion of the development projects, the prompt market introduction of these veterinary diagnostics by our industrial partner is planned.

## REPORTS FROM THE CENTERS DIGITAL SAFETY & SECURITY

The Center for Digital Safety & Security was reorganised as of 1 January 2018. The Department's well-established research priorities and the high-revenue, industry-related areas of industrial optical quality inspection sensors, optical sensors for autonomous vehicles and aviation and IT systems for the healthcare sector were bundled in various AIT Centers. The resulting new Center for Digital Safety & Security focused on establishing or strengthening a number of new research priorities. The three key areas of (i) scientific excellence and comprehensive networking in the scientific community, (ii) realisation of critical masses of major international project initiatives, and (iii) the establishment of concrete industrial and economic collaborations were relied on in the usual, tried and tested manner.

The scientific track record of the Center proves the well-founded working method and the high level of scientific competence. In the meantime, the Center's scientific work is based on established research collaborations with more than 40 scientific institutions around the world. The impact factor of the scientific publications was increased by more than 64% compared to the previous year and the high standard of all publications could be proven repeatedly.

In the field of funded research projects, the Center successfully demonstrated the important infrastructure role of Austria as a business location. The Center positioned itself as a driving force for both concrete topics in European research programme management and the Austrian economy. In almost half of all EU-funded projects, the Center has assumed a project coordination role, which is an essential service for public safety research consumers as well as the Austrian economy. In the end, the Center's success rate has reached a very high level in the EU research programme – in comparison to Austria and the EU.

Building on the technological core competencies and the established focused sales strategy, it was possible to achieve an increase in industrial contracts compared to the previous year.

Furthermore, the Center was able to successfully position itself as a driving force in key flagship initiatives for Austria as a business location. Data Market Austria (DMA), Reference Architecture for a Secure Smart Grid Austria (RASSA), Public Safety – national alarming System (PASA) and Safety & Security for IoT Austria (IoT4CPS) are national initiatives that are characterised by special multi-stakeholder management tasks under the primary leadership of the Center for the business location Austria. In addition, the Center takes on significant design tasks in various Austrian initiatives such as the Cyber Security Platform Austria (CSP) of the Federal Chancellery, the strategic programme management of the Austrian semiconductor and electronics industry (ECSEL), the Association Industry 4.0 of the Republic, etc.

In concrete terms, a leading technological role could be achieved for the business location Austria in an international context in certain key areas of technology.

## HIGHLIGHTS OF THE PORTFOLIO DEVELOPMENT 2017

In the area of virtual currency forensics (blockchain technology), Austria was able to establish itself internationally as a leading competence centre through its AIT successes. Collaborations with UNODC (the United Nations Organisation against Drugs and Crime), Europol and Interpol, as well as more than 15 police organisations in Europe as part of one of the largest European research programme initiatives, confirm this leading role in the international context. AIT is currently one of the few organisations that can offer a powerful blockchain analysis technology on the market.

In the key area of cyber security, the consistent technology portfolio of threat management through security by design, incident detection through machine learning methods and incident sharing with the authorities was consolidated and successfully expanded. In the context of post-quantum encryption, AIT is now among the world's leading organisations. Through unique and special optical quantum techno-

logies, AIT masters state-of-the-art encryption technologies which provide reliable encryption protection even after the use of future quantum computers. Both the scientific track record and the economic interests of the international high-tech industry in AIT solutions prove this successful international positioning. This comprehensive solution competence as well as the strong capabilities of the Center's technology and know-how transfer meant that in the autumn of 2017, the Republic of Austria and AIT carried out an internationally noteworthy cyber exercise based on AIT technologies, in which all relevant safety ministries (FMI, BKA [Federal Chancellery], FMEIA, FMD) and over ten operators of critical infrastructures participated.

## REPORTS FROM THE CENTERS VISION, AUTOMATION & CONTROL

The Center for Vision, Automation and Control was founded in early 2017. The aim of the Center is to provide research, technology and innovation in the areas of image processing, automation and digitisation for the industry. It is our mission to cover the entire chain from the capturing of information through (vision) sensor systems via sensor fusion, the combining of physically based models with machine learning and data analysis concepts, the use of this information in error detection and fault isolation, the optimisation and control all the way to cognitive decisions for industrial processes, systems and components.

In the three research fields of High Performance Vision, 3D Vision and Modeling and Complex Dynamical Systems, the scientific foundations are researched and implemented as prototypes for this purpose. The latter topic is currently being developed in close cooperation with the Automation and Control Institute (ACIN) of the Vienna University of Technology.

### HIGHLIGHTS OF THE PORTFOLIO DEVELOPMENT 2017

In the High Performance Vision research field, the Center holds a leading global position when it comes to the print inspection of security documents, in particular in the quality control of banknotes. Therefore, the Center was commissioned to develop an international standard for an open interface between high-performance sorting machines and sensors that check the authenticity and reusability of banknotes. This standardised interface will be the decisive door opener and innovation driver for the development and market introduction of new sensors. The world's leading sorting machine manufacturers have already taken up this initiative and started to integrate the new standard into their systems. In addition, the Center has developed the world's fastest and most flexible line scan camera (xposure), which can perform single-line scans at a rate of 600 kHz, as well as multi-line scans with up to a maximum of 60 line scans. The first prototypes are now available and will be used in new research projects. Simultaneously, the patented and multi-line scanning-based Inline Computational Imaging (ICI) technology developed at the Center was further developed. Successful steps have been taken to transfer these ICI sensor systems to production systems in the metal and electronics industry in order to detect very fine defects and/or 3D structures in the range of a few micrometres. The development of a technology demonstrator has now made this new sensor "tangible" for future industrial customers. It enables a quick assessment of the potential in new inspection and measurement tasks.



Assistive and autonomous systems are becoming more and more important, not only for cars on the road, but also for trucks and tractors, mobile work machines, off-road vehicles, trains and trams, as well as for robotic applications and machines in production systems. In the research field of 3D Vision and Modeling, the Center has significant expert knowledge in the areas of 3D sensor technology, environment detection, mapping and localisation, navigation and machine learning for assistance and autonomous systems. Together with industrial partners, various prototype systems have been implemented very successfully. For example, the robustness of the tram driver assistant developed at the Center was substantially increased by introducing a new mapping system. In addition to these continuous developments in the field of trams, it was now possible to also incorporate this technology in port cranes and to kindle concrete customer interest in the industrial sector. In general, (partially) autonomous machines are evolving into a very interesting field of application for the Center in which many open and challenging research questions need to be resolved.

The research field Complex Dynamical Systems is currently in the development phase. Its main competencies are physical modelling, path planning, control, sensor fusion, real time optimisation and the analysis and design of complex dynamic systems. The combination of scientific expertise in the field of image processing and machine learning of the other research fields of the Center provides the basis for developing autonomous systems in a holistic manner. The focus in the applications lies in the area of handling systems and

construction machines. Among other things, new concepts for the automated handling of flexible materials (textiles, leather, etc.) are being worked on together with key industrial customers. The industrial processing of these materials is largely done by hand and opens up a huge future potential for automation. In addition, an excellent market position was able to be established in the process automation of industrial furnaces in the metal industry. The mathematical models and algorithms for estimation, optimisation and control have been further improved and systematically organised in a kind of software library. In the future, these competencies will also be able to be extended to other industries and processes (e.g. cooling systems).

The targeted growth strategy was successfully implemented in the Center both in terms of number of employees and expansion of contract research. This could be achieved not least due to the attractiveness of the research topics addressed as well as the renowned cooperation partners, and despite extremely fierce competition for the best minds in the engineering sector in the European market at the moment. Especially the close cooperation with the Vienna University of Technology has made it possible to attract a number of highly trained employees for the Center.

## REPORTS FROM THE CENTERS MOBILITY SYSTEMS

The Center for Mobility Systems is working on the sustainable development of safe, efficient and environmentally compatible solutions for key issues in the research and development of mobility systems. Mobility is an essential core element of our society and is undergoing a rapid development and change process. Demographic trends, steadily growing urbanisation, and environmental requirements call for new solutions in the mobility sector. The Center for Mobility Systems focuses on system approaches with technological detail and market understanding in the areas of safe and sustainable transport infrastructure, multimodal mobility of people and synchromodal freight mobility. The systemic approach as well as the focus on the convergence of these three mobility pillars in the development of new mobility solutions enable the implementation of new, innovative research and development results.

The positioning of research topics is therefore intensively co-designed through the integration into national and international networks as well as bilateral cooperation agreements and represents a continuous strategic focus for the networking with other research organisations, universities and industry partners for long-term partnerships in the transport sector.

### HIGHLIGHTS OF THE PORTFOLIO DEVELOPMENT 2017

Pursuant to § 9 para 2 Road Traffic Act (StVO), pedestrians enjoy "increased protection" from free-flowing traffic on unregulated pedestrian crossings. The extent to which this is actually the case, however, depends very much on the street infrastructure. The use of unregulated pedestrian crossings sometimes represents a considerable potential hazard, because many drivers either intentionally ignore the priority of pedestrians or cannot perceive them in time due to distractions or inappropriate driving speed.

The primary objective of the OBSERVE project that was coordinated by the AIT and funded by the Austrian Federal Ministry of Transport, Innovation and Technology (bmvit) is the development of a risk-based assessment for unregulated pedestrian crossings based on local accident statistics, pedestrian-driver interaction observations, traffic counts and other local influencing factors. The effects of various infrastructural and traffic measures (e.g. central traffic islands, sidewalk extensions, crossing width) on the accident and injury risk at specific crossing points are to be evaluated and recommendations for action derived.

The results of the "OBSERVE" project form the basis for further funding projects, such as the project auto.bus-See-stadt.

## REPORTS FROM THE CENTERS LOW-EMISSION TRANSPORT

The positioning of the Center for Low-Emission Transport (LET) is oriented towards the development of sustainable, low-emission vehicle components and their production methods. The research and innovation focus encompasses the key technologies required for low-emission traffic, such as powertrain electrification and weight reduction through material-based lightweight construction. The production technology is essential in both of the aforementioned areas, as the associated generation processes involve energy and resource-intensive processes and their improvements hold significant innovation potential.

The positioning of research topics is being co-designed intensively through the integration into national and international networks as well as bilateral cooperation agreements (including ETH Zurich, Queen Mary University of London, KIT, Vienna University of Technology) and represents a continuous strategic focus for networking with other research organisations, universities and industry partners for long-term partnerships in the transport sector.

Material competence and expertise in the development and use of numerical simulation methods for materials, processing processes and vehicle components are essential pillars of the development results. The following paragraphs respectively outline a result from the field of electric drive technology and the development of new light metal alloys. Furthermore, battery research has contributed significantly to the output and visibility of the Center's research findings. The development of a new silicon-based anode material earned first prize in the Future Award category at the Austrian Mobility Awards 2017.

### HIGHLIGHTS OF THE PORTFOLIO DEVELOPMENT 2017

#### EFFICIENT ELECTRICAL VEHICLE COMPONENTS FOR URBAN FREIGHT LOGISTICS

The challenge in urban freight logistics lies in supplying increasingly densely populated areas in a flexible, efficient and environmentally friendly way. In addition, cities pose special challenges for vehicles: General lack of space and access restrictions render deliveries by conventional trucks difficult. In EMILIA, the Center for Low-Emission Transport has technically optimised alternative-powered transport vehicles for urban distribution. The objective of EMILIA is to increase the range while simultaneously reducing costs.

The ideal drive train for an innovative, electric cargo bike was developed in cooperation with automotive technology partners. This drive train supports the driver's pedal force with an electric motor, thus enabling the transport of loads over larger distances and periods of time. The inverter which was specially developed by AIT acts as a digital "brain" for the cargo bike. The power electronics are highly efficient and the innovative control ensures ride comfort. A tailor-made inverter was also developed for a light two-track commercial vehicle. This innovative high-current inverter saves space, material and weight. Through a complete re-design, the volume could be more than halved in comparison to the serial inverter model of the manufacturer. In addition, a weight-saving housing was cast for the engine of this commercial vehicle, thus further reducing weight and increasing the range. Through lightweight design of cab and frame, a significantly higher payload was made possible for a hybrid road transport train at a lower weight.

Together with Mobility Systems and project partners from the logistics industry, the software / consulting industry and the vehicle industry, Centers collaborated with each other to develop applications that enable optimal route planning and charging stops. During the course of the project, the consortium also demonstrated the developments directly on the road. In the months of February, March and November of 2017, more than 1,500 kilometres were covered by bicycle and light commercial vehicle, with a total of 1.7 tons of parcels and over four tons of food delivered in the Vienna area and Hörsching (Upper Austria). The combination of concepts for efficient and clean urban delivery logistics and optimised vehicle technology enabled logistics specialists to gain experience with practical electromobility solutions for sustainable urban freight traffic.

### **FIRE-RESISTANT MAGNESIUM ALLOYS FOR THE LIGHTWEIGHT CONSTRUCTION OF VEHICLE COMPONENTS**

Reducing the mass to be moved is a high priority in both the aerospace and automotive construction sector, since it saves energy and also reduces greenhouse gas emissions. One approach to achieve a further weight reduction is the use of magnesium alloys. For the broad applicability of magnesium alloys, it should be noted that these alloys are usually very reactive. This means a high tendency to corrosion and flammability – both undesirable properties in transportation and in production. The LKR (Light Metals Technologies Ranshofen) is engaged in the development of fire-resistant magnesium alloys and is one of the world's leading research institutions in this field. Meanwhile, a fire test from the aviation certification was able to be successfully completed as an important step.

These new magnesium materials not only have to be fire resistant but must also have good mechanical properties – such as higher strengths – and good processability to be able to be used in the lightweight construction of vehicles. Therefore, the fire-resistant magnesium materials have been further developed in terms of improved castability and higher strength. This will open up further applications on the market, in particular aerospace and automotive applications (and the related electromobility). A larger customer order from the largest German magnesium pressure die caster for the development of higher-strength magnesium die casting

alloys shows the interest from the industry. Specific higher-strength magnesium wrought materials with good formability open up new lightweight construction potential in the vehicle structure or the battery housing. In the field of the production of high-strength magnesium sheets, additional expertise has been built up on the experimental rolling mill, which has already attracted interest in the domestic industry and has been inquired about as well. Other areas of magnesium research in cooperative industrial projects at the LKR include direct forging from the as-cast state and the processing of magnesium alloys into wires. These are used in the welding process and in additive manufacturing. Modern additive manufacturing processes thus allow the production of ultralight components.

2017 saw the investment into hardware (furnaces, casting and forming equipment) at the LKR in order to maintain a pioneering role in the development of magnesium alloys and their industrial processing capabilities.

## REPORTS FROM THE CENTERS TECHNOLOGY EXPERIENCE

The year 2017 was characterised by the establishment and reorganisation of the subject area of Technology Experience into an independent Center. This also includes the development of the strategy for the strategy period 2018 to 2021. As part of the strategy development, a consolidation of the research fields, the research topics contained therein and above all an intensive sharpening of the respective business cases took place.

By conducting several large-scale field studies, the Center has successfully positioned the subject of Technology Experience in special application contexts. The lakeside city of Aspern and Viertel Zwei are examples of this. Here it is about the topics of digitisation, smart grids, prosumers, or intelligent metering from the perspective of the customer, the resident and the user. Furthermore, the Center's successful positioning in the Automation Experience area was carried out as a special level in the field of automation. For example, research activities were started in the areas of autonomous driving and production assistance. In the area of Data Driven Experience Research, the topics VR Experience Measurement and QoE-Measurement & Management were successfully expanded in 2017. In the area of VR Experience Measurement, several studies were conducted on the topics of 360° video and rendering experience and successfully presented (among others) at the QoMEX 2017 conference. Thus, here too a current technology topic was intensively examined from a technology experience point of view.

The topic of acceptance methods was further developed in 2017 as a very relevant area of research. The approaches that were further developed in the Center had already played a key role in the successful acquisition of research and commissioned projects. There is an increasing interest in being able to provide corresponding methodological statements about the future acceptance of new technologies. This is also related to the topic of cyber security in the context of human factors, which is being further developed in the H2020 projects DOGANA and COMPACT. The Center continues to lead the way in experience research of assistance and AAL technologies. This also became apparent in the implementation of the EvAALuation contract project, where a validated and practicable set of indicators was developed to assess the effects of AAL solutions and efficiency gains achieved.

In the field of scientific publications, these have primarily been published at relevant international conferences such as MobileHCI 2017, Persuasive Technology 2017, IEEE Symposium on Visual Languages and Human-Centric Computing, QoMEX 2017, MUM 2017 or TEI 2017. The Technology Experience area is strongly influenced by a series of competitive conferences on various specialist topics. In 2017, the Center also successfully took the lead while participating in several roles in the implementation of the international conference MobileHCI 2017 in Vienna. In addition, articles have been featured in topical journals such as the International Journal of Child-Computer Interaction, International Journal of Human-Computer Studies, Quality and User Experience, or Multimedia Tools and Applications.

## HIGHLIGHTS OF THE PORTFOLIO DEVELOPMENT 2017

In 2017, the national flagship project MMAssist II: Assistance Systems in Production started at the Center in the context of human-machine cooperation. The aim of MMAssist II is to fundamentally investigate the nature and characteristics of assistance in the context of production, to then develop optimised assistance systems for future-oriented, human-centred workplaces, and to experimentally implement and evaluate them in industrial environments. The fundamental basis for the implementation of assistance are so-called "assistance units" – modular units that provide specific (multimodal) assistance functionality for the corresponding user groups or usage scenarios.

The Center is the scientific core partner of the project and is especially responsible for the analysis of production contexts, interaction concepts and the evaluation of resulting assistance approaches. As part of the project, the Center is also developing a model that represents the influence of technical equipment on work satisfaction (= work experience). Based on this model, a methodology for determining the impact of the assistive systems developed on the work and assistance experience is also being developed and verified, which will then be available to the Center for Technology Experience as a tool for further exploitation.

As part of the project series QoE StreamII- and QoE Stream Feasibility, a high-performance data acquisition and analysis platform which allows the real-time evaluation and representation of User Experience (UX) relevant data of media streaming services with >1 million real-time users is being developed. A key component is Quality of Experience (QoE) based feature engineering, which enables a highly efficient system design. The approach used is based on a combination of qualitative and quantitative methods to identify those

technically measurable parameters that are directly related to human quality perception in the context of the particular application. The system not only helps track perceived quality performance and anomalies regarding perceived quality, but also identifies and analyses relationships between user behaviour and quality of service or technical performance. These results not only enable service and application operators to monitor their offerings through dashboards, but also to accurately optimise them based on empirical experience and behavioural data.

In the course of initial projects, the interest in QoE monitoring of an important Austrian customer from the video-on-demand/broadcasting sector was kindled. Negotiations are currently underway for a higher-scaled and multi-annual cooperation in this field. In addition to the "media streaming" application area, the QoE stream platform and the associated feature engineering approach allow the monitoring of the user experience and behaviour of any software application with a human-machine interface. We see a particular potential here in the context of Industry 4.0 and the digitisation of processes, since such solutions can be technically integrated with relatively little effort in the context of these trends and the associated change projects, and because user intelligence moreover represents an increasingly important component for controlling and evaluating products and services.

## REPORTS FROM THE CENTERS INNOVATION SYSTEMS & POLICY

With the division of the Innovation System Department as part of the new Strategy 2018 to 2021, the former Research, Technology and Innovation Policy business segment was established as an independent Center for Innovation Systems and Policy at the AIT. This was accompanied by the reappointment of the Center management and further organisational changes.

The scientific results also saw a very favourable development in 2017. With 19 publications in peer-reviewed journals, the output was significantly higher than in previous years. On the occasion of the retirement of the previous head of the Innovation Systems Department, Hon. Prof. Dr. Josef Fröhlich, an anthology on the development of innovation research in Austria was published as well. By organising two major scientific conferences in Vienna, the Center was also able to position itself in a central and visible manner in the international research community.

### HIGHLIGHTS OF THE PORTFOLIO DEVELOPMENT 2017

Building on the preparatory work begun in 2016, the topic of socio-economic consequences of digitisation was one of the focal points of last year's work. In a widely read scenario study for the Federal Ministry of Transport, Innovation and Technology (bmvit) on Industry 4.0 and employment, it was shown that the expected positive employment effects of digitisation can only be achieved if Austrian companies are also in a position to generate sufficiently innovative products, services and business models which provide an added value for the customer and create new employment through a corresponding demand. The digitisation of production and the ability to innovate must therefore be driven forward simultaneously. The high response to this study has in the meantime led to follow-up projects on selected parts of the Austrian economy, for example in the mobility sector. Internationally, the work of the Center has met with interest from the OECD. Their report on the Next Production Revolution, which the Center was involved in, made an important contribution to the debate. Apart from legal and ethical issues, socio-economic consequences are also at the centre of the tasks of the Robotics Council established in 2017, whose development the Center has scientifically supported.

After two pilot projects for the Austrian Parliament had already been carried out in 2015 in cooperation with the Institute for Technology Assessment of the Austrian Academy of Sciences, a framework agreement was concluded with Parliament in the autumn of 2017 about consultation and support in the area of foresight and technology assessment. The first semiannual monitoring report on disruptive scientific and technological developments was sent to Parliament at the end of the year.

The preparations for the next European framework program for research and innovation formed an important activity focus of the Center in 2017. Of particular note here is the leadership of the European Foresight project BOHEMIA in support of future European research and innovation policy. In addition, staff members of the Center have participated in several expert groups to advise the European Commission and the Austrian Federal Government. In addition to the Austrian FP 9 think tank, this was especially the European Research, Innovation and Science Experts (RISE) High-Level Group, which presented an important programmatic contribution to the debate on the future of European R&I policy with their anthology in the summer of 2017. Further projects

for the European Commission on new multilateral platforms and partnerships, for the Austrian Ministries on the further development of the European support and advisory structures, but also for the German Federal Government on insight and knowledge transfer through European research complete the project portfolio in this area.

In close cooperation with the bbg (Bundesbeschaffung GmbH), the Federal Ministry for Transport, Innovation and Technology (bmvit) and the Economy department, work was continued on the establishment of an innovation-oriented public procurement in Austria in 2017. Based on this, an inventory for strategic public procurement in Austria was presented on behalf of the Council for Research and Technology Development. By appointing a Center employee to the European expert group Mutual Learning Exercise on Innovation-Related Procurement, the Center's preparatory work on a national level has also found resonance at the European level, where Austria's experience is now regarded as best practice.

Data and indicators on research and innovation activities have always formed an important basis for the work at the Center for Innovation Systems and Policy. That's why the Center is also a key partner in the Research Infrastructure for Science and Innovation Studies (RISIS), established in 2014, and sets up new research and innovation data sets, links them together and develops and provides tools for their analysis and visualisation. This allows e.g. for a comparison

of data on publications, patents, and research collaborations between universities, research institutions, and companies over time at an organisational and geographic level as well as in terms of subject classifications. In 2017, work began on the preparation of the second phase of RISIS, which, as of 2019, will ensure the transition to a form of institutionalisation known as the Advanced Community, thereby securing longer-term funding from the EU Commission. The further development of this field of activity will be supported by the conclusion of a cooperation agreement with the Austrian Patent Office (ÖPA), which will, on the one hand, open up new data sources in the area of intellectual property and, on the other hand, bundle the competencies of AIT and ÖPA for the analysis of such data.



## SEIBERSDORF LABOR GmbH

As in previous years, the business activities of the Seibersdorf Labor GmbH focused primarily on applied research and experimental development in the following areas in 2017:

- Detection of doping substances and disease markers
- Development of methods for the characterisation of chemicals
- Safety in electromagnetic fields, with a focus on NFC applications, safety of laser radiation
- Development of new methods for the production and quality control of PET drugs
- Development of measurement methods and measuring instruments for radioactivity and ionising radiation, radiochemical developments

The timely implementation of legal and normative changes in accredited procedures is one of the areas of strength of the company. The participation of experts from the Seibersdorf Laboratory GmbH in the relevant standardisation bodies is a prerequisite for this.

In 2017, the company moved to the new property located in Seibersdorf. The realignment and expansion of the infrastructure could thus be significantly advanced at a high level.

## NUCLEAR ENGINEERING SEIBERSDORF

As in previous years, Nuclear Engineering Seibersdorf put their focus in 2017 on the decommissioning and decontamination of plants, equipment and materials from 45 years of R&D activity of the AIT and its predecessor organisations as well as the treatment and temporary storage of incurred radioactive waste. Long-term contracts with the Austrian Federal Ministry of Transport, Innovation and Technology (bmvit) and the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), which also regulate the financing of service contracts, exist for this purpose.

## SI.A. ERRICHTUNGS-GMBH

The activities of Si.A. Errichtungs-GmbH include the preparation of the foundation of the SAL – Silicon Austria Labs in implementation of the Federal Ministry of Transport, Innovation and Technology (bmvit) initiative to strengthen research activities in the field of electronic-based systems (EBS) in Austria.

## BUSINESS PERFORMANCE 2017

### EARNINGS POSITION

Against the background of the increasingly competitive environment in the subsidies market, the total external revenue of the AIT Group was increased by around 2.0 million EUR (approximately +2.6%) in the past fiscal year due to its focus on contract research. The increase in income from contract research alone reached +4.9 million EUR (+12%) compared to the previous year. However, income from funding fell by around -2.9 million EUR or around -7.9% compared with the previous year.

The payments of the shareholders are research grants and form the third major financing pillar of the AIT Group in addition to the external revenues from contract research and co-financed research. In the reporting year, the sum of the shareholder benefits increased by approx. 5.6% above the previous year's level (reporting year: 47.4 million EUR, previous year: 44.9 million EUR). AIT uses the resources of the Federal Ministry of Transport, Innovation and Technology (bmvit) to expand research focus areas and thus the scientific and technological competence of the company. Other operating income / other revenues of 12.3 million EUR

include the income from the reversal of provisions in the amount of approx. 0.5 million EUR, revenue from expenses charged in the amount of approx. 0.5 million EUR, the reversal of investment grants in the amount of 9.0 million EUR, the proceeds from recharged rents of 1.3 million EUR as well as other operating income / other revenues in the amount of approx. 1.0 million EUR.

In contrast to the presentation of the P&L structure of the annual financial statement, the presentation for the management report was maintained unchanged in order to present the proceeds from research contracts without confusion with the proceeds from expenses charged in the amount of 0.5 million EUR (previous year: 0.5 million EUR) and other revenues in the amount of 1.8 million EUR (previous year: 1.9 million EUR).

In the presentation for the management report, an additional 3.6 million EUR (previous year: 4.1 million EUR) was reclassified to the line Nuclear BMFLUW in order to achieve a better presentation of the overall "nuclear financing".

Designation in kEUR	ACTUAL 2017	ACTUAL 2016
Revenues R&D	45,001	39,346
Inventory changes	429	1,204
Revenues R&D including inventory changes	45,430	40,550
Funding R&D	34,761	31,845
Inventory changes	-1,172	4,606
Funding R&D including inventory changes	33,589	36,451
<b>Total Revenues from Research Contracts</b>	<b>79,019</b>	<b>77,001</b>
Income from bmvit – Independent research	47,351	44,862
<b>Total Payments of the Shareholders (Research)</b>	<b>47,351</b>	<b>44,862</b>
Nuclear bmvit	3,772	4,325
Nuclear BMLFUW	3,614	4,132
<b>Total Financing Nuclear</b>	<b>7,386</b>	<b>8,457</b>
Other operating income / Other revenue	12,266	13,146
<b>TOTAL OPERATING INCOME</b>	<b>146,022</b>	<b>143,466</b>

## EXPENSE STRUCTURE

The company's expense structure for the reporting year 2017 shows changes of –3.8 million EUR compared to the previous year for project-related material costs and related services (reporting year: 14.8 million EUR, previous year: 18.6 million EUR). As a result of higher staff numbers as well as of the collective agreement related salary indexing, personnel expenses rose by approx. 6.8 million EUR (reporting year: 88.5 million EUR, previous year: 81.7 million EUR).

Compared with the previous year, other operating expenses showed a decrease of approx. –1.2 million EUR, mainly due to the –1.2 million EUR decrease in expenses for losses as well as the –2.0 million EUR decrease in relocation expenses

(corresponding provisions were added here in the previous year).

Increases in expenses in the year under review result from provisions and reserves, such as expenses for early termination of rental agreements in the amount of 0.4 million EUR, expenses for site restoration in the amount of 0.6 million EUR as well as expenses for the closure of activities in the amount of 0.5 million EUR.

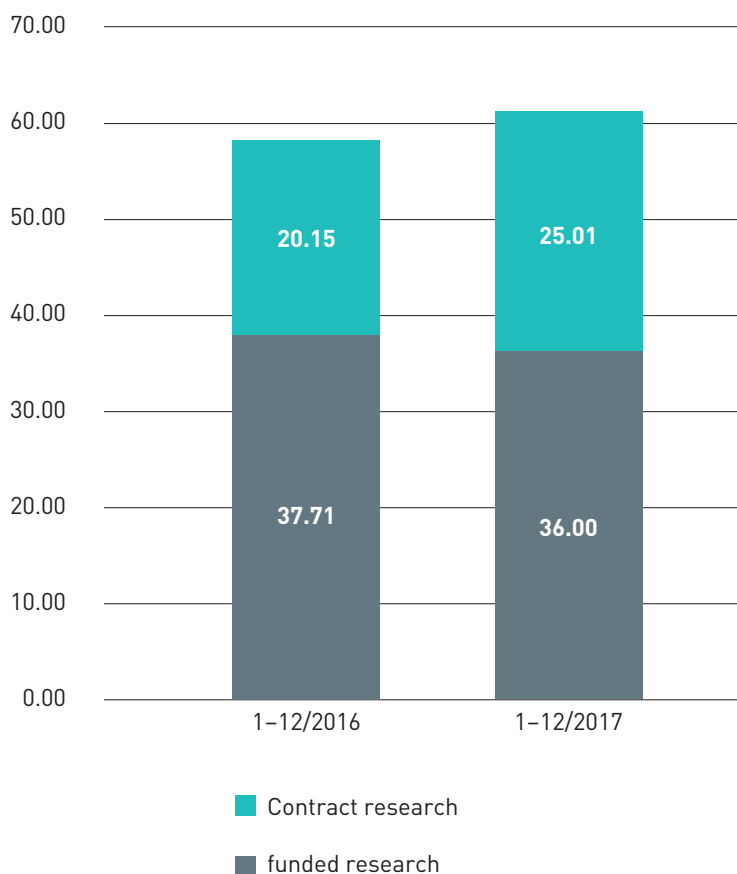
The annual result is 2.8 million EUR and shows a stable development of the AIT Group.

Designation in kEUR	ACTUAL 2017	ACTUAL 2016
<b>TOTAL OPERATING INCOME</b>	<b>146,022</b>	<b>143,466</b>
Material costs	–5,350	–5,816
Services rendered by third parties	–9,442	–12,796
Material costs and purchased services	–14,792	–18,612
Personnel expenses	–88,530	–81,694
Amortisations	–10,621	–10,349
Other operating expenses	–29,368	–30,591
<b>TOTAL OPERATING EXPENSES</b>	<b>–143,311</b>	<b>–141,246</b>
<b>OPERATING PROFIT</b>	<b>2,711</b>	<b>2,220</b>
Financial profit	324	1,112
EBT	3,034	3,332
Taxes on income/earnings, shares in the companies	–229	253
<b>ANNUAL/PERIOD RESULT</b>	<b>2,805</b>	<b>3,585</b>
Result carried forward	20,788	17,203
<b>NET PROFIT/LOSS</b>	<b>23,593</b>	<b>20,788</b>

## INCOMING ORDERS

Incoming orders for the AIT Group could be increased by approx. 5.4% over the previous year and amounted to 61.01 million EUR in the year under review (previous year: 57.9 million EUR). This increase in new orders compared to last year could be achieved entirely in the category of contract research projects (+24.1%, reporting year: 25.0 million EUR, previous year: 20.2 million EUR), while new orders for co-financed projects were not able to match the previous year's level in the very competitive environment (-4.5%, reporting year: 36.0 million EUR, previous year: 37.7 million EUR). The reasons lie in increasingly competitive subsidy markets and the resulting oversubscription of subsidy tenders, especially in the EU subsidy market. Success in attracting contract research projects to offset this effect is therefore becoming increasingly important.

**Incoming orders**  
All amounts in millions of EUR



## ORDER LEVEL

In the year under review 2017, the order level was increased by approx. 2.7% over the previous year. The key factor in increasing the order levels was the success in the acquisition of contract research projects leading to a growth in the related levels of around 3.6 million EUR (+17.4%, reporting year: 24.5 million EUR, previous year: 20.9 million EUR), with otherwise consistent order levels in co-financed research (reporting year: 137.6 million EUR, previous year: 136.9 million EUR).

### Order Level

All amounts in millions of EUR

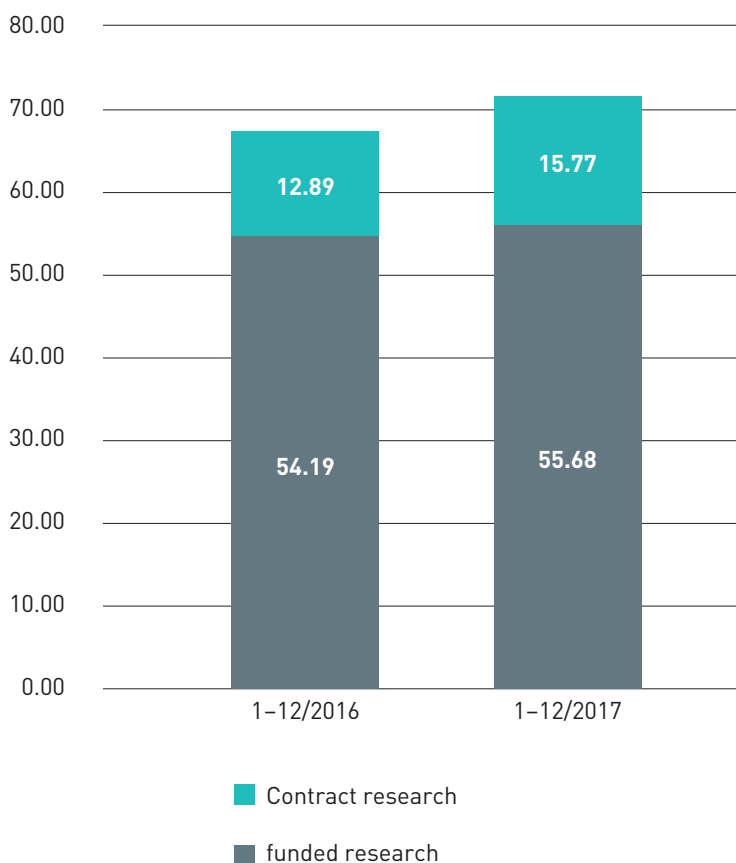


## WORK IN PROGRESS (UNFINISHED PROJECTS)

Work in Progress not only takes into account the invoiced revenues (as in the case of the order level), but also the deferred project revenues due to the project work progress. In comparison with the previous year, Work in Progress shows an increase of approx. 6.5% (reporting year: 71.5 million EUR, previous year: 67.1 million EUR).

An increase of Work in Progress in the amount of approx. 2.8% could be recorded in the area of co-financed research (reporting year: 55.7 million EUR, previous year: 54.2 million EUR). The Work in Progress for contract research could be substantially increased by approx. 22.4% over the previous year (reporting year: 15.8 million EUR, previous year: 12.9 million EUR).

**Work in Progress**  
All amounts in millions of EUR



## INVESTMENTS

Total investments in intangible assets and property, plant and equipment in 2017 amounted to 16.7 million EUR and are 6.0 million EUR higher than the corresponding previous year figure of 10.7 million EUR.

The investment in intangible assets (primarily rights) amounted to 0.5 million EUR (previous year: 0.3 million EUR). The acquisition of assets for "land and buildings" amounted to 0.1 million EUR (previous year: 0.1 million EUR). The investment in technical facilities amounted to 8.1 million EUR (previous year: 4.4 million EUR). 3.0 million EUR were spent for facility and office equipment (previous year: 1.0 million EUR) and 5.1 million EUR were received for advance payments and plants under construction (previous year: 3.2 million EUR). Of this, 1.7 million EUR relate to the ongoing investment projects of the NES (incineration plant, Warehouse 15 and buffer storage halls).

## LIQUIDITY AND FINANCIAL POSITION

As of 31 December 2017, cash and cash equivalents amounted to 70.6 million EUR (previous year: 56.1 million EUR). The liquidity level as of 31 December 2017 also includes funds for investment projects already ordered but not yet delivered.

Cash and cash equivalents are offset by liabilities from fiduciary project coordination funds in the amount of 14.7 million EUR (previous year: 4.6 million EUR).

There were securities deposits with a book value of 13.7 million EUR (previous year: 13.7 million EUR).

As of 31 December 2017, liabilities to credit institutions amounted to 1.4 million EUR (previous year: 0.3 million EUR). As of 31 December 2017, equity amounted to 39.2 million EUR (previous year: 36.4 million EUR). After considering the investment grants in the amount of 67.9 million EUR (previous year: 68.5 million EUR), the sum of capital resources expanded for the reporting year 2017 amounts to 107.1 million EUR (previous year: 104.9 million EUR).

## PERSONNEL

As of the reporting date of 31 December 2017, the company employed a total of 1,070.9 employees (calculated on full-time equivalents [FTE] without taking into account apprentices, apprentices in the retention period, or HF/EU scholarship students). Compared to the previous year reporting date (997.2 full-time equivalents), this corresponds to a total increase of the workforce of 73.7 full-time equivalents. The personnel growth of the Austrian Institute of Technology GmbH as a parent company amounted to 59 FTE, in particular due to recruitment in the technical-scientific disciplines.

### 31 December 2016

	FTE	Persons	Average
AIT Austrian Institute of Technology GmbH	792.8	864	767.9
Seibersdorf Labor GmbH	97.8	106	99.2
Nuclear Engineering Seibersdorf GmbH	60.2	62	57.8
LKR Leichtmetallkompetenzzentrum Ranshofen GmbH	45.8	49	44.2
Si.A. Errichtungs-GmbH	0.6	1	0.1
<b>Group</b>	<b>997.2</b>	<b>1,082</b>	<b>969.2</b>

### 31 December 2017

	FTE	Persons	Average
AIT Austrian Institute of Technology GmbH	851.8	952	843.2
Seibersdorf Labor GmbH	105.5	115	99.7
Nuclear Engineering Seibersdorf GmbH	63.4	66	60.9
LKR Leichtmetallkompetenzzentrum Ranshofen GmbH	47.3	52	47.5
Si.A. Errichtungs-GmbH	3.0	3	0.7
<b>Group</b>	<b>1,070.9</b>	<b>1,188</b>	<b>1,052.0</b>

### Changes 2016 to 2017

	FTE	Persons	Average
AIT Austrian Institute of Technology GmbH	59.0	88	75.3
Seibersdorf Labor GmbH	7.6	9	0.5
Nuclear Engineering Seibersdorf GmbH	3.1	4	3.1
LKR Leichtmetallkompetenzzentrum Ranshofen GmbH	1.5	3	3.4
Si.A. Errichtungs-GmbH	2.4	2	0.6
<b>Group</b>	<b>73.7</b>	<b>106</b>	<b>82.8</b>



## REPORT ON THE PRINCIPAL RISKS AND UNCERTAINTIES RISK MANAGEMENT AND INTERNAL CONTROL SYSTEM

In order to implement the company strategy and the associated opportunities, the AIT deliberately takes manageable risks in research and service projects. In addition, the AIT is exposed to a variety of potential risks that could negatively impact the business. The risks are divided by management into strategic, operational, financial and legal risks.

At AIT, risks are defined as possible developments or events that may lead to a negative deviation from projections, while opportunities for future developments or events may lead to a positive deviation from projections.

The implemented risk management system, which was further developed and optimised in the past financial year, is used for recording and controlling. The business opportunities are determined in the course of regular quarterly meetings and strategy meetings.

At AIT, risk management is understood as an independent process which is devoted to dealing with results- and event-oriented risks and opportunities at the corporate (organisational) level. The risk management system is implemented throughout the Group as an integral part of our business, support and management processes and is integrated into the planning, control, monitoring and reporting processes. It represents these in a transparent and understandable manner through a structured process of identification, assessment, determining countermeasures, regular reporting, and tracking of risks of all company activities.

AIT understands an internal control system to encompass the totality of all the policies, process descriptions, work instructions and control measures ordered by management which serve to ensure the proper running of business operations at process level. AIT sees the internal control system as a subsystem of risk management with strong mutual interactions. As a rule, optimisations in the internal control system will have a positive effect on risk management since every improvement of the control system at process level tends to contribute to the reduction of the effort required for the dealing with risks.

The structure of the control framework COSO (Committee of Sponsoring Organisations of the Treadway Commission) is used to describe the essential features. The COSO framework consists of five related components such as control environment, risk identification and assessment, control activities, information and communication, as well as monitoring.

## CONTROL ENVIRONMENT

The corporate management of the AIT Group is based on the group strategy adopted jointly between management and the Supervisory Board. It comprises the strategic positioning of the Group and its portfolio as well as its concrete medium-term performance and earnings expectations. The Group directions and annual targets for the companies, departments and divisions are derived from the strategic objectives.

AIT has a clear organisational structure with clear allocation of competencies and responsibilities across all organisational units. The responsibilities are defined in the individual processes. Detailed job descriptions and role descriptions which regulate the duties to be performed, the competencies and associated responsibilities and any representations are available for each. The traditional ICS measures such as the four eyes principle, the separation of functions, signature authorisation with set value limits are generally taken into account in all company-wide processes.

Internal personnel management is comprehensively regulated by policies, process descriptions, manuals, company agreements, job profiles, career paths as well as training and qualification measures. The Code of Conduct and a policy on the prevention of corruption assist employees in carrying out their tasks.

Furthermore, the maturity and efficiency of the internal control and risk management system was able to be further increased by means of the systematic implementation of new processes and technical audits for hazardous materials, such as general laboratory regulations, poison regulations, pinprick regulation [NastV], etc.

## RISK IDENTIFICATION AND RISK ASSESSMENT

The risk management system with its structure and process organisation is described and defined in a group-wide policy. It includes a comprehensive information, documentation and reporting system. In addition to the quarterly reports, which cover the entire range of risks and potential opportunities, a major internal ad-hoc reporting takes place in the event of material changes and new findings. In regular review meetings with management, all risk and opportunity-relevant topics are analyzed, assessed, controlled and monitored using standardised risk assessment sheets.

A group-wide control system supports the risk identification and early warning system. Standardised processes with appropriate control mechanisms make possible risk potentials more transparent and enable early identification of these at process level.

## CONTROL ACTIVITIES

In the course of the results-oriented control measures, the focus of AIT is on target achievement. The control of the compliance with the budget takes the form of ongoing target-performance comparisons, in order to take corrective action in case of any deviations.

Process-oriented controls essentially consist of systematic control measures to ensure the proper performance of the activities in the operational processes. The responsibilities for the performance of the process-related control activities to ensure a proper functioning of the various organisational units are laid down in the policies, process descriptions, work instructions and implementing regulations, which include, inter alia, provisions regarding the observance of the four eyes principle, the separation of functions and the specification of hierarchically graded approval competencies with a consideration of appropriate value limits.

## INFORMATION AND COMMUNICATION

The management information system of AIT has the task of providing the users with relevant information in a timely manner. It is used for in-house information transmission, whereby the primary focus is on transmitting relevant management information. Furthermore, a reporting set with compressed and meaningful metrics / key performance indicators complements the reporting system.

In quarterly review meetings, the subsidiaries, Centers and divisions of the management report the current economic situation in comparison with business planning, the previous year and the forecast. As part of these quarterly meetings, information is provided on project-relevant, scientific, financial, legal and administrative matters, opportunities, risks, and newsworthy highlights. This ensures that management has access to relevant information in a timely fashion and is able to take immediate and appropriate measures in case of target deviations.

Relevant information for employees is made available via the AIT intranet platform. AIT employees are regularly informed about important events and projects by the Corporate and Marketing Communications department.

In accordance with legal and company law provisions, the Supervisory Board receives regular quarterly reports and detailed information on current topics.

## MONITORING

The ongoing monitoring is constantly carried out by management and the authorities responsible for monitoring (Management, Head of Finance & Controlling, central Controlling, and Center Controlling) in a timely manner as well as through the employees as part of their service provision.

The internal audit department monitors the operating and business processes as well as the internal control and risk management system. In particular, the functionality and effectiveness of the internal control system and the risk management system are to be examined and assessed in doing so.

The Audit Committee of the Supervisory Board of AIT supervises the annual financial statements as part of its legal obligations. Its responsibilities include monitoring the accounting process, the effectiveness of the internal control system, the internal audit system and the risk management system.

Furthermore, the corporate bodies of AIT – the General Assembly and the Supervisory Board, as well as the Research Strategic Advisory Board – deal with monitoring ongoing business activities, including the associated risks, within the scope of their duties.

The AIT Group is 50.46% owned by the Federal Government. This results in the constitutional mandate for review and inspection by the Court of Auditors.

## RISK AREAS

The following is a description of the key corporate risk areas that may have a negative effect on the assets, financial and profit position of AIT.

### FINANCIAL RISK, INFORMATION ON FINANCIAL INSTRUMENTS ACCORDING TO § 243 UGB [AUSTRIAN COMMERCIAL CODE] PARA 3(5)

The company currently does not use any derivative financial instruments. Due to the nature of its business operations, the use of derivative financial instruments is not planned in the future either.

The value of the receivables is continuously assessed and monitored by the receivables management. A review of compliance with payment deadlines, limiting of credit limits and obtaining creditworthiness assessments from our customers limit the impact of potential payment defaults on the company's assets, financial and profit position.

### MARKET RISK

The situation in the global markets and the still unclear situation with regard to economic growth in the following years pose a risk for each market participant in terms of attainability of projected figures, the development of customer groups and partner networks as well as the implementation of business models. The service portfolio of the AIT Group is diversified and addresses various different markets. The continuous monitoring of the order situation as well as an early recognition of trends in the relevant markets with measures that are quickly derived from these remain important tasks for the AIT.



## PROJECT FUNDING RISK

A public project funding scheme deviating from the full reimbursement principle as well as changing interpretations of funding guidelines might lead to a worsening of the funding rate. Changes in the terms of the funding project accounting require a system adjustment of the cost accounting and project accounting system. In order to maintain a sound project assessment base, it is necessary to monitor the relevant environment and assess it with regard to possible commercial effects.

## INFORMATION TECHNOLOGY RISKS

The company has a central IT system environment, enabling the joint use of high-quality system components at the various locations. This includes, among other things, a modern security environment with a firewall, virus detection and remote access points with multiple protection for the detection of and defence against attacks. The data is centrally stored, automatically backed up at regular intervals, and copies are kept off-premises. All our projects are based on the generally accepted standards of the Baseline Protection Manual of the Federal Office for Information Security (BSI) and ISO standard 17799 and are supplemented by empirical values reflecting the current state of the art.

## LEGAL RISKS

AIT counters the legal risks through constant communication between the central legal department and the local attorneys, as well as through the implemented reporting system which encompasses ongoing procedures and potential risks. Any risks were taken into account by means of balance sheet risk provisions in the annual financial statement.

## PERSONNEL RISKS

The performance of our employees is essential for the development of our knowledge-based company. The company is competing with other companies for highly qualified specialists and executives. The further development of the AIT management culture, measures for training and further education in connection with the implementation of specific technical and scientific as well as management and support role models will position the AIT more strongly as a top employer internationally. Within the framework of international and domestic cooperation projects with universities and scientific institutions, AIT increases its access to well-qualified employees in the course of concrete project work.

### PRODUCT AND ENVIRONMENTAL RISKS

Product and environmental risks may arise in the course of laboratory operation with hazardous materials during storage, handling and disposal. Possible effects lie in hazardous incidents with immediate effect on persons and the environment. AIT therefore takes into account high (safety) technical standards for the use of hazardous materials, and these are subject to consistent monitoring of quality requirements and standards.

### OVERALL RISK

When analyzing the risks, no situations could be identified that would jeopardise the continued existence of the company at present and in the foreseeable future.

### INFRASTRUCTURE AND SITE RESTORATION RISKS

Both the structural condition of the buildings and that of the general infrastructure at the Seibersdorf site are no longer adequate to meet the requirements of a modern research location. Various measures to improve the situation at the site have already been taken based on a location and space concept.

## DESCRIPTION OF THE MAIN FEATURES OF THE AIT INTERNAL CONTROL AND RISK MANAGEMENT SYSTEM WITH REGARD TO THE ACCOUNTING PROCESS

A clear management and corporate structure exists in the Centers, the divisions, the company and the Group. Cross-departmental key functions are managed centrally by the company, with the individual companies of the Group having a high degree of autonomy at the same time, in particular with regard to operation-related processes.

The accounting regulations-related internal control system of AIT ensures that accounting records are checked for mathematical and factual correctness.

The material check for the release of bills and receipts takes place in the respective organisational units or subsidiaries and the financial and accounting procedures for all organisational units are then centrally managed at AIT. This centralised management of financial and asset accounting at AIT, with creditor and debtor management and the complete management of all incoming payments and outgoing payments, ensures a comprehensive functional separation of operational and financial processes across the Group.

The functions of the departments which are significantly involved in the accounting process, i.e. accounting and treasury, controlling and business administration, IT, as well as HR, legal, and procurement, are clearly separated. The areas of responsibility are clearly assigned.

The financial systems used are protected against unauthorised access by corresponding IT systems. Standard software is used in the area of financial and management systems.

Adequate policy and process management (e.g. for management, business, controlling, resources and support processes) has been established and is constantly being updated and further developed. The electronic incoming invoice recording with electronic release workflow is comprehensively used throughout the AIT group. The processing of invoices, now done electronically, as well as the complete release of invoices for payment in the system ensure a high transparency and reliability as well as the maintenance of the process discipline (e.g. four eyes principle).

The ICS, in particular accounting-relevant processes, is regularly checked by the process-independent internal audit team.

The internal control and risk management system as regards the accounting process, whose essential features have been described above, guarantees with sufficient certainty that business events are accurately recorded in the books, processed and thus properly incorporated into external accounting.

## INTERNAL AUDIT DEPARTMENT

The internal audit department, which is directly responsible to the management of the company, supervises the operational and business processes as well as the internal control and risk management system. In particular, the functionality and effectiveness of the internal control system and the risk management system, the compliance with applicable legal and operational policies, the regularity of all operational processes as well as measures for the protection of company assets are to be examined and assessed in this context. In the year under review, the organisational unit was expanded to include the functions "Data Protection" (data protection, measures pursuant to the GDPR) and "Technical Audit".

The audits are carried out according to the annual audit plan approved by AIT management and supplemented by short and special audits. The audit reports make recommendations and propose measures which are subject to an ongoing follow-up subsequent to the implementation instruction by management.



## FORECAST REPORT / FINANCIAL AND NON-FINANCIAL PERFORMANCE INDICATORS STRATEGIC DEVELOPMENT

The financing agreement with the Federal Ministry of Transport, Innovation and Technology (bmvit) forms the basis for the strategic development of the AIT Group. In the reporting year 2017, a new financing agreement was negotiated with the Federal Ministry of Transport, Innovation and Technology (bmvit) for the period from 2018 through 2021 based on the updated corporate strategy. Initially, a financing commitment for 2018 could be agreed upon.

## INDICATORS FOR SCIENTIFIC SUCCESS MEASUREMENT

The following table shows a selection of indicators for the scientific success measurement of the company. These indicators have been developed in the context of the bmvit financing framework agreement – most recently for the period from 2014 through 2017.

<b>Scientific &amp; Performance Indicators</b>	<b>2017</b>	<b>2016</b>
Patents granted (patent families)	37	27
Publications in scientific peer review journals with impact factor	243	194
Impact factor	802.4	518.6
Publications in scientific peer review journals without impact factor	70	65
Publications as part of conferences (with review process)	378	370
Publications as part of conferences (without review process)	100	165
Invited lectures	298	293
Lectures	142	189
Number of PhD students	229	234
Number of PhD students from the international arena	78	82
Proportion of PhD students from the international arena (%)	34	35
Completed dissertations	39	31
Completed diploma theses	63	64
Number of habilitated employees	28	26

## EVENTS AFTER THE BALANCE SHEET DATE

No events of special significance have occurred after the balance sheet date that would have led to a different presentation of the asset, financial and earnings position.

Management:

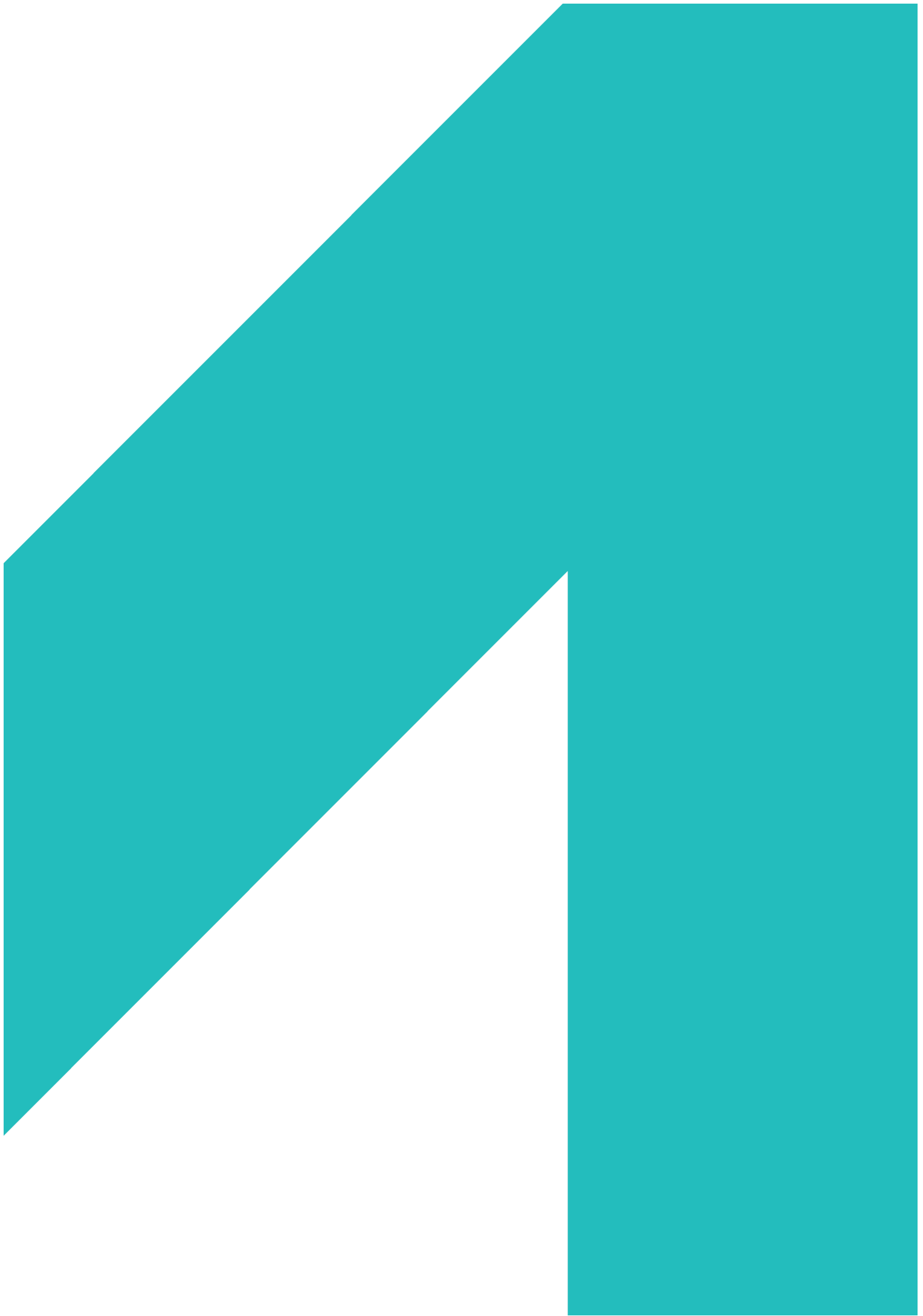


DI Anton PLIMON e. h.



Prof. Dr. Wolfgang KNOLL e. h.

Vienna, 5 April 2018



## BALANCE SHEETS

Group consolidated balance sheet	46
Group consolidated profit and loss statement	48

**CONSOLIDATED BALANCE SHEET**

Status as of 31 December 2017

	Status as of 31 December 2017	Status as of 31 December 2016
	EUR	kEUR

	EUR	EUR
<b>A. FIXED ASSETS</b>		
I. Intangible assets		
1. Concessions, rights	1,720,091.15	1,915
2. Advance payments made	0.00	0
	1,720,091.15	1,915
II. Property, plant and equipment		
1. Land, rights to land and buildings, including buildings on land owned by third parties	30,560,310.02	33,185
2. Technical equipment and machinery	25,499,356.58	22,180
3. Other equipment, plant and office equipment	10,099,540.62	8,458
4. Advance payments made and plants under construction	7,060,435.85	3,210
	73,219,643.07	67,033
III. Financial assets		
1. Holdings	143,651.00	119
2. Securities (book-entry securities) of fixed assets	13,830,874.71	13,721
	13,974,525.71	13,840
	88,914,259.93	82,788
<b>B. CURRENT ASSETS</b>		
I. Inventories		
1. Raw materials, auxiliary materials and supplies	4,386.04	5
2. Finished products	432,649.15	648
3. Not yet billable services		
Non-funded customer projects	9,741,215.70	9,073
less advance payments received	-5,740,935.05	-4,389
Funded research projects	79,929,714.31	81,102
less advance payments received	-66,589,129.38	-67,574
	17,340,865.58	18,212
	17,777,900.77	18,865
II. Receivables and other assets		
1. Receivables from deliveries and services	11,813,400.38	7,803
2. Claims against companies in which an investment is held	164,513.13	37
3. Other receivables and assets	959,111.63	1,346
<i>of which with a residual term of more than one year</i>	<i>3,900.00</i>	<i>4</i>
	12,937,025.14	9,186
III. Cash on hand, credit balances with credit institutions		
	70,621,418.99	56,103
	101,336,344.90	84,154
<b>C. DEFERRED ITEMS</b>		
1. Other	2,310,623.98	2,587
<b>D. DEFERRED TAX ASSETS</b>		
	515,529.34	439
	193,076,758.15	169,968

**CONSOLIDATED BALANCE SHEET**

Status as of 31 December 2017

Status as of	Status as of
31 December 2017	31 December 2016
EUR	kEUR

	EUR	kEUR
<b>A. EQUITY</b>		
I. Called and paid-in share capital	470,920.12	471
II. Capital reserves (unappropriated)	13,656,321.07	13,656
III. Retained earnings		
1. Legal reserve	47,092.01	47
2. Other reserves (free reserves)	1,466,518.51	1,467
IV. Net profit	23,633,344.70	20,788
<i>thereof profit carried forward kEUR 20,788 (2016 kEUR 17,203)</i>	39,274,196.41	36,429
<b>B. INVESTMENT GRANTS</b>		
I. Investment grants by the owner	66,509,224.35	66,431
II. Investment grants by the public sector	455,744.49	634
III. Other investment grants	909,083.62	1,392
	67,874,052.46	68,457
<b>C. PROVISIONS</b>		
1. Provisions for severance payments	5,705,638.00	5,650
2. Provisions for pensions	121,686.00	114
3. Provisions for taxes	319,795.24	304
4. Other provisions	20,543,022.43	19,130
	26,690,141.67	25,198
<b>D. LIABILITIES</b>		
1. Liabilities towards credit institutions	1,413,084.74	251
<i>of which with a residual term of more than one year</i>	1,413,084.74	251
2. Advance payments received on orders	12,456,306.89	9,582
<i>of which with a residual term of up to one year</i>	2,332,425.64	2,666
<i>of which with a residual term of more than one year</i>	10,123,881.25	6,916
3. Liabilities from deliveries and services	7,437,305.74	6,294
<i>of which with a residual term of up to one year</i>	7,358,426.20	6,249
<i>of which with a residual term of more than one year</i>	78,879.54	45
4. Liabilities to affiliated companies	48,611.15	49
<i>of which with a residual term of up to one year</i>	48,611.15	49
5. Other liabilities	18,585,786.59	8,361
<i>of which with a residual term of up to one year</i>	3,985,498.46	3,407
<i>of which with a residual term of more than one year</i>	14,600,288.13	4,954
<i>thereof from taxes</i>	474,756.86	907
<i>of which with a residual term of up to one year</i>	474,756.86	907
<i>thereof for social security</i>	1,852,228.51	1,802
<i>of which with a residual term of up to one year</i>	1,852,228.51	1,802
	39,941,095.11	24,537
<i>of which with a residual term of up to one year</i>	13,724,961.45	12,371
<i>of which with a residual term of more than one year</i>	26,216,133.66	12,166
<b>E. DEFERRED ITEMS</b>		
1. Other	19,297,272.50	15,347
	193,076,758.15	169,968

# GROUP CONSOLIDATED PROFIT AND LOSS STATEMENT

1 January 2017 to 31 December 2017

	2017 EUR	2017 EUR	2016 kEUR	2016 kEUR
1. Revenues		50,975,386.29		45,865
2. Funding, research grants and financing Nuclear Engineering				
a) Funding	34,761,333.12		31,845	
b) Research grants	47,351,211.75		44,862	
c) Financing Nuclear Engineering	3,771,500.56	85,884,045.43	4,325	81,032
3. Change in the stock of finished products and not yet billable services		-743,365.83		5,831
4. Other operating income				
a) Income from the disposal of fixed assets with the exception of financial investments	25,027.56		24	
b) Income from the reversal of provisions	472,457.56		1,162	
c) Other	9,407,684.72	9,905,169.84	9,552	10,738
5. Expenses for material and other purchased manufacturing services				
a) Material expenses	5,350,062.86		5,816	
b) Expenses for purchased services	9,442,204.22	-14,792,267.08	12,795	-18,612
6. Personnel expenses				
aa) Wages	43,322.22		50	
bb) Salaries	66,924,041.40		61,491	
b) Social expenses				
aa) Expenses for pensions	1,396,179.28		932	
bb) Expenses for severance payments and corporate provident funds	1,486,607.67		1,818	
cc) statutory social security contributions	17,514,538.83		16,373	
dd) Other social expenditures	1,165,358.07	-88,530,047.47	1,030	-81,694
7. Amortisation of intangible assets of fixed assets and property, plant and equipment <i>of which extraordinary depreciation EUR 299,322.18 (2016 EUR 191,151.24)</i>		-10,621,051.95		-10,349
8. Other operating expenses				
a) Taxes, other than under item 19	58,311.40		163	
c) Other	29,308,747.62	-29,367,059.02	30,428	-30,591
<b>9. Subtotal of items 1 to 8 (operating result)</b>		<b>2,710,810.21</b>		<b>2,220</b>



# GROUP CONSOLIDATED PROFIT AND LOSS STATEMENT

1 January 2017 to 31 December 2017

	2017 EUR	2016 kEUR
10. Income from investments	0.00	174
11. Income from other securities in financial assets	144,240.07	154
12. Other interest and similar income	226,052.39	308
13. Income from the disposal and amortisation of financial investments and securities in financial assets	217,858.88	491
14. Expenses from financial investments <i>of which amortisations EUR 42,168.24 (2016 EUR 9,840.23)</i>	-42,168.24	-10
15. Interest and similar expenses	-222,363.33	-5
<b>16. Subtotal of items 10 to 15 (financial result)</b>	<b>323,619.77</b>	<b>1,112</b>
<b>17. Result before taxes</b>	<b>3,034,429.98</b>	<b>3,332</b>
18. Taxes on income and earnings <i>of which deferred taxes EUR 55,370.79 (2016 EUR 454,551.20)</i>	-189,669.77	253
<b>19. Result after taxes = net profit for the year</b>	<b>2,844,760.21</b>	<b>3,585</b>
20. Profit carried forward from previous year	20,788,584.49	17,203
<b>21. Net Profit</b>	<b>23,633,344.70</b>	<b>20,788</b>

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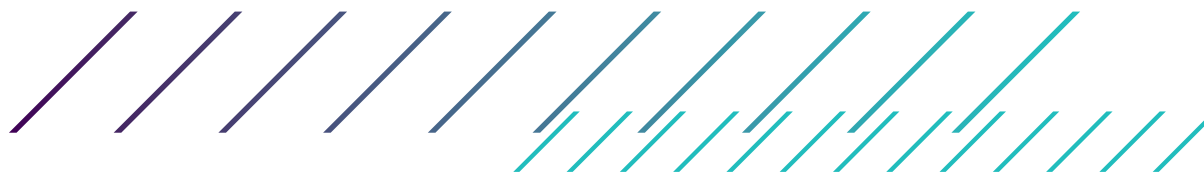
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