

JOANNEUM  
RESEARCH



# *Annual Report 2019*

JOANNEUM RESEARCH



JOANNEUM RESEARCH  
Forschungsgesellschaft mbH

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# PREFACE



»**2019 was a successful year**, once again we succeeded in implementing many initiatives and projects. Together with our partners we are conducting research into the innovations of tomorrow in the thematic areas of “information and production technologies”, “human technology and medicine” and “society and sustainability”. Our annual report provides a closer insight into our successful research activities and collaborations.«

**Prof. Dr. Wolfgang Pribyl, MBA** | Managing director of JOANNEUM RESEARCH

»JOANNEUM RESEARCH is a **flagship institution of the Styrian and Austrian research landscape**. I would like to congratulate managing director Wolfgang Pribyl and the entire staff on another successful year 2019, in which important results from basic research were implemented in practical application in Austrian businesses thanks to the expertise and commitment of the entire team.«

**Barbara Eibinger-Miedl** | Member of the Styrian Government for Economy, Tourism, Regions (jointly), Science and Research



Photo: Linghammer



»JOANNEUM RESEARCH is able to **build bridges**: in cooperation with other research institutions, the industrial and business sector and as an integral part of the Southern Research Axis, JOANNEUM RESEARCH overcomes borders thanks to its sustainably efficient research. One of its numerous model pillars is the new ROBOTICS Institute, which was newly opened in 2019 and stands out due to its all-uniting charisma.«

**Dr. Gaby Schaunig** | Deputy Governor of Carinthia, Member of the Carinthian Government

»By the successful conclusion of financial year 2019 Austrian research developed further to a highly promising extent. In view of the **impressive research activities in promising areas** such as “renewable energy and climate protection”, “health and care”, “digitalisation and IT” JOANNEUM RESEARCH is heading in a smart direction. I look forward to continued good cooperation.«

**Christian Illedits** | Member of the Burgenland Government for Research Matters

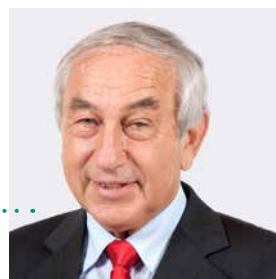


»JOANNEUM RESEARCH is a **major location factor and innovation engine** for the economy. The opening of the new ROBOTICS research building and its latest infrastructure in Carinthia was an impressive example thereof. I wish JOANNEUM RESEARCH just as much success in future for innovative activities and exciting projects for our future.«

**Dr. Martin Wiedenbauer** | Chairman of the Supervisory Board of JOANNEUM RESEARCH

»The establishment of the research areas “information and production technologies”, “human technology and medicine” and “society and sustainability” sent out a clear message in the research year 2019 as to what JOANNEUM RESEARCH stands for and which research subjects it will pursue for the **benefit of the location** in the next few years.«

**Prof. Dr. Dr. Gerald Schöpfer** | Chairman of the Scientific Advisory Board of JOANNEUM RESEARCH





JOANNEUM RESEARCH develops solutions and technologies for a broad range of industries and public agencies and is engaged in top applied research at an international level.

JOANNEUM RESEARCH contributes significantly to securing the economic success of the region and plays a key role in transferring technology and know-how to the economy.

Optimally embedded in the national and international innovation network our staff develops innovations in the **three thematic areas of:**

- **information and production technologies,**
- **human technology and medicine,**
- **society and sustainability.**

## Owners

■ **80,75%**  
State of Styria

■ **14,25%**  
BABEG Kärntner Betriebs-  
ansiedlungs- & Beteiligungs-  
gesellschaft m.b.H

■ **5%**  
Landesholding Burgenland  
GmbH

## Facts and Figures

- **470** staff (from more than 20 nations)
- **3** superordinate thematic areas
- **7** research units
- **6** locations
- **EUR 48,3 million** research output 2019
- **EUR 9,7 million** shareholder contribution
- **77%** self-financing ratio

## Certifications

- **ISO 9001**  
Requirements for quality management systems
- **ISO 13485**  
Medical devices – quality management systems –  
requirements for regulatory purposes
- **ISO 14644**  
Cleanrooms and associated controlled environments
- **ISO 17025**  
The accredited testing laboratory  
ROBOTICS Evaluation Lab
- **GLP**  
Good Laboratory Practice



# LOCATIONS

## DIGITAL

Institute for Information and Communication Technologies

## MATERIALS

Institute for Surface Technologies and Photonics

## ROBOTICS

Institute for Robotics and Mechatronics

## COREMED

Cooperative Centre for Regenerative Medicine

## HEALTH

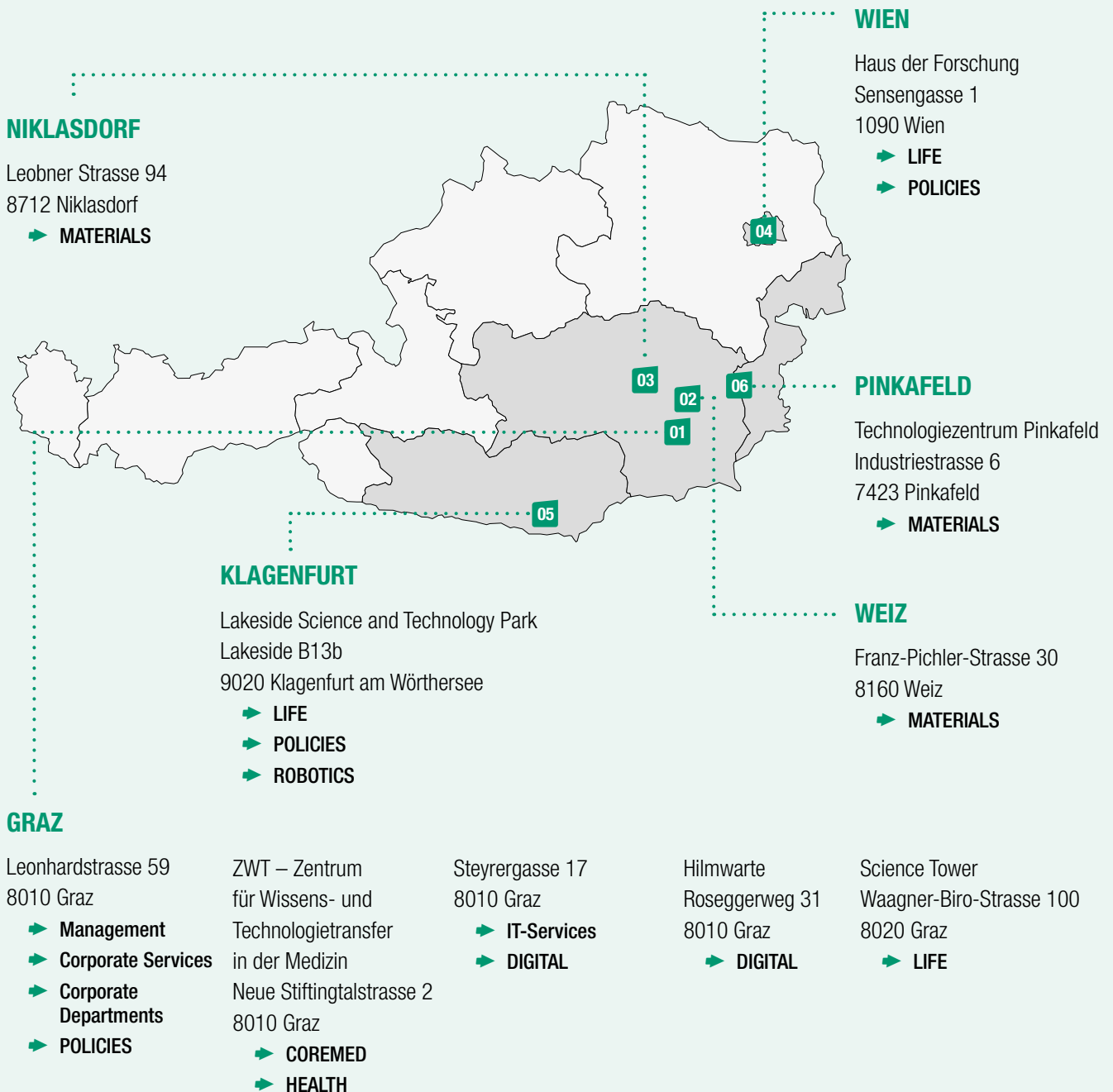
Institute for Biomedicine and Health Sciences

## LIFE

Institute for Climate, Energy and Society

## POLICIES

Institute for Economic and Innovation Research



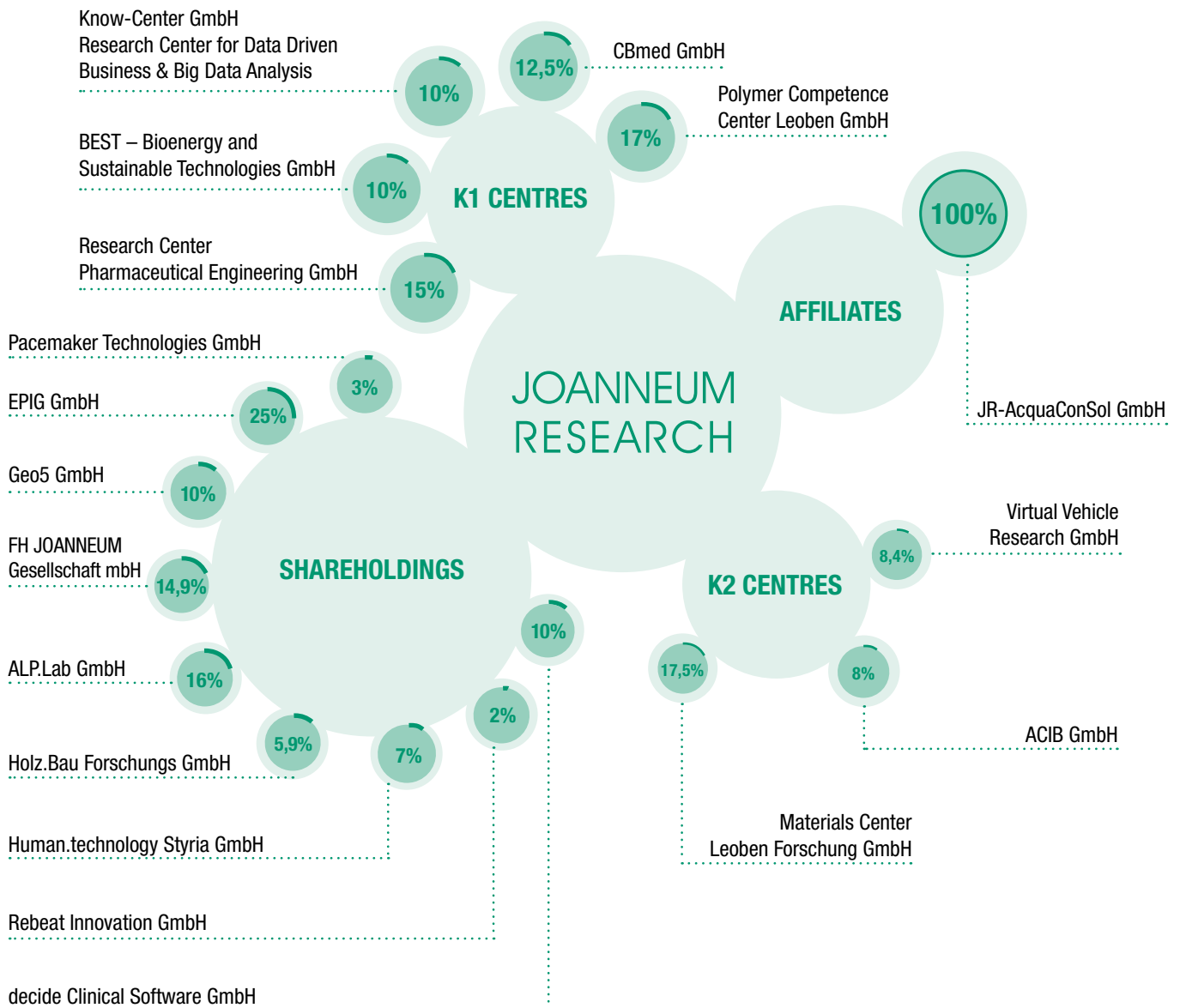
# CORPORATE SHAREHOLDINGS

Corporate investments in enterprises contribute significantly to **maintaining and enhancing competitiveness** and to making enterprises grow and increase in value.

Investments promote internal core competences of research units and expand technologies in terms of their field of application. In addition, corporate investments also foster the implementation of the central business tasks – **innovation,**

**networking and knowledge transfer** – and strengthen the business location.

Besides the work in connection with the COMET (Competence Centers for Excellent Technologies) competence centre programme, networking with centres and their network partners is a major success factor for JOANNEUM RESEARCH:



# JOANNEUM RESEARCH

## Thematic Areas



### Information and production technologies

250 EXPERTS CONDUCT RESEARCH IN THE FOLLOWING AREAS:

- **Digitalisation in production:**  
Industrial sensors and metrology, acoustics, Real Time, Industrial Internet of Things (IIoT), robotics, data analysis
- **Optimisation of production technologies and processes:**  
Generative manufacturing (laser production technology, 3D printing, plasma technologies) light and optical technologies
- **Robotics:**  
Robotic system technologies, the accredited testing laboratory ROBOTICS Evaluation Lab, Training Center
- **Cyber security and cyber defence:**  
Industrial sector, e-commerce and critical infrastructure, cyberattacks, military decision-making support systems
- **Printed electronics**
- **Satellite navigation technologies and communication technologies:**  
Navigation systems (Galileo, GPS, Glonass), satellite communication, wave propagation
- **Remote sensing and geoinformation:**  
Data from UAVs, aircraft, satellites
- **Roll-to-roll nano imprint lithography**
- **Traffic telematics:**  
Highly automated driving, high-resolution maps, acoustic tunnel safety
- **Digitalisation in the area of culture, media and agriculture:**  
Documentation, inventory, archiving



### Human technology and medicine

75 EXPERTS CONDUCT RESEARCH IN THE FOLLOWING AREAS:

- **Pharmacokinetics, pharmacodynamics, bioequivalence**
- **Bioanalysis and pharmaceutical analysis**
- **Metabolomics**
- **Medical sensors**
- **Clinical decision-making support competence**
- **Skin ageing and anti-ageing**
- **Wound healing, scarring and tissue regeneration**
- **Active and assisted living (AAL) and digital care**
- **Coating for medical implants and surgical instruments**
- **Metallic 3D printing for implants**



### Society and sustainability

75 EXPERTS CONDUCT RESEARCH IN THE FOLLOWING AREAS:

- **Climate-neutral production and life cycle analyses**
- **Environmental monitoring, climate change impacts and land use**
- **Risk assessment of climate and weather changes, disaster prevention and management**
- **Future energy systems and lifestyle**
- **International climate policy and economics**
- **Regional economic analysis, site analysis, structural and regional policy**
- **Design and evaluation of national and international funding programs and institutions**
- **Data analytics and statistical modelling**





*»Digital technologies serve to optimise business and production processes and allow to develop new business models and products. DIGITAL offers the economic sector customised solutions and technologies for that purpose.«*

*Dr. Heinz Mayer, Director DIGITAL*



## RESEARCH GROUPS

- Remote Sensing and Geoinformation
- Machine Vision Applications
- Space and Communication Technology
- Connected Computing
- Intelligent Acoustic Solutions
- Competence Group  
Cyber Security and Defence

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## DIGITAL –

### Institute for Information and Communication Technologies

DIGITAL is a pioneer in the field of digital innovation and transformation and develops high-tech solutions which work reliably and robustly also in practical use in rough conditions. Several products developed by DIGITAL, such as AKUT (Acoustic Tunnel Monitoring), the 2D video distrometer, VidiCert or imdas pro, rank among the leading solutions worldwide in their relevant areas.

The Institute's technological and scientific basis are state-of-the-art measurement systems developed by the Institute, the measuring data of which is being analysed with the help of a wide range of analytical methods including artificial intelligence.

Digitalisation comprises all areas of life and all sectors of the economy. Solutions developed by DIGITAL can therefore be found in many markets, such as industrial manufacturing, mobility, telecommunications, navigation, security and defence, environment, culture and media, as well as health and care.



*»MATERIALS offers solutions for issues of the manufacturing industry and economy regarding material sciences. «*

*Prof. Dr. Paul Hartman,  
Director MATERIALS*



## RESEARCH GROUPS

- Hybrid Electronics and Patterning
- Light and Optical Technologies
- Laser and Plasma Technologies
- Sensors and Functional Printing
- Smart Connected Lighting

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## MATERIALS –

### Institute for Surface Technologies and Photonics

Making use of the latest research infrastructure MATERIALS develops innovative, interdisciplinary solutions for the manufacturing and producing businesses in the areas of printed and flexible electronics and sensors, microfluidics, miniaturised optics, electronic systems, biofunctionalised coatings, additive manufacturing of metals and polymers, as well as laser production technology.

With highest scientific excellence the Institute focuses on miniaturisation, integration and materials innovation as well as state of the art technologies and processes, such as roll-to-roll nano imprint lithography, greyscale and photo lithography, inkjet and aerosoljet printing, (short pulse) laser materials processing or 3D selective laser melting. In many cases the key to success is progress in material sciences.

Through its high professionalism in international project management and its excellent cooperation network MATERIALS enables its partners to successfully participate in national and international research projects.



*»ROBOTICS develops innovation-driving robot systems technologies for the optimisation of work processes.«*

*Institutsdirektor  
Dr. Michael Hofbauer,  
Director ROBOTICS*

## ROBOTICS –

### Institute for Robotics and Mechatronics

Robot systems are used in areas where they make economic sense or where they add significant value in another way. In the end, robots act as a direct connection to the digital world but are not meant to be used for the self-fulfilling purpose of automation but rather to be a key component of justified digitisation which is supportive to human beings.

The Institute's research areas are:

- integration of robot systems technologies,
- solutions from a holistic mechatronic view,
- human-robot collaboration,
- mobile manipulation in installations and intralogistics,
- use of artificial intelligence in production and
- physical and cyber-physical security.

Through the ROBOTICS Evaluation Lab ROBOTICS has the first and only evaluation facility in Europe which is accredited for validly measuring potential force exposure in human-robot collaboration to evaluate physical safety.

#### RESEARCH GROUPS

- Robot Systems Technologies
- ROBOTICS Training Center
- ROBOTICS Evaluation Lab

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*»The motto of regenerative medicine is “heal rather than repair”. COREMED was established to foster research and development in this field.«*

*Prof. Dr. Lars-Peter Kamolz,  
Director COREMED*

## RESEARCH GROUPS

- Technologies for Tissue Regeneration

## CONTACT

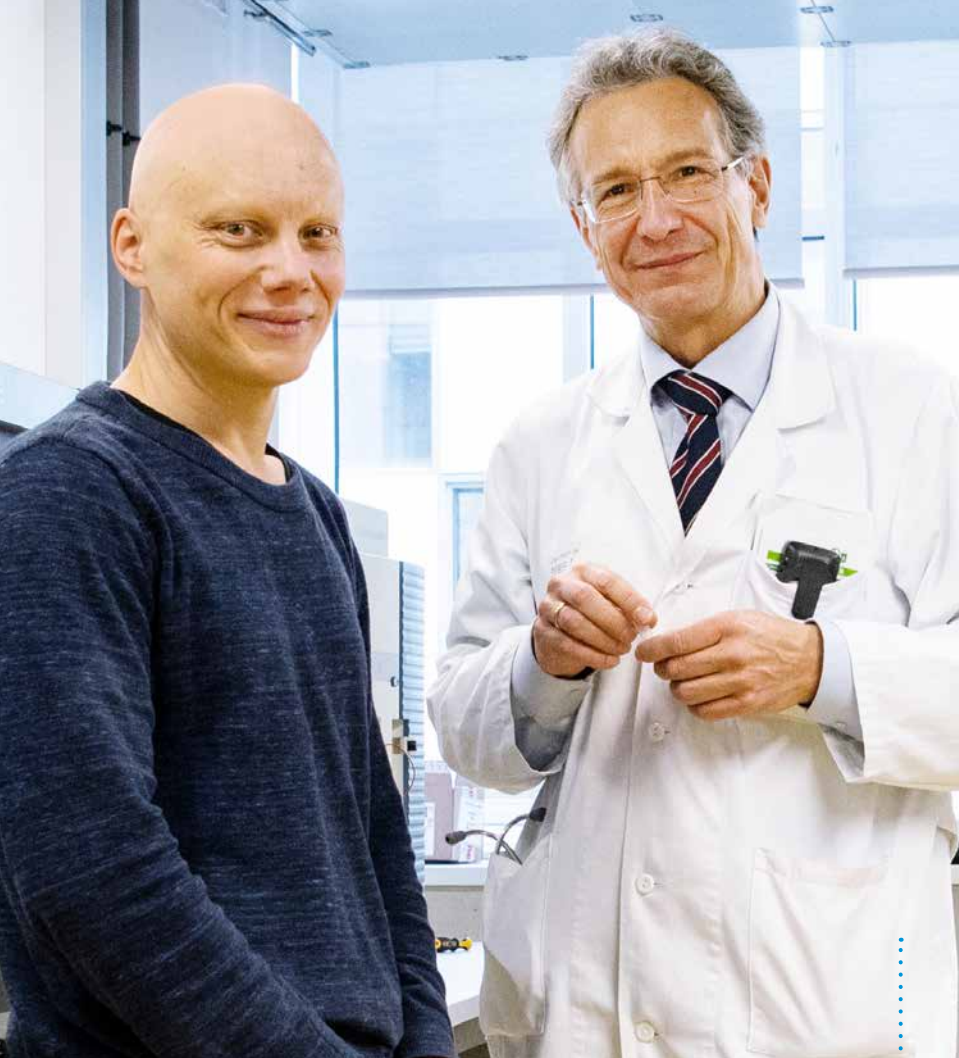
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## COREMED –

### Cooperative Centre for Regenerative Medicine

COREMED is the result of a joint initiative of JOANNEUM RESEARCH and the Medical University of Graz to foster research and development in the field of regenerative medicine. In regenerative medicine COREMED focuses on the areas of the organ skin and its regeneration/repair processes. This includes the physiological processes of wound healing in acute wounds (e.g. burn injuries) but also the pathological mechanisms which cause the development of chronic wounds or hypertrophic scars. Another focus is put on the process of skin ageing and the alterations related thereto.

COREMED offers interdisciplinary overall solutions in R&D services for the pharmaceutical and medtech industry. As an innovative partner for projects in basic research and applied research COREMED provides established clinic-related models to test products and to characterise their modes of action. In close cooperation with the Medical University of Graz we are able to plan, coordinate and carry out clinical studies on the topics of wound healing and skin ageing.



*»HEALTH's innovative solutions demonstrably contribute to a better quality of life for persons with medical needs. «*

*Prof. Dr. Thomas Pieber  
and Dr. Frank Sinner,  
Directors HEALTH*

## HEALTH –

### Institute for Biomedicine and Health Sciences

HEALTH acts as the link between basic medical research and industrial application. Through its strategic cooperation with Medical University of Graz HEALTH is an interdisciplinary provider of overall solutions.

The Institute supports the pharmaceutical industry with clinical and pre-clinical studies regarding the effectiveness of new drugs. With its metabolomics studies and biomarker research HEALTH contributes to the development of new diagnostic approaches. HEALTH carries out cleaning validations, determinations of content and release analyses for the producing pharmaceutical industry.

Innovations like GlucoTab, the digital surgical checklist or point-of-care potassium sensors contribute to better medical care in our health system.

#### RESEARCH GROUPS

- Biomedical Tissue Monitoring
- Bioanalysis and Metabolomics
- Competence Group Data Management and Biostatistics
- Competence Group Clinical Decision Support
- Competence Group Medical Sensors

#### KONTAKT

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*»LIFE answers the central questions of climate change and its consequences for the economy, politics and society and thus drives innovations that are urgently needed.«*

*Dr. Franz Prettenthaler,  
Director LIFE*



## RESEARCH GROUPS

- Weather and Climate Risk Management
- Future Energy Systems and Lifestyle
- International Climate Policy and Economics
- Competence Group Urban Living Lab

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## LIFE –

### Institute for Climate, Energy and Society

Global climate change and all of its facets will play an increasingly important part in many areas of our lives in the next few decades. The resulting challenges, the strengthening of resilience to climate and weather risks, and the transformation towards a climate-neutral society are the focus of LIFE's research activities.

Through its four interdisciplinary research groups the Institute offers an excellent overall understanding of the system in economic, ecological, technological and social terms. LIFE has therefore become an internationally renowned research partner and contact regarding the complex connections in the field of climate, energy and society and is particularly esteemed for its expertise in quantitative modelling and also for its practice-oriented solution approaches.





*»Arriving at evidence-based decisions for politics and businesses – with the expertise of POLICIES.«*

*Wolfgang Polt,  
Director POLICIES*

## POLICIES –

### Institute for Economic and Innovation Research

POLICIES is one of the largest and most renowned institutes for empirical research in science, innovation and technology in Austria. With its projects regarding technological development, policy making and policy evaluation and regarding the economic and social impacts of innovations POLICIES is a much sought-after cooperation partner in Austria and abroad. Especially its expertise in the fields of big data, AI and predictive analytics supports businesses and industrial partners.

With a research focus on:

- technology and innovation strategies,
- policies and funding programs,
- regional site evaluation and site development and
- data-supported innovation projects with businesses

POLICIES combines analyses and consultations related to the issues of its clients with methodological diversity and scientific objectivity.

### RESEARCH GROUPS

- Technology, Innovation and Policy Consulting
- Data Analytics and Statistical Modelling
- Regional Economics and Structural Policy

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# International Highlights 2019

JOANNEUM RESEARCH is a research company which operates at a national and an international level. The research network of JOANNEUM RESEARCH ensures the quality of research results and facilitates access to a broad international research spectrum for businesses and the public sector.

**8 to 11 January 2019 | Thessaloniki, Greece**

**25th International Conference on Multi Media Modeling (MMM 2019)**

DIGITAL presented its research results in multimedia analytics.



**4 February 2019 | Nordwijk, The Netherlands**

**HERA Mission Industry Day**

DIGITAL presented practice-oriented high-tech solutions for space research.

**20 to 22 March 2019 | Bucharest, Romania**

**European Robotics Forum 2019**

ROBOTICS organised a workshop entitled »Trustworthy Robots – Safety, Credibility, Explainability«.



**25 to 29 March 2019 | Udine, Italy**

**Metal Additive Manufacturing Scenario Research and Industrial Experience**

MATERIALS presented the topic »Industrial Applications of Laser Cladding«.

**1 to 5 April 2019 | Hanover, Germany**

**Hanover Fair**

MATERIALS and DIGITAL presented practical examples and AI applications from the fields of »Intelligent Acoustic Solutions« and »Printed Electronics«.

**7 to 10 May 2019 | Stuttgart, Germany**

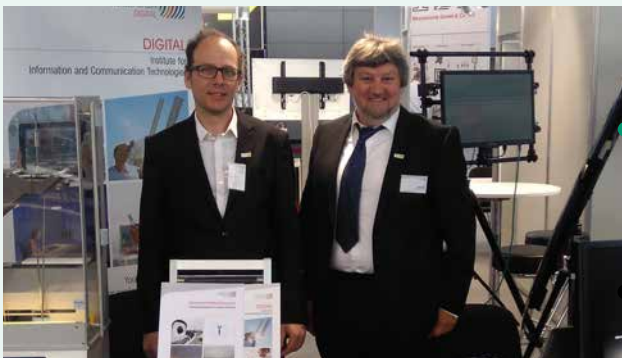
**CONTROL 2019**

At the CONTROL International Trade Fair for Quality Assurance DIGITAL presented the latest solutions for visual 2D and 3D surface inspection.

**20 to 24 May 2019 | Montreal, Canada**

**ICRA (International Conference on Robotics and Automation) 2019**

ROBOTICS presented the »Quantum Computation in Robotic Science and Applications« publication.





14 June 2019 | Long Beach, USA

ICML 2019

(International Conference on Machine Learning 2019)

DIGITAL organised a workshop on »On-Device Machine Learning & Compact Deep Neural Network Representations«.

5 July 2019 | Frankfurt, Germany

Hessen meets Styria

At the summer party of Goethe University Frankfurt DIGITAL presented the know-how for making UHD maps for highly automated driving.



13 to 17 September 2019 | Amsterdam, The Netherlands

IBC (International Broadcasting Convention) 2019

DIGITAL presented VidiCert, its flagship solution for quality control of audio and video data and the latest results from the MARCONI project.



2 to 4 October 2019 | London, United Kingdom

Styrian delegation in London

A Styrian economic delegation led by Barbara Eibinger-Miedl, Member of the Styrian Government, travelled to Greater London.

16 October 2019, | Paris, France

Workshop der OECD

POLICIES presented contributions regarding »Mission-oriented Technology and Innovation Policies«.

November 2019 | Paris, France

JOANNEUM RESEARCH is the new partner of EIT-Manufacturing

By this step JOANNEUM RESEARCH will expand its European network in the area of information and production technologies. Through DIGITAL, MATERIALS, ROBOTICS, LIFE and POLICIES nearly all institutes of JOANNEUM RESEARCH are represented.

4 to 8 November 2019 | Macau, China

IROS 2019 – IEEE/RSJ International Conference on Intelligent Robots and Systems

Together with four other research institutions ROBOTICS once more organised a »Workshop on Proximity Perception in Robotics«.

9 October 2019 | Lisbon, Portugal

International Conference on Energy Communities

LIFE was part of the »Regulatory Energy Communities: A National and European Vision« panel.

13 November 2019 | Paris, France and Tervuren, Belgium

Climate Services Conference

LIFE presented its expertise in climate services for the operation and maintenance of ski resorts in the Austrian tourism sector.

December 2019 | Hamburg, Germany

JOANNEUM RESEARCH becomes a partner of the GENERA Network

The members of GENERA are research institutions or consortiums in the field of physics. The network aims to strengthen the academic position of women in physics.

# Highlights at the locations

Not only because of its ownership structure JOANNEUM RESEARCH plays a special role in the location's innovation system. For decades JOANNEUM RESEARCH has contributed significantly to developing and securing the competitiveness of the research, innovation and business location.

15 January 2019 | Graz

## HTH Styria Pitch & Partner 2019

The B2B event for health technology and life sciences at the MED CAMPUS, which also attracted visitors from abroad, was organised by Prof. Dr. Lars-Peter Kamolz, director of COREMED.



26 February 2019 | Graz

## 62nd Digital Dialogue

More than one hundred interested persons met to discuss the subject »Digital, connected, mobile: ITS demonstrated by road traffic« in the hall of FH Campus02. The meeting was organised by JOANNEUM RESEARCH.

25 February to 27 March 2019 | Graz

## Future of Life

Within the »Future of Life« event series numerous pupils gained an insight into the research activities of JOANNEUM RESEARCH.

13 March 2019 | Graz

## 9th Future Conference of JOANNEUM RESEARCH

Approximately 700 interested persons attended the annual Future Conference on the general topic of »Entrepreneurship«.

25 to 27 March 2019 | Graz

## #LetsCluster 2019

DIGITAL and MATERIALS presented »Smart Living Solutions« at the first Electronic Based Systems Conference.

3 April 2019 | Graz

## Start of the Mentoring Pilot Programme

JOANNEUM RESEARCH's Mentoring Pilot Programme was started officially together with all mentees, mentors and all directors.

11 April 2019 | Graz

## Smart City Rooftop Farming

Opening of the rooftop garden: together with partners from business, science and the educational sector the »Urban Farming Project« has been developed on the rooftop of Science Tower Graz since autumn 2018.



May 2019 | Graz

## PHABLABS 4.0

As part of the »PHABLABS 4.0« EU project a research team of JOANNEUM RESEARCH and the Graz University of Technology showed the merits of photonics in their public laboratory (FabLab).

5 to 7 June 2019 | Seggauberg

## 8th The Spirit & the Present Whitsun Dialogue

JOANNEUM RESEARCH was represented by DIGITAL and ROBOTICS and formed part of the programme committee.



© Lorbeer



4 to 5 June 2019 | Graz

### Fifteen Seconds Festival

COREMED presented the latest findings in regenerative medicine and the research portfolio of JOANNEUM RESEARCH on the new Science Stage.



3. Juni 2019 | Graz

### Cooperation agreement with Graz University of Technology

The aim of the cooperation in science and research has been and is strategic collaboration on specific topics such as nanotechnology.



12 June 2019 | Graz

### SFG Future Day

MATERIALS presented 3D laser print options and DIGITAL informed about the satellite communication of tomorrow.

28 and 29 May 2019 | Vienna

### Production Forum 2019

The forum was held at the beginning of the call for tenders for the »Production of the Future« FTI initiative of the Federal Ministry for Transport, Innovation and Technology (BMVIT) (now: Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK)). ROBOTICS presented its research achievements.

27 June 2019 | Graz

### Visit of a delegation from the State Parliament of Lower Saxony, Germany

The delegation of the Parliament of Lower Saxony, the second largest German state, visited the LIFE Institute in the Science Tower Graz.



© Pichler

23 to 25 July 2019 | Klagenfurt

### Summer of Robots

ROBOTICS invited to a »Summer of Robots«, a three-day summer camp for technology-enthusiastic youngsters.

18 to 24 August 2019 | Alpbach

### JOANNEUM RESEARCH in Alpbach

Also in 2019 JOANNEUM RESEARCH actively participated in the Health and Technology Symposium and the Innoregio exhibition.



2 to 4 September 2019 | Graz

### UN/Austria Symposium

The annual UN/Austria Symposium was hosted by the Office for Outer Space Affairs of the United Nations (UNOOSA) in collaboration with JOANNEUM RESEARCH and the Graz University of Technology.

6 to 7 September 2019 | Zeltweg

### Airpower 2019

DIGITAL presented, among other things, various solutions for safety-critical applications.



15 to 19 September 2019 | Graz

### INTERSPEECH 2019

DIGITAL helped to organise parts of the largest science and technology conference in the field of speech processing.



**25 to 26 September 2019 | Graz**

**AUTOCONTACT '19**

JOANNEUM RESEARCH presented the research achievements of LIFE, DIGITAL and POLICIES.

**7 October 2019 | Graz**

**LIFELink**

LIFE invited to LIFELink, an event that serves as a platform for the exchange of expert experience between LIFE and its business partners.

**24. October 2019 | Weiz**

**20th anniversary of JOANNEUM RESEARCH in Weiz**

JOANNEUM RESEARCH invited to celebrate the 20th anniversary of the MATERIALS location in Weiz and a subsequent symposium on the topic of »Future Smart Living and Lighting«.

**29 October 2019 | Graz**

**68th Digital Dialogue**

Together with Maschinenring Steiermark JOANNEUM RESEARCH invited participants to the 68th Digital Dialogue on the topic of »Digitisation in Agriculture«.



**22. October 2019 | Wien**

**IMAGINE19**

DIGITAL presented its research achievements in the fields of Artificial Intelligence, media, working environments and smart cities.

**26 November 2019 | Graz**

**69th Digital Dialogue**

Approximately 70 interested persons met on the premises of JOANNEUM RESEARCH to discuss the topic of »Jamming und Spoofing: do we underestimate the disrupters of our navigation systems?«.

**20 November 2019 | Graz**

**Visit of the Delegation from the Chinese Ministry of Transport**

Representatives of the Chinese Ministry of Transport visited ASFINAG and JOANNEUM RESEARCH. DIGITAL presented the AKUT acoustic tunnel monitoring system.

**November to December 2019 | Graz and Weiz**

**Take Tech**

In connection with the Take Tech career experience initiative approximately 100 pupils had the opportunity to take a look behind the scenes of JOANNEUM RESEARCH.

**3 to 4 December 2019 | Graz**

**AIRCONTACT '19**

JOANNEUM RESEARCH presented the research achievements of DIGITAL in the field of security and of MATERIALS in the area of additive manufacturing and plasma-based coating.

**10 December 2019 | Klagenfurt**

**Opening of the new ROBOTICS research building**

The new research building with top laboratory infrastructure was opened at the Lakeside Science & Technology Park in Klagenfurt.



**11 December 2019 | Klagenfurt**

**System Integrators Conference**

The ROBOTICS Institute hosted the first conference specifically designed for system integrators.

**November 2019 | Graz**

**Foundation of DIGITAL MATERIAL VALLEY STYRIA**

JOANNEUM RESEARCH, Graz University of Technology, FH JOANNEUM, FH CAMPUS 02, ACstyria Mobility Cluster and ASMET are the members of this research alliance, which aims to efficiently develop and implement »digital« projects.



# JOANNEUM RESEARCH Media Coverage

»Research should not be an end in itself but improve the lives of people and make their lives easier.« Our successes in research are also impressively reflected in the media: approximately 700 reports made our innovative range of services known to a broad public.

Seite 20 **KÄRNTEN** Mittwoch, 11. Dezember 2019

Joanneum Research baut Robotic-Forschung aus **Neues Gebäude eröffnet**

## Neues Labor: Maschine trifft

Der Süden will bei der Innovationskraft zulegen und holt sich dafür Roboter-Unterstützung. Am Dienstag hat die Forschungsgesellschaft Joanneum Research im Klagenfurter Lakeside Park ein Robotics-Gebäude eröffnet. Ziel der Forschung: Die vertrauenswürdige und sichere Zusammenarbeit von Mensch und Maschine.



Deputy Director M. Brandstötter mit Roboter „Chimera“

Digitalisierung und Maschinen haben beinahe all unsere Lebensbereiche erfasst. Wie ein „sicheres und vertrauenswürdiges Zusammenspiel von Mensch und Maschine“ funktionieren kann, wird im jetzt eröffneten Robotics-Gebäude (1.200 Quadratmeter) im Lakeside



**KRONE-TONE**  
Forschung fördern heißt heute schlicht, die Zukunft ist schon halb in Sicht.

### Innovationsindex: Breitband bremst

Bei der Innovationskraft (ING Studie) steht Österreich nicht schlecht da: Im Eurozonen-Vergleich landen wir auf Platz 7. Bei den Bundesländern hinkt Kärnten jedoch etwas nach: Internetausschlüsse, Betriebsdynamik und Jugendpotenzial bremsen unser Bundesland.

Mittwoch, 11. Dezember 2019 **KÄRNTEN** Seite 21

Industrie profitiert

## Mensch

neuen industriegerechten Laborinfrastruktur und modernsten Robotersystemen soll es gelingen, noch besser die Anforderungen von Industrie und Wirtschaft zu erfüllen – die gewonnenen Erkenntnisse sollen zum Beispiel Produktionsprozesse vereinfachen.

„Was wir bei der Forschungsförderung nie aus den Augen verlieren, ist die Frage, wem neue Technologien dienen. Technologie muss immer den Menschen dienen und nicht umgekehrt“, so Technologiereferentin Gabi Schanig. Wie Joanneum-Chef Wolfgang Pribyl erklärt, soll der Forschungsstandort in Kärnten weiter ausgebaut werden.



Simone Jaschinsky von Joanneum Research im neu eröffneten Forschungslabor in Klagenfurt

### Indizienkette gegen Tatverdächtigen: Weiters Erwerb im



**Forschung für intelligente Roboter**

JOANNEUM RESEARCH

### Raffinierte Scanner am Autodach

Erstmals in Österreich: ein System, das im Fahren die Umgebung vermisst, wurde nun von Joanneum Research angeschafft.

Der Automobilsektor treibt auch im 21. Jahrhundert die Forschung voran, derzeit gewinnt das Thema „autonomes Fahren“ immer mehr an Bedeutung. Um hier den Anschluss zu behalten bzw. sich an die Spitze zu setzen, hat auch die Forschungsgesellschaft Joanneum Research, die im Besitz des Landes Steiermark ist, ihre Infrastruktur aufgerüstet.

Mit Landeshilfe (Forschungs-Landesrätin Barbara Ebinger-Miedl) wurde ein „Mobile Mapping System“ im Wert von 600.000 Euro von der renommierten Firma Leica gekauft, IB-Chef Wolfgang Pribyl konnte das System – es ist das erste derartige in Österreich – kürzlich entgegennehmen. Damit können vom Autodach aus



**ZUKUNFT**

Wille zur Veränderung

**ZUKUNFT**

**INNOVATION**

**ENTREPRENEURSHIP**

### 9. ZUKUNFTSKONFERENZ

Rund 700 Interessierte fanden sich zur neunten Zukunftskonferenz der Joanneum Research im Messe Congress Graz ein. Unter dem Generalthema „Entrepreneurship“ wurde nicht nur ein Überblick über die Forschungslandschaft des Unternehmens geliefert, sondern auch ein Einblick in die Verwertung und Marktumsetzung von Forschung geboten.



WEIZ

## Braucht die Menschheit Innovation?

Zukunftsforscher und Vordenker diskutierten anlässlich „20 Jahre Innovationszentrum Weiz“.

Von Georg Tomaschek

Das Weizer Innovationszentrum WEIZ ist seit heute 20 Jahre alt: Zu diesem Anlass gab es von Donnerstag auf Freitag zwei Tage mit Führungen, Vorträgen, Podiumsdiskussionen und Ausstellungen – alles zum Thema „Innovation“.

Im Zuge der Feierlichkeiten wurde dieses Thema eifrig diskutiert. Aber zuerst musste die Frage beantwortet werden: Was ist eigentlich Innovation? Eine gängige Definition lautet: „Veränderung durch geplante Ideen“. Chauslatier Josef Zotter malt ein weniger trockenes Bild: „Wenn ich merke, dass alle in eine Richtung gehen, breche ich in die andere auf.“ Um wirklich kreativ zu werden, brauche es auch Mut: Man müsse es wagen, anders zu sein, und dürfe keine Angst vor dem Scheitern haben. Bei Zotter gibt es deswegen sogar einen eigenen Ideenfriedhof. Klingt skurril, macht für Josef Zotter aber Sinn: „Ich habe alle meine Ideen geliebt und war von ihnen über-



Am Podium wurde das Thema Innovation eifrig diskutiert

zeugt.“ Funktioniert etwas nicht, müsse man trotzdem loslassen können – und das funktioniere eben besser, wenn man gescheiterte Projekte „begraben“ könne.

Diesen Gedanken greift auch Zukunftsforscher Klaus Kofler auf: Zügellosigkeit, etwa aus Angst, sei einer der natürlichen Feinde von Innovation. Dazu komme Bequemlichkeit: Warum große Veränderungen anstreben,

wenn es uns „ch so gut geht“? Auch hätten viele Leute Angst vor tiefgreifenden Reformen – etwa, wenn Arbeitsplätze durch Maschinen obsolet werden. Bis 2040 könne es laut Kofler Computer geben, die die Rechenleistung aller menschlichen Gehirne auf dem Planeten übertreffen. Aber: Vor Innovation müsse man trotzdem keine Angst haben – wenn man bereit ist, umzudenken. Der Begriff „Arbeit“ sei für ihn ein Auslaufmo-

dell, denn: „Unser Gehirn ist gar nicht für monotone Abläufe geschaffen!“ Menschen seien Problemlöser: Kreativität, kritisches Denken oder emotionale Intelligenz könne auch der beste Supercomputer noch lange nicht ersetzen.

„Am Ende müssen Menschen die neuen Technologien anwenden“, sagt Franz Protenheller von Joanneum Research. „Nur, weil es eine Technologie gibt, würde das noch nicht heißen, dass sie sich durchsetzen.“ Fahrer der etwa gibt es seit dem 19. Jahrhundert, sie sind immer noch das energieeffizienteste Fortbewegungsmittel – dennoch hat es sich vielerorts nicht durchgesetzt.“

Dort, wo Innovation und Fortschritt dem Menschen immens weiterhelfen könnten, scheitert es oft in den Köpfen. Beispiel: eine drohende Klimakrise. Die benötigte Reduktion unseres CO<sub>2</sub>-Ausstoßes wäre mit Technologie, die es schon lange gibt, erreichbar. Dem stünden aber gesellschaftliche Hürden im Weg – von der Angst vor Neuem bis wirtschaftlichen Interessen.



## DERMATOLOGISCHE WIRKSTOFFE

Das Gesicht und die Haut sind durch die Filterstrahlung von UV-Strahlung und durch die Zellen der Haut, die die Produktion von Melanin steuern, in Gefahr. Die Wirkung von UV-Strahlung ist durch die Filterstrahlung von UV-Strahlung zu reduzieren. Die Wirkung von UV-Strahlung ist durch die Filterstrahlung von UV-Strahlung zu reduzieren.

**Die Filterstrahlung** der Haut ist ein nicht sichtbares Licht. Sie ist ein Teil des Lichtspektrums, das die Haut erreicht. Die Filterstrahlung ist durch die Filterstrahlung von UV-Strahlung zu reduzieren. Die Wirkung von UV-Strahlung ist durch die Filterstrahlung von UV-Strahlung zu reduzieren.

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## Roboter „Pepper“

### Plastikfigur, die spricht und gestikuliert

### Ein Zukunftsprojekt steirischer Forscher

### Motivation, Entlastung von Angehörigen

Im Rahmen des Projekts „Amigo“ bestet Joanneum Research in Graz aktuell einen Roboter im Pflegebereich. Dank Computer-Hilfe sollen etwa die pflegebedürftigen Patienten zu täglichen Trainingsübungen motiviert werden. Ziel sei es, das Fortschreiten der Erkrankung zu verlangsamen.

„Pepper“, ein kleiner, menschenähnlicher Roboter, wird in der Pflege eingesetzt. Er ist eine Plastikfigur, die spricht und gestikuliert. Er ist ein Projekt der steirischen Forscher Joanneum Research in Graz. Er soll die Motivation und Entlastung von Angehörigen verbessern.

## WIRTSCHAFT

### Womit fahren wir in Zukunft?

Rein im Auto und lafahren: Was für den Konsumenten immer noch verlockend klingt, ist für eine fortschrittliche Mobilität eindimensional gedacht. Das Element nach der Autokratie.

Die Zukunft der Mobilität ist ein Thema, das in der Wirtschaft immer wichtiger wird. Die Frage ist, wie wir uns in Zukunft bewegen werden. Die Antwort liegt in der Digitalisierung und der Vernetzung.

## TECHNOLOGIE ALS Aha-Effekt

Seit acht Jahren steht Wolfgang Pitsch an der Spitze der steirischen bürgerlichen Forschungsorganisation Joanneum Research. Er ist ein Mann, der die Technologie als Aha-Effekt beschreibt. Er ist ein Mann, der die Technologie als Aha-Effekt beschreibt.

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## JOANNEUM RESEARCH

### Standort wurde 20

Mit einem internationalen Symposium zum Themenkomplex „Neue Lichttechnologien“ feierte kürzlich Joanneum Research den 20. Jahrestag des Standortworts. Dort ist ein Teil der Forschungen zum Thema „Materials“ konzentriert.

Das Symposium wurde am 20. September in Graz abgehalten. Es war ein Ereignis, das die Aufmerksamkeit der internationalen Forschung auf sich zog. Die Teilnehmer kamen aus aller Welt und diskutierten über die neuesten Entwicklungen in der Technologie.

## JOANNEUM RESEARCH

### Landwirtschaft

Dieser Tage hat Joanneum Research zusammen mit dem Maschinenring Steiermark zum 68. Digitaldialog eingeladen, der sich dem Thema der Digitalisierung in der Landwirtschaft beschäftigt. Rund 100 Interessierte nahmen teil.

Der Digitaldialog wurde am 15. September in Graz abgehalten. Er war ein Ereignis, das die Aufmerksamkeit der Landwirtschaft auf sich zog. Die Teilnehmer kamen aus aller Welt und diskutierten über die neuesten Entwicklungen in der Digitalisierung der Landwirtschaft.

## Wie abhängig sind wir von GPS und ähnlichen Systemen?

### FORSCHUNGSFRAGE

VON WOLFGANG DAUBLE

In vielen Alltagssituationen nutzt man Satellitentechnik, meist ohne es zu merken. Wer denkt beim Geldabbanken oder Lichtschalten schon an Signale aus dem All? Doch um ein Smartphone zu betreiben oder eine Finanztransaktion durchzuführen, sind die globalen Navigationssysteme (GNSS) wie das amerikanische GPS, das russische Glonass oder das europäische Galileo von großer Bedeutung.

Man sei hierzulande aber sehr gut aufgestellt, beruhigt Pitsch: „Wir haben in Österreich sehr gute Sicherheitsmaßnahmen, die Wiener Netze haben etwa mehrere Systeme zur Zeitgebung. Falls der Kontakt zu den Navigationssatelliten kurzzeitig abbricht, ist das kein größeres Problem.“ Man müsse also keine Angst vor dem totalen Chaos haben, wenn die GNSS einmal ausfallen, das wäre „kein Weltuntergang“, so der Psychologe. Dennoch hätte so ein Vorfall Konsequenzen – sein Ziel sei daher, mit dem Projekt ein gewisses Bewusstsein in der Bevölkerung für die Anfälligkeit sensibler Bereiche zu schaffen.

## Prävention und Information

„Für Rettungskräfte wäre ein Ausfall der GPS-Navigation viel gravierender als für den Normalverbraucher. Wenn dann nicht das richtige Kartenmaterial oder entsprechende Ortskenntnis vorhanden ist, kann es leicht zu einer verzögerten Ankunft am Einsatzort kommen“, erklärt Pitsch. Hier sei es daher wichtig, sich auf eine Satellitenstrahlung vorzubereiten. Mit seiner Forschung will Pitsch „präventiv arbeiten und herausfinden, wie man Bürger und Bedarfsträger über sicherheitsrelevante Themen informiert, ohne Panik zu verbreiten – denn dafür besteht ja kein Grund.“

## Nachhaltige Solarzellen

### EFFIZIENT & KOSTENGÜNSTIG

Erneuerbare Energien liegen nicht nur im Trend, sondern sind auch ein Muss, um die Ziele des Pariser Klimaabkommens zu erreichen.

Solarzellen sind eine wichtige Quelle für erneuerbare Energie. Die Forschung in diesem Bereich ist in den letzten Jahren stark vorangeschritten. Die Kosten für Solarzellen sind in den letzten Jahren stark gesunken, was sie zu einer der günstigsten Energiequellen macht.



St Dächer der Zukunft

## Nachhaltige Solarzellen

### EFFIZIENT & KOSTENGÜNSTIG

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St Dächer der Zukunft



# Social Media

## #joanneumresearch



WEDDA.AT  
**WEDDA – Weather Driven Demand Analysis | JOANNEUM RESEARCH**

Gepostet von Renate Buchgraber · 12.11.2019

JOANNEUM RESEARCH Forschungsgesellschaft mbH  
 2.843 Follower · 5 Monate · G  
 Nasskaltes Herbstwetter? Kein Problem. Wir freuen uns über die leuchtend roten, feurigen Früchtchen am #rooftopfarming Dachgarten von LIFE. Wenn es kalt wird, genügt eine kleine Menge Chili im Essen, um ... mehr anzeigen



VidCert Insights Part 1  
 VidCert has lots of presentation and navigation features enabling highly efficient quality control ...  
[youtube.com](https://youtube.com)

Joanneum Research  
 Gepostet von Buffer (7) · 15. November 2019 · G

Das geht unter die Haut: Spannender @ORF-Dreh bei #COREMED im #ZWT zum Thema intelligente #Wundverbände, die die Heilung aktiv unterstützen und Komplikationen vermeiden. SAVE THE DATE: Mehr darüber gibt es auf Steiermark heute am 19.11. zu erfahren.



Joanneum Research  
 Gepostet von Renate Buchgraber (7) · 10. Juli 2019 · G

Neue Technologie aus dem Hause #joanneumresearch -MATERIALS #StadtWeiz macht in Zukunft Solarzellen nicht nur nachhaltiger und effizienter, sondern sie werden auch mehr Strom erzeugen. #photovoltaik #solarstrom <https://steiermark.orf.at/stories/30038184>



STEIERMÄRK  
 Wissens  
 Die steier

Joanneum Research  
 Gepostet von Buffer (7) · 16. Dezember 2019 · G

... mit Robotern interagieren, desto intelligenter, multivert müssen sich Roboter verhalten. In den nächsten Jahren soll die Hilfe der Künstlichen Intelligenz verbesserte Lösungen zum Teil ermöglichen so Horst Pichler, Experte für ... bei ROBOTICS. Er forscht an sogenannten ... in der Produktion mit Menschen Hand in Hand [www.joanneum.at/robo...referenzprojekte/cobot-](http://www.joanneum.at/robo...referenzprojekte/cobot-)



ROBOTICS in Kärnten: mehr Raum – mehr Möglichkeiten

Joanneum Research  
 Gepostet von Renate Buchgraber (7) · 20. Dezember 2019 · G

Die Weltraum Aktivitäten der JOANNEUM RESEARCH sind auch Teil dieser Doku! Wir freuen uns darauf!

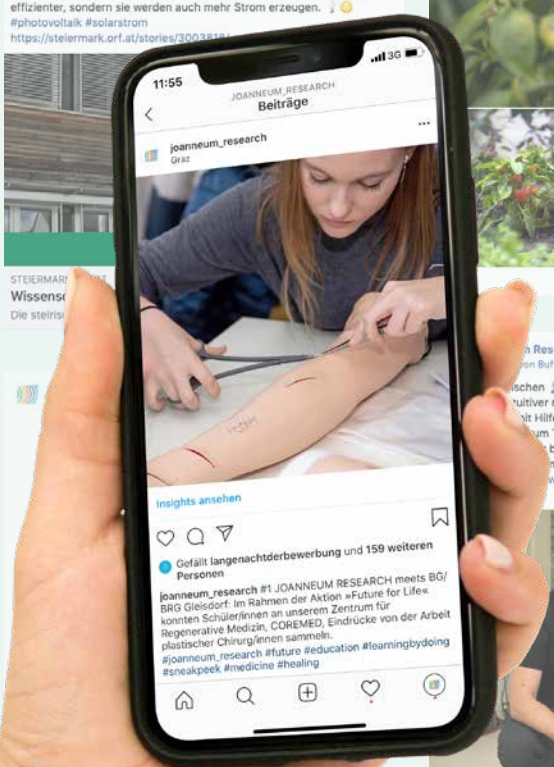


INFOTHEK.BMVIT.GV.AT  
 Coming soon: 50 Jahre Österreich im Weltraum - Die Doku

6.194 Aufrufe  
 BMK Infothek  
 20. Dezember 2019 · G  
 Coming soon: 50 Jahre Österreich im Weltraum - Die Doku. Staytuned...  
 #Weltrauministerium <https://bit.ly/2rcAzmb>

JOANNEUM RESEARCH Forschungsgesellschaft mbH  
 2.843 Follower · 5 Monate · G

Wir sehen pink! Das neue Gebäude für #Roboterforschung ist eröffnet. Es ist das erste und einzige Prüfzentrum für Robotersicherheit in Österreich. Mehr Infos: <https://bit.ly/2shqR96>



**FINANCIAL  
STATEMENTS OF  
JOANNEUM RESEARCH**



# AUDITOR'S REPORT

## Report on the Financial Statements

### ■ Audit Opinion

We have audited the financial statements of JOANNEUM RESEARCH Forschungsgesellschaft mbH Graz.

These financial statements comprise the statement of financial position as of December 31, 2019, with an equity of EUR 9,592,021.38, the income statement for the fiscal year then ended and the notes.

Based on our audit the accompanying financial statements were prepared in accordance with the legal regulations and present fairly, in all material respects, the assets and the financial position of the company as of December 31, 2019 and its financial performance for the year then ended in accordance with Austrian Generally Accepted Accounting Principles.

### ■ Basis for Opinion

We conducted our audit in accordance with Austrian Standards on Auditing. Those standards require that we comply with International Standards on Auditing (ISA). Our responsibilities under those regulations and standards are further described in the „Auditor's Responsibilities for the Audit of the Financial Statements“ section of our report. We are independent of the company in accordance with the Austrian General Accepted Accounting Principles and professional requirements and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

### ■ Responsibilities of Management and of the Audit Committee for the Financial Statements

Management is responsible for the preparation of the financial statements in accordance with Austrian Generally Accepted Accounting Principles, for them to present a true and fair view of the assets, the financial position and the financial performance of the company and for such internal controls as management determines are necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the company's ability to continue

as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the company or to cease operations, or has no realistic alternative but to do so.

The Audit Committee is responsible for overseeing the company's financial reporting process.

### ■ Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with International Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Austrian Standards on Auditing, which require the application of ISA, we exercise professional judgment and maintain professional scepticism throughout the audit.

### ■ We also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- obtain an understanding of internal control relevant to the audit in order to design audit procedures



that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the company's internal control.

- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the company to cease to continue as a going concern.
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the Audit Committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

### ■ Comments on the Management Report for the company

Pursuant to Austrian Generally Accepted Accounting Principles, the management report is to be audited as to whether it is consistent with the financial statements and as to whether the management report was prepared in accordance with the applicable legal regulations.

Management is responsible for the preparation of the management report in accordance with Austrian Generally Accepted Accounting Principles.

We conducted our audit in accordance with Austrian Standards on Auditing for the audit of the management report.

#### *Opinion*

In our opinion, the management report for the company was prepared in accordance with the valid legal requirements and is consistent with the financial statements.

#### *Statement*

Based on the findings during the audit of the financial statements and due to the thus obtained understanding concerning the company and its circumstances no material misstatements in the management report came to our attention.

Vienna, March 6th, 2020



Crowe SOT Wirtschaftsprüfung GmbH  
Dr. Anton Schmidl  
Mag. Andreas Maier

# BALANCE SHEET

Assets	31 Dec 2019 EUR	31 Dec 2018 EUR
<b>A, Non-current assets</b>		
<b>I, Intangible assets</b>		
1, Rights and licences	415,573.00	380,519.00
<b>II, Property, plant and equipment</b>		
1, Land and buildings	10,382,303.02	9,434,735.66
2, Technical plant and machinery	5,275,122.00	4,581,596.00
3, Other plant, furniture and fixtures	764,828.00	619,451.00
4, Advances made and construction in progress	687,039.65	406,980.22
	17,109,292.67	15,042,762.88
<b>III, Financial assets</b>		
1, Shares in affiliates	150,000.00	150,000.00
2, Participating interests	341,688.25	340,638.25
3, Investment securities (book-entry securities)	1,570,750.00	1,411,750.00
	2,062,438.25	1,902,388.25
	19,587,303.92	17,325,670.13
<b>B, Current assets</b>		
<b>I, Inventories</b>		
1, Raw materials and supplies	3,952.74	3,478.89
2, Services not yet chargeable	7,631,695.65	8,202,716.39
3, Advances made	6,802.85	19,124.92
	7,642,451.24	8,225,320.20
<b>II, Receivables and other assets</b>		
1, Trade receivables	2,312,389.33	1,639,267.26
<i>(thereof due within 1 year</i>	<i>2,278,651.43</i>	<i>1,603,060.63)</i>
<i>(thereof due after more than 1 year</i>	<i>33,737.90</i>	<i>36,206.63)</i>
2, Receivables from affiliates	22,843.16	50,326.80
<i>(thereof due within 1 year</i>	<i>22,843.16</i>	<i>32,926.80)</i>
<i>(thereof due after more than 1 year</i>	<i>0.00</i>	<i>17,400.00)</i>
3, Receivables from undertakings with which the company is linked by virtue of participating interests	88,130.23	175,697.93
<i>(thereof due within 1 year</i>	<i>88,130.23</i>	<i>155,556.65)</i>
<i>(thereof due after more than 1 year</i>	<i>0.00</i>	<i>20,141.28)</i>
4, Receivables from subsidies and project grants	4,539,074.02	4,017,760.09
<i>(thereof due within 1 year</i>	<i>4,539,074.02</i>	<i>4,017,760.09)</i>
5, Other receivables and assets	19,208,214.68	15,442,863.63
<i>(thereof due within 1 year</i>	<i>19,208,214.68</i>	<i>15,442,863.63)</i>
	26,170,651.42	21,325,915.71
<i>(thereof due within 1 year</i>	<i>26,136,913.52</i>	<i>21,252,167.80)</i>
<i>(thereof due after more than 1 year</i>	<i>33,737.90</i>	<i>73,747.91)</i>
<b>III, Securities and shares</b>		
1, Other securities and shares	1,786,000.00	1,945,000.00
<b>IV, Cash and balances at banks</b>	3,266,698.57	5,748,368.99
	38,865,801.23	37,244,604.90
<b>C, Prepayments and accrued income</b>	3,492,737.59	1,006,500.39
<b>D, Escrow funds</b>	1,106,851.13	2,309,481.80
<b>Total assets</b>	<b>63,052,693.87</b>	<b>57,886,257.22</b>

Liabilities and shareholders' equity	31 Dec 2019 EUR	31 Dec 2018 EUR
<b>A. Equity</b>		
<b>I. Share capital called in and paid up</b>	3,600,000.00	3,600,000.00
<b>II. Capital reserves</b>		
1. Appropriated	4,633,645.19	4,924,099.68
2. Unappropriated	362,637.44	362,637.44
	4,996,282.63	5,286,737.12
<b>III. Retained earnings</b>		
1. Statutory reserves	159,571.25	159,571.25
2. Other reserves (free reserves)	772,987.93	793,250.31
	932,559.18	952,821.56
<b>IV. Net profit for the year</b>	63,179.57	1,265,962.97
<i>(thereof profit carried forward)</i>	<i>1,265,962.97</i>	<i>769,022.22</i>
	9,592,021.38	11,105,521.65
<b>B. Investment grants</b>	1,679,763.40	1,834,240.95
<b>C. Provisions</b>		
1. Provisions for severance pay	4,921,900.00	4,648,300.00
2. Provisions for pensions	5,572,990.00	5,212,450.00
3. Tax provisions	6,188,800.00	3,363,000.00
4. Other provisions	9,869,730.00	10,562,860.00
	26,553,420.00	23,786,610.00
<b>D. Liabilities</b>		
1. Bank borrowings	3,674,645.11	712,235.65
<i>(thereof due within 1 year)</i>	<i>2,712,194.57</i>	<i>712,235.65</i>
<i>(thereof due after more than 1 year)</i>	<i>962,450.54</i>	<i>0.00</i>
2. Advances received on orders	13,356,080.47	12,281,800.47
<i>(thereof due within 1 year)</i>	<i>7,366,806.25</i>	<i>7,852,188.36</i>
<i>(thereof due after more than 1 year)</i>	<i>5,989,274.22</i>	<i>4,429,612.11</i>
3. Trade payables	2,892,716.62	2,305,425.66
<i>(thereof due within 1 year)</i>	<i>1,833,604.14</i>	<i>1,204,129.10</i>
<i>(thereof due after more than 1 year)</i>	<i>1,059,112.48</i>	<i>1,101,296.56</i>
4. Payables to affiliates	620,839.21	586,055.77
<i>(thereof due within 1 year)</i>	<i>6,338.80</i>	<i>76,002.83</i>
<i>(thereof due after more than 1 year)</i>	<i>614,500.41</i>	<i>510,052.94</i>
5. Payables to undertakings with which the company is linked by virtue of participating interests	14,000.00	35,803.52
<i>(thereof due within 1 year)</i>	<i>14,000.00</i>	<i>35,803.52</i>
6. Other liabilities	3,385,003.50	2,650,466.02
<i>(thereof due within 1 year)</i>	<i>1,997,526.50</i>	<i>1,262,989.02</i>
<i>(thereof due after more than 1 year)</i>	<i>1,387,477.00</i>	<i>1,387,477.00</i>
<i>(thereof for taxes)</i>	<i>367,741.16</i>	<i>248,596.75</i>
<i>(thereof for social security)</i>	<i>1,340,879.07</i>	<i>708,486.96</i>
	23,943,284.91	18,571,787.09
<i>(thereof due within 1 year)</i>	<i>13,930,470.26</i>	<i>11,143,348.48</i>
<i>(thereof due after more than 1 year)</i>	<i>10,012,814.65</i>	<i>7,428,438.61</i>
<b>E. Accruals and deferred income</b>	177,353.05	278,615.73
<b>F. Escrow liabilities</b>	1,106,851.13	2,309,481.80
<b>Total liabilities</b>	<b>63,052,693.87</b>	<b>57,886,257.22</b>

# INCOME STATEMENT

Income Statement	31 Dec 2019 EUR	31 Dec 2018 EUR
1. Revenue	17,090,555.30	17,831,514.19
2. Changes in the amount of services not yet chargeable	-571,020.74	-1,154,863.85
3. Project-related other income	15,275,381.91	13,680,579.02
4. Shareholder contribution	9,746,042.38	9,351,189.91
5. Other operating income		
a. Income from disposal of non-current assets except for financial assets	18,377.66	13,958.34
b. Income from reversal of provisions	1,178,474.22	436,270.72
c. Income from reversal of investment grants	292,518.95	280,839.31
d. Other	3,916,239.92	3,513,959.19
	5,405,610.75	4,245,027.56
6. Cost of materials and other services purchased		
a. Cost of materials	1,842,201.74	1,783,690.01
b. Costs of services purchased	1,618,076.59	1,706,647.87
	3,460,278.33	3,490,337.88
7. Cost of staff		
a. Salaries	23,224,306.15	21,883,285.08
b. Social benefits		
aa) Expenses for old-age provision	712,318.20	825,137.84
bb) Expenses for severance pay and contributions to Severance Pay and Pension Funds	1,144,932.53	700,803.97
cc) Expenses for statutory social security contributions and payroll-related taxes and compulsory contributions	6,345,758.62	6,058,654.34
dd) Other social benefits	151,057.23	149,376.73
	31,578,372.73	29,617,257.96
8. Amortisation of intangible non-current assets and depreciation of property, plant and equipment	3,126,292.37	2,703,616.54

Income Statement	31 Dec 2019 EUR	31 Dec 2018 EUR
<b>9. Other operating expenses</b>		
a. Taxes, other than taxes stated in line 17	7,868.50	7,841.36
b. Other	10,075,535.30	7,529,051.52
	10,083,403.80	7,536,892.88
<b>10. Subtotal lines 1 to 10 (Operating result)</b>	-1,301,777.63	605,341.57
<b>11. Income from other securities</b>	28,282.50	26,750.00
<b>12. Other interest and similar income</b>	18,606.49	18,736.97
<b>13. Expenses for financial assets and securities held as current assets</b>		
a. <i>Expenses for affiliates</i>	174,000.00	351,000.00
b. <i>Other</i>	10,468.37	28,611.63
	184,468.37	379,611.63
<b>14. Interest and similar expenses</b>	64,850.88	50,946.82
<b>15. Subtotal lines 11 to 14 (Financial result)</b>	-202,430.26	-385,071.48
<b>16. Profit or loss before tax (Subtotal lines 10 and 15)</b>	-1,504,207.89	220,270.09
<b>17. Income taxes</b>	1,750.00	1,750.00
<b>18. Profit or loss for the year = profit or loss after tax</b>	-1,505,957.89	218,520.09
<b>19. Reversal of capital reserves</b>		
a. Appropriated	290,454.49	265,700.66
<b>20. Reversal of retained earnings</b>		
a. Other reserves (free reserves)	12,720.00	12,720.00
<b>21. Profit carried forward from previous year</b>	1,265,962.97	769,022.22
<b>22. Net profit for the year</b>	<b>63,179.57</b>	<b>1,265,962.97</b>

## Accounting and Validation Policies

### ■ General principles

The annual financial statements of JOANNEUM RESEARCH Forschungsgesellschaft mbH were prepared in accordance with the provisions of the Austrian Business Code [Unternehmensgesetzbuch/UGB] as amended, generally accepted accounting principles and the general principle of presenting a true and fair view of the company's financial position and financial performance.

When preparing the annual financial statements the principle of completeness was complied with.

Assets and liabilities were measured on a going concern basis according to the principle of item-by-item valuation.

The principle of prudent valuation was taken account of by recognising only the profits realised as at the balance sheet date. All recognisable risks and anticipated losses were taken into consideration.

### ■ Non-current assets

#### ➤ Intangible assets

Intangible assets are recognised at cost plus incidental acquisition costs less cash discounts deducted and after amortisation on a straight-line basis. The useful life applied is three to five years (20% – 33%).

#### ➤ Property, plant and equipment

Property, plant and equipment is recognised at cost plus incidental acquisition costs less cash discounts deducted and after depreciation.

Public subsidies for non-current assets are presented on the liabilities side as investment grants from public funds. Those investment grants are used for the non-current assets analogously to the depreciation of non-current assets.

Depreciation is calculated on a straight-line basis according to the following useful lives and rates:

Property, plant and equipment	Useful life Depreciation in years	Depreciation in years rate in %
Buildings, including buildings on land owned by others	10 – 40	2.5 % – 10 %
Machinery, scientific equipment and electronic data processing systems	3 – 10	10 % – 33 %
Other plant, furniture and fixtures	4 – 10	10 % – 25 %



The full annual depreciation is applied to additions made in the first half of the financial year and half the yearly rate is applied to additions made during the second half of the year.

Low-value assets as defined in Section 13 of the Austrian Personal Income Tax Act [Einkommensteuergesetz/ESTG] 1988, i.e. the cost of acquisition of which is less than or equal to EUR 400.00 per asset, are fully written off in the year of acquisition and presented as additions or disposals in the non-current assets movement schedule.

#### ► Financial assets

**Shares in affiliates and participating interests** are measured at cost less impairment losses, where appropriate.

Investment securities are recognised at the lower of cost or fair value at the balance sheet date.

In the reporting year no write-downs of financial assets were made.

#### ■ Current assets

##### ► Inventories

**Consumables** were measured at the lower of cost or market.

**Services not yet chargeable** in connection with contract research are calculated on the basis of cost accounting. Project costs are recognised on the basis of an itemisation by cost centre and direct cost statements. Item-by-item valuation at cost of production or acquisition as defined in Section 203 UGB is applied. Apart from the costs that are attributable according to the costs-by-cause principle, production costs also include pro rata capitalisable production overheads and portions of social expenses as defined in the second to last sentence of Section 203(3) UGB. Interest expenses and the research risk are not accounted for.

Due to the company's project structure administrative overheads must be capitalised for projects with a term of more than twelve months. In order to give a true and fair view of the company's financial position and financial performance, the option right (cf. Section 206(3) UGB) was exercised.

If losses are anticipated in connection with orders or if additional costs are expected to be incurred for services that have been invoiced already, semi-finished products are discounted or provisions are set up. For contingent warranty obligations in connection with contract research provisions are recognised in the balance sheet as well.

##### ► Receivables and other assets

Receivables and other assets are measured at nominal value, unless the lower fair value is recognised in the case of specific recognisable risks. Provisions for general credit risks are made in the form of general allowances at a rate of 2% (previous year: 2%) of the total net amount of receivables.

##### ■ Provisions

Provisions for severance pay are calculated according to principles of financial mathematics on the basis of the 10-year average interest rate and a term of fifteen years. Calculation of the provision for severance pay was based on an interest rate of 2.71% (previous year: 3.21%) as at 31 December 2019, a salary trend of 2.52% (previous year: 2.08%) and a retirement age of 65 years on a going-concern basis.

No fluctuation discount was recognised. The allocation amount resulting from a change in measurement due to the Austrian Act on Changes in Accounting Practices [Rechnungslegungs-Änderungsgesetz/RÄG] 2014 is allocated over five years.

The **pension provision** is calculated in the amount of the actuarial cover requirement on the basis of the provisions of Section 198 and Section 211 UGB as amended by the RÄG 2014 in compliance with the AFRAC Opinion on „Provisions for pension, severance pay, long-service bonus and comparable long-term obligations under UGB provisions“ of June 2016. The calculation was based on the Pagler & Pagler reference tables. The calculatory interest rate used was the 10-year average interest rate of 2.34% (previous year: 2.83%) with an average remaining term of ten years.

**Other provisions** take into account all recognisable risks and liabilities the amount of which is not known and

# ANNEX

are recognised in the amount which, according to best estimate, is required to fulfil the obligation. No provisions other than those provided for by law are set up.

Changes in provisions concerning reversal of provisions are stated in item 5(b) and allocations to provisions are stated in 7(b) to the extent that they are attributable to cost of staff, and all other changes were recognised in item 9(b) 'Other operating expenses' in the income statement.

## ■ Liabilities

Liabilities are recognised at the settlement amount in compliance with the principle of prudence.

## ■ Currency translation

Receivables and payables are measured at the mean rate of exchange at the date of the transaction and according to the lower of cost or market principle or higher of cost or market principle at the balance sheet date, respectively.

## Notes to the Balance Sheet

### ASSETS

#### ■ Non-Current Assets

As regards the development of the individual items of non-current assets and the breakdown of annual amortisation and depreciation reference is made to the non-current assets movement schedule (Annex to the Notes). As at the balance sheet date non-current assets amounted to EUR 19,587,303.92 (previous year: kEUR 17,325.7) in total. In the financial year 2019 capital expenditure amounted to a total of EUR 5,402,205.16 (previous year: kEUR 3,008.7) and amortisation and depreciation amounted to EUR 3,126,292.37 (previous year: kEUR 2,703.6). In the financial year 2019 disposals at historical cost amounted to EUR 719,275.03 (previous year: kEUR 1,001.8).

**Intangible assets** include software and data transmission rights of a carrying amount of EUR 415,573.00 (previous year: kEUR 380.5). Additions in the amount of EUR 329,121.40 (previous year: kEUR 313.3) are attributable to acquisition of licences and various software.

As at the balance sheet date **property, plant and equipment** amounted to EUR 17,109,292.67 (previous year: kEUR 15,042.8). The land value was EUR 2,875,240.02 (previous year: kEUR 2,656.5). The building value of land with buildings and buildings on land owned by others of EUR 7,507,063.00 (previous year: kEUR 6,778.2) is made up of the net building value of EUR 3,348,465.00 (previous year: kEUR 2,737.5) and structural improvements worth EUR 1,816,886.00 (previous year: kEUR 1,884.7), i.e. EUR 5,165,331.00 (previous year: kEUR 4,622.2) are attributable to buildings on land owned by the company and an amount of EUR 2,341,732.00 (previous year: kEUR 2,156.0) is attributable to capital expenditure on buildings owned by others. Additions in the total amount of EUR 4,913,033.76 (previous year: kEUR 2,610.3) mainly concern the provision of modern scientific equipment for the company's research activities and further expansion of the IT infrastructure. Disposals at historical cost in the amount of EUR 715,450.86 (previous year: kEUR 966.2) mainly concern disposals or, to a small extent, sale of scientific equipment, electronic data processing systems and various office equipment. No impairment losses were recognised.

**Shares in affiliates** in the amount of EUR 150,000.00 (previous year: kEUR 150.0) concern the shares in JR-AquaConSol GmbH in Graz.

According to the statement of investments the following **participating interests** are held:

Statement of Investments as at 31 December 2019	Interest		Equity EUR	Net profit EUR	Balance sheet
	EUR	%			
ACIB GmbH	16,000.00	8.00%	4,100,347.83	172,102.03	31.12.2018
ALP.Lab GmbH	5,600.00	16.00%	-10,132.43	-45,132.43	31.12.2018
BEST - Bioenergy and Sustainable Technologies GmbH	20,000.00	10.00%	924,605.84	689,251.91	31.03.2019
CBmed GmbH	25,000.00	12.50%	1,294,557.80	1,094,557.80	31.12.2018
decide Clinical Software GmbH	42,500.00	10.00%	237,964.86	-187,035.14	31.12.2018
EPIG GmbH	8,750.00	25.00%	132,719.66	97,719.66	31.12.2018
FH JOANNEUM Gesellschaft mbH	10,828.25	14.90%	4,000,000.00	0.00	30.06.2019
Geo5 GmbH	8,000.00	10.00%	56,110.77	-23,889.23	31.12.2018
Holz.Bau Forschungs GmbH	3,500.00	8.68%	173,024.36	132,704.36	31.12.2018
Human.technology Styria GmbH	2,450.00	7.00%	212,421.56	11,757.73	31.12.2018
Know-Center GmbH Research Center for Data-Driven Business & Big Data Analytics	14,540.00	10.00%	1,658,554.21	0.00	31.12.2018
Materials Center Leoben Forschung GmbH	51,100.00	17.50%	6,260,768.35	503,885.35	31.12.2018
Pacemaker Technologies GmbH	1,050.00	3.00%	k,A,	k,A,	in 2019 gegründet
Polymer Competence Center Leoben GmbH	34,000.00	17.00%	5,013,223.46	555,770.06	31.12.2018
Rebeat Innovation GmbH	80,000.00	2.00%	221,497.77	-915,171.23	31.12.2018
Research Center Pharmaceutical Engineering GmbH	15,000.00	15.00%	4,938,424.80	698,424.80	30.06.2019
Virtual Vehicle Research GmbH	10,640.00	8.40%	5,791,540.92	1,342,603.25	31.12.2018

# ANNEX

As at the balance sheet date the carrying amount of **investment securities** was EUR 1,570,750.00 (previous year: kEUR 1,411.8).

## ➔ Write-up or revaluation

In the reporting year no write-downs of financial assets were made.

Amortisation and depreciation of the remaining non-current assets have completely resulted from ordinary amortisation and depreciation.

## ■ Current Assets

### ➔ Inventories

The item **raw materials and supplies** in the amount of EUR 3,952.74 (previous year: kEUR 3.5) is made up of consumables (mainly paper, inked ribbons, computer network cards, laser printer spare parts and small items of equipment).

The contract research item **services not yet chargeable** includes work in progress and services not yet charged in the amount of EUR 7,631,695.65 (previous year: kEUR 8,202.7), under which administrative overheads of EUR 1,464,135.18 (previous year: kEUR 1,596.8) were capitalised for contracts the execution of which lasts more than twelve months. The company's project structure requires adequate capitalisation of administrative overheads in order to present a true and fair as well as continuous view of the company.

**Advances made** on inventories amounted to EUR 6,802.85 (previous year: kEUR 19.1).

Receivables and other assets	Receivables as at 31 Dec 2019 (31 Dec 2018)	thereof due after more than 1 year	thereof evidenced by bills of exchange	Capitalised accruals Section 225(3) UGB	General allowance
Trade receivables	2,312,389.33 (1,639,267.26)	33,737.90 (36,206.63)	0.00 (0.00)	0.00 (0.00)	46,600.00 (35,000.00)
Receivables from affiliates	22,843.16 (50,326.80)	0.00 (17,400.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Receivables from undertakings with which the undertaking is linked by virtue of participating interests or book-entry securities	88,130.23 (175,697.93)	0.00 (20,141.28)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Receivables from subsidies and project grants	4,539,074.02 (4,017,760.09)	0.00 (0.00)	0.00 (0.00)	4,539,074.02 (4,017,760.09)	0.00 (0.00)
Receivable from the liability commitment of the State of Styria	5,600,000.00 (5,600,000.00)	0.00 (0.00)	0.00 (0.00)	5,600,000.00 (5,600,000.00)	0.00 (0.00)
Other receivables and assets	13,608,214.68 (9,842,863.63)	0.00 (0.00)	0.00 (0.00)	13,473,582.37 (9,784,526.62)	0.00 (0.00)
<b>TOTAL</b>	<b>26,170,651.42 (21,325,915.71)</b>	<b>33,737.90 (73,747.91)</b>	<b>0.00 (0.00)</b>	<b>23,612,656.39 (19,402,286.71)</b>	<b>46,600.00 (35,000.00)</b>

### ► Receivables and other assets

Itemised allowances in the amount of EUR 622,207.60 (previous year: kEUR 636.5) were made for expected losses of **trade receivables** and deducted from the assets.

The item receivables from affiliates concerns trade receivables.

**Receivables from subsidies and project grants** concern grant approvals from various funding agencies. Due to the fact that processing, including receipt of payments, takes more than three months, a discount in the amount of EUR 13,400.00 (previous year: kEUR 16.4) was made. The calculatory interest rate was 0.63% (previous year: 0.88%).

**Other receivables and assets** mainly include entitlements to insurance benefits vis-à-vis the insurance fund due to premiums paid, claims vis-à-vis the Tax Office Graz-Stadt, various interest accrued, as well as refunds and aids. This item also includes a liability commitment of the State of Styria in the amount of EUR 5,600,000.00 (previous year: kEUR 5,600.0) to cover the loss from the tax audit by the Tax Office Graz-Stadt, and claims vis-à-vis the Tax Office Graz-Stadt from research allowances in the amount of EUR 12,154,847.08 (previous year: kEUR 8,471.8).

### ► Securities held as current assets

**Securities held as current assets** in the amount of EUR 1,786,000.00 (previous year: kEUR 1,945.0) concern bank bonds with a term until the end of September 2020.

### ► Cash and balances at banks

This item in the amount of EUR 3,266,698.57 (previous year: kEUR 5,748.4) is made up of cash in the amount of EUR 9,079.39 (previous year: kEUR 7.6) and bank balances of EUR 3,257,619.18 (previous year: kEUR 5,740.7).

### ■ Prepayments and accrued income

**Prepayments and accrued income** in the amount of EUR 3,492,737.59 (previous year: kEUR 1,006.5) include payments made in the financial year 2019 which have to be charged as expenses to the following year and mainly concern prepayments of maintenance expenses, various subscriptions and membership fees, insurance premiums, travel expenses and congress fees. In addition, this item includes a prepayment of rent in the amount of EUR 3,030,937.49 (previous year: kEUR 660.00) as well as additional expenses of EUR 58,586.47 (previous year: kEUR 117.2) resulting from the change in the calculation of both the provision for severance pay and the pension provision.

### ■ Escrow Funds

Escrow funds include balances at banks for projects with the Austrian Research Promotion Agency (Österreichische Forschungsförderungs-gesellschaft mbH) and the European Commission where JOANNEUM RESEARCH Forschungs-gesellschaft mbH acts as the coordinator and holds the funds in escrow and manages payments for the project partners (see escrow liabilities).

## LIABILITIES AND SHAREHOLDERS' EQUITY

### ■ Equity

The company's **share capital** amounts to EUR 3,600,000.00 (previous year: kEUR 3,600.0), of which 80.75% (previous year: 80.75%) or EUR 2,907,000.00 (previous year: kEUR 2,907.0) are held by the State of Styria and 14.25% (previous year: 14.25%) or EUR 513,000.00 (previous year: kEUR 513.0) by BABEG - Kärntner Betriebsansiedlungs- und Beteiligungsgesellschaft m.b.H. and 5% (previous year: 5%) or EUR 180,000.00 (previous year: kEUR 180.0) are held by Landesholding Burgenland GmbH.

Taking into account the loss for the year of EUR 1,202,783.40 (previous year: profit for the year of EUR 496,940.75) and the profit carryforward in the amount of EUR 1,265,962.97 (previous year: EUR 769,022.22) the resulting **net profit for the year** is EUR 63,179.57 (previous year: EUR 1,265,962.97).

### ■ Appropriated capital reserve

Both in the Participation and Cooperation Agreement with Kärntner Betriebsansiedlungs- und Beteiligungsgesellschaft m.b.H. (BABEG) of 18 December 2014 and in the Participation and Cooperation Agreement with Landesholding Burgenland GmbH of 20 April 2018 the shareholders have agreed that the appropriated capital reserve be reversed as stipulated.

### ■ Special items for investment grants from public funds

In the reporting year **investment grants from public funds** developed as follows:

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	As at 1 Jan 2019	Additions	Consumption according to depreciation	Reversal	Reclassi- fication or corrections	As at 31 Dec 2019
	EUR	EUR	EUR	EUR	EUR	EUR
<b>Property, plant and equipment</b>						
1. Buildings, including buildings on land owned by others	1,219,922.03	0.00	-127,057.95	0.00	0.00	1,092,864.08
2. Machinery, sci- entific equipment and electronic data processing systems	465,028.00	138,041.40	-145,630.00	0.00	0.00	457,439.40
3. Other plant, fur- niture and fixtures	149,290.92	0.00	-19,831.00	0.00	0.00	129,459.92
<b>Financial assets</b>						
1. Financial assets	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>1,834,240.95</b>	<b>138,041.40</b>	<b>-292,518.95</b>	<b>0.00</b>	<b>0.00</b>	<b>1,679,763.40</b>

## ■ Provisions

An amount of EUR 0.00 (previous year: kEUR 25.9) of the **provisions for severance pay** was used. In order to meet the cover requirement of EUR 4,921,900.00 (previous year: kEUR 4,648.3), an amount of EUR 273,600.00 (previous year: kEUR 365.2) was allocated to the provision.

An amount of EUR 262,111.48 (previous year: kEUR 256.6) of the **provisions for pensions** (of former managing directors) was used for pension payments. In order to meet the actuarial cover requirement of EUR 5,572,990.00 (previous year: kEUR 5,212.5), an amount of EUR 622,651.48 (previous year: kEUR 776.7) had to be allocated to the provision.

The item **provision for taxes** concerns additional tax claims resulting from the tax audit in connection with the temporary loss of the status of a non-profit organisation in the amount of EUR 4,731,700.00 (previous year: kEUR 3,363.0), additional tax claims in the amount of EUR 1,361,800.00 (previous year: kEUR 0.0) resulting from the tax audit in connection with the division of input taxes into a business part and a non-business part, and

additional tax claims resulting from the tax audit in connection with VAT treatment of services provided for the State of Styria in the field of „locational positioning“ in the amount of EUR 95,300.00 (previous year: kEUR 0.0).

**Other provisions** include as main items the provision for unconsumed leave in the amount of EUR 2,490,400.00 (previous year: kEUR 2,296.8), provisions for potential claims for refund of various funding parties in the amount of EUR 693,000.00 (previous year: kEUR 704.4), the provision for working time credits in the amount of EUR 837,400.00 (previous year: kEUR 855.6) and the provision for anticipated losses or costs of work in progress in the amount of EUR 681,300.00 (previous year: kEUR 826.6).

This item also includes the **provision for the tax audit** by the Tax Office Graz-Stadt in the amount of EUR 3,980,700.00 (previous year: kEUR 4,847.7).

## ■ Liabilities

The item **bank borrowings** in the amount of EUR 3,674,645.11 (previous year: kEUR 712.2) includes an export fund credit line of EUR 712,193.77 (previous year:

kEUR 712.2), a cash advance of EUR 2,000,000.00 (previous year: kEUR 0.0) and a loan for the acquisition of the property EZ [folio number] 458 GB [Land Register] 60340 in Niklasdorf with a remaining term of more than five years in the amount of EUR 962,450.54 (previous year: kEUR 0.0).

**Advances received** on orders that may be deducted from inventories in the financial year amounted to a net amount of EUR 13,356,080.47 (previous year: kEUR 12,281.8). This item also includes advances of EUR 6,298,503.63 (previous year: kEUR 5,165.1) made by funding parties.

As at the balance sheet date **trade payables** were EUR 2,892,716.62 (previous year: kEUR 2,305.4), predominantly to Austrian suppliers.

**Other liabilities** include the profit-participating loan granted by the State of Styria on 1 November 2004 in the amount of EUR 1,387,477.00 (previous year: kEUR 1,387.5). In addition, this item mainly includes clearing funds with the Health Insurance Fund of the State of Styria [Steiermärkische Gebietskrankenkasse] and other necessary deferrals.

**Other liabilities** include expenses in the amount of EUR 2,015,216.35 (previous year: kEUR 1,380.7) which will be paid only after the balance sheet date.

#### ■ Other financial obligations

Based on the business plan of JR-AquaConSol GmbH and the resolution of the supervisory board of JOANNEUM

RESEARCH Forschungsgesellschaft mbH of 6 June 2016 the financial obligations for the financial year 2019 were EUR 174,000.00 (previous year: kEUR 351.0). In addition, JR-AquaConSol GmbH has been granted a declining shareholder contribution in a maximum amount of EUR 1,660,000.00 until 31 December 2020. Obligations arising from use of property, plant and equipment not presented in the balance sheet: (see below)

#### ■ Accruals and deferred income

**Accruals and deferred income** in the amount of EUR 177,353.05 (previous year: kEUR 278.6) mainly concern price gains not yet realised.

#### ■ Escrow Liabilities

Escrow liabilities result from projects with the Austrian Research Promotion Agency (Österreichische Forschungsförderungsgesellschaft mbH) and the European Commission where JOANNEUM RESEARCH Forschungsgesellschaft mbH acts as the coordinator and holds the funds in escrow and manages payments for the project partners (see escrow funds).

#### ■ Contingent Liabilities

(cf. in this respect Other disclosures, contingencies).

	for the next financial year	for financial years 2020 to 2024
Room rents <i>(previous year)</i>	835,812.00 <i>(907,358.00)</i>	4,179,059.00 <i>(4,491,277.00)</i>
Equipment rents <i>(previous year)</i>	72,420.00 <i>(56,568.00)</i>	362,100.00 <i>(282,840.00)</i>
Lease payments <i>(previous year)</i>	15,471.00 <i>(107,491.00)</i>	15,471.00 <i>(122,962.00)</i>
<b>Total</b> <b><i>(previous year)</i></b>	<b>923,703.00</b> <b><i>(1,071,417.00)</i></b>	<b>4,556,630.00</b> <b><i>(4,897,079.00)</i></b>



## Notes to the income statement

The **revenues** generated in the financial year 2019 are classified according to areas of activities and divided into domestic and international revenues:

Domestic revenues	Financial year 2019	Financial year 2018
Research	7,949,460.82	6,824,978.85
Royalties	849,059.89	1,862,408.37
Congress fees	3,861.48	7,777.02
Other	1,666,561.22	1,222,234.77
<b>Total domestic revenues</b>	<b>10,468,943.41</b>	<b>9,917,399.01</b>
International revenues		
Research	6,565,387.04	7,877,638.84
Royalties	55,766.67	34,655.11
Congress fees	0.00	1,321.23
Other	458.18	500.00
<b>Total international revenues</b>	<b>6,621,611.89</b>	<b>7,914,115.18</b>
<b>Total revenues</b>	<b>17,090,555.30</b>	<b>17,831,514.19</b>

The expenses of EUR 1,144,932.53 (previous year: kEUR 700.8) stated in item 7.(bb) include contributions to Severance Pay and Pensions Funds in the amount of EUR 240,654.78 (previous year: kEUR 219.8) and expenses for severance payments in the amount of EUR 898,958.60 (previous year: kEUR 481.0) and severance compensation in the amount of EUR 5,319.15 (previous year: kEUR 0.0).

## Other disclosures

### ■ Shares in affiliates and participating interests

As at the balance sheet date, 31 December 2019, the company held 100% of the shares or EUR 150,000.00 (previous year: kEUR 150.0) in JR-AquaConSol GmbH.

The annual financial statements for the year ended 31 December 2019 showed equity of EUR 1,463,462.58 (previous year: EUR 754,817.73) including a net profit for the year of EUR 1,163,462.58 (previous year: EUR 454,817.73).

In addition, the company held another participating interest of 25% of the shares or EUR 8,750.00 in EPIG GmbH as at the balance sheet date 31 December.

The annual financial statements for the year ended 31 December 2018 showed equity of EUR 132,719.66 (previous year: EUR 51,382.87) including a net profit for the year of EUR 97,719.66 (previous year: EUR 16,382.87).

All other participating interests were below 20%.

### ■ Staff

As at the balance sheet date the company had 469 (previous year: 451) employees; taking part-time employees into account on a pro rata basis, the number of staff was 390.1 (previous year: 378.9). Taking part-time employees into account on a pro rata basis, the average number of employees was 385.4 (previous year: 376.3).

In application of the provisions of Section 242(4) UGB no itemisation of salaries, severance payments or pensions for the management as defined in Section 239(1) UGB was made.

No loans or advances were granted to members of the management or of the supervisory board. No liability in favour of that group of persons was assumed either.

The cost of remuneration of the members of the Scientific Advisory Board and of the supervisory board amounted to EUR 108,338.73 (previous year: kEUR 101.9) in total.

### ■ Results after the balance sheet date

After the closing of accounts for the financial year 2019 no other significant events have occurred which would have affected the financial position or financial performance in the financial year 2019.

# BODIES OF THE COMPANY

## Bodies of the company in the financial year 2019:

### ■ Scientific Advisory Board

Prof. Dr Dr Gerald **SCHÖPFER**  
*Chairman*

Prof. Dr Gerhard **FRIEDRICH**  
*Deputy Chairman*

Prof. Dr Gernot **HANREICH**  
*Deputy Chairman*

Prof. Dr Hansjörg **ALBRECHER**

Prof. Dr Horst **BISCHOF**

Dr Michaela **FRITZ**

Prof. Dr Günter **GETZINGER**

Prof. Dr Gottfried **HABER**  
(until 31 May 2019)

Prof. Dr Dr Manfred **HUSTY**

Prof. Dr Joachim **KRENN**  
(until 25 June 2019)

Dr Mario **MÜLLER**

Michael **PATAK**

Reinhard **PETSCHACHER**

Herbert **RITTER**, MBA

Prof. Dr Karin **SCHAUPP**

Waltraud **SCHINKO-NEUROTH**  
(from 25 June 2019)

Caroline **SCHOBER-TRUMMLER**  
(from 25 June 2019)

Dr Stefan **TASCH**

Prof. Dr Frank **UHLIG**  
(from 25 June 2019)

### ■ Supervisory Board

Dr Martin **WIEDENBAUER**  
*Chairman*

Prof. Fritz **SPERL**, MAS MBA  
*Deputy Chairman*

Dr Erifried **TAURER**  
*Deputy Chairman*

Prof. Dr Werner **HAUSER**

Prof. Dr Thomas **KRAUTZER**  
(until 31 August 2019)

Michaela **KRENN**  
(from 31 August 2019)

Klaus **HATZL, MA**  
(from 31 March 2019)

Christoph **LUDWIG**  
(until 31 March 2019)

Ingolf **SCHÄDLER**

Dr Birgit **STRIMITZER-RIEDLER**

Ursula **STROHMAYER**

### ■ Members of the works council delegated to the supervisory board:

Ferdinand **GOLJA**  
*Chairman of the Works Council*

Clemens **HABSBURG-LOTHRINGEN**, MAS

Helen **HASENAUER**, MSc

Maria **HINGSAMER**  
(from 4 July 2019)

Gertrude **MATZER**, BA MSc

Gerhard **PROBST**  
(until 4 July 2019)

### ■ Management:

Prof. Dr Wolfgang **PRIBYL**, MBA

## ■ Contingencies

Pursuant to Section 199 UGB a performance bond vis-à-vis the Cochin University of Sciences and Technology (EUR 3,027.25), a bid bond vis-à-vis the Indian Institute of Tropical Meteorology (EUR 1,887.13) and guarantees for rent security deposits vis-à-vis Zentrum für Wissens- und Technologietransfer in der Medizin GmbH (EUR 110,890.00), W.E.I.Z. Immobilien GmbH (EUR 38,019.46) and SFL technologies Science Tower GmbH (EUR 36,000.00) as well as retention guarantees vis-à-vis Autobahnen- und Schnellstraßen-Finanzierungs Aktiengesellschaft (EUR 104,045.15) and voestalpine Wire Rod Austria GmbH (EUR 44,550.00) are presented below the balance sheet as at 31 December 2019.

Pursuant to Section 199 UGB an advance payment guarantee vis-à-vis EPCOS OHG, a TDK group company (EUR 5,225.00), a payment guarantee vis-à-vis ACAM Systemautomation GmbH (EUR 39,000.00) and guarantees for rent security deposits vis-à-vis Zentrum für Wissens- und Technologietransfer in der Medizin GmbH (EUR 110,890.00), W.E.I.Z. Immobilien GmbH (EUR 38,019.46), Lakeside Science & Technology Park GmbH (EUR 36,746.67) and SFL technologies Science Tower GmbH (EUR 36,000.00) as well as retention guarantees vis-à-vis Autobahnen- und Schnellstraßen-Finanzierungs Aktiengesellschaft (EUR 122,512.04) and voestalpine Wire Rod Austria GmbH (EUR 25,850.00) were presented below the balance sheet for the previous year.

## ■ Other informations

Based on the objectives defined in Article 1(3) of the Articles of Association the company pursues the furtherance of the general public in the fields of research, development and science exclusively and directly in the interest of public welfare. No net profit for the year that may be generated will be distributed.

According to a decision dated 16 January 1995, reference no. 29/31-10/94, of the finance authority for the State of Styria, JOANNEUM RESEARCH Forschungsgesellschaft mbH belongs to the group of preferential recipients as defined in Section 4(4) No. 5 (e) of the Austrian Personal Income Tax Act [Einkommensteuergesetz/ESTG] 1988 as amended by Art. I No. 4 (a) of the Austrian Tax Reform Act [Steuerreformgesetz] 1993.

The expenses for the statutory auditor for the audit of the annual financial statements amounted to EUR 23,800.00 (previous year: EUR 11,750.00). No other certification services, tax advisory services or other services of the statutory auditor were incurred in the reporting year or in the previous year.

Graz, 6 March 2020



**Prof. Dr Wolfgang Pribyl, MBA**  
Managing Director



Development of Non-Current Assets	Cost of acquisition			Accumulated amortisation and depreciation			Carrying amounts				
	1 Jan 2019	Additions	Disposals	Reclassification	31 Dec 2019	1 Jan 2019	Additions	Disposals	31 Dec 2019	31 Dec 2018	31 Dec 2019
<b>I) Intangible assets</b>											
Software, data transmission rights and other rights	2,683,202.59	329,121.40	3,824.17	27,426.50	3,035,926.32	2,302,683.59	320,100.90	2,431.17	2,620,353.32	380,519.00	415,573.00
Total intangible assets	2,683,202.59	329,121.40	3,824.17	27,426.50	3,035,926.32	2,302,683.59	320,100.90	2,431.17	2,620,353.32	380,519.00	415,573.00
<b>II) Property, plant and equipment</b>											
1) Land, rights equivalent to land and buildings, including buildings on land owned by others											
a) Land value	2,656,523.66	218,716.36	0.00	0.00	2,875,240.02	0.00	0.00	0.00	0.00	2,656,523.66	2,875,240.02
b) Building value	15,533,715.07	1,242,328.75	39,199.42	34,142.94	16,770,987.34	8,755,503.07	542,271.69	33,850.42	9,263,924.34	6,778,212.00	7,507,063.00
Subtotal land and buildings	18,190,238.73	1,461,045.11	39,199.42	34,142.94	19,646,227.36	8,755,503.07	542,271.69	33,850.42	9,263,924.34	9,434,735.66	10,382,303.02
2) Machinery, scientific equipment and EDP systems	26,700,864.85	2,351,569.87	488,224.82	323,467.14	28,887,677.04	22,119,268.85	1,981,310.01	488,023.82	23,612,555.04	4,581,596.00	5,275,122.00
3) Other plant, furniture and fixtures	3,315,246.86	376,562.90	130,078.98	812.23	3,562,543.01	2,695,795.86	230,062.13	128,142.98	2,797,715.01	619,451.00	764,828.00
4) Advances made and construction in progress	421,232.22	709,769.51	5,400.00	-400,100.81	725,500.92	0.00	0.00	0.00	0.00	421,232.22	725,500.92
Offsetting of input tax on advances for non-current assets	-14,252.00	-38,461.27	0.00	14,252.00	-38,461.27	0.00	0.00	0.00	0.00	-14,252.00	-38,461.27
Subtotal advances made and construction in progress	406,980.22	671,308.24	5,400.00	-385,848.81	687,039.65	0.00	0.00	0.00	0.00	406,980.22	687,039.65
5) Low-cost assets	0.00	52,547.64	52,547.64	0.00	0.00	0.00	52,547.64	52,547.64	0.00	0.00	0.00
Total property, plant and equipment	48,613,330.66	4,913,033.76	715,450.86	-27,426.50	52,783,487.06	33,570,567.78	2,806,191.47	702,564.86	35,674,194.39	15,042,762.88	17,109,292.67
<b>III) Financial assets</b>											
1) Shares in affiliates	150,000.00	0.00	0.00	0.00	150,000.00	0.00	0.00	0.00	0.00	150,000.00	150,000.00
2) Participating interests	340,638.25	1,050.00	0.00	0.00	341,688.25	0.00	0.00	0.00	0.00	340,638.25	341,688.25
3) Investment securities (book-entry securities)	1,411,750.00	159,000.00	0.00	0.00	1,570,750.00	0.00	0.00	0.00	0.00	1,411,750.00	1,570,750.00
Total financial assets	1,902,388.25	160,050.00	0.00	0.00	2,062,438.25	0.00	0.00	0.00	0.00	1,902,388.25	2,062,438.25
<b>Total Non-Current Assets</b>	<b>53,198,921.50</b>	<b>5,402,205.16</b>	<b>719,275.03</b>	<b>0.00</b>	<b>57,881,851.63</b>	<b>35,873,251.37</b>	<b>3,126,292.37</b>	<b>704,996.03</b>	<b>38,294,547.71</b>	<b>17,325,670.13</b>	<b>19,587,303.92</b>

# MANAGEMENT REPORT

The Management Report covers the reporting period of the financial year 2019 from 1 January 2019 to 31 December 2019 and is divided into three sections:

I. Report on the course of the company's business and financial position; II. Report on prospective developments and risks of the company, and III. Report on research and development.

## I. Report on the company's course of business and financial position

### I.1 Business organisation

As at 31 December 2019 JOANNEUM RESEARCH was organised in seven research units, which represent the main areas of activities.

Research units	
DIGITAL	Institute for Information and Communication Technologies
MATERIALS	Institute for Surface Technologies and Photonics
ROBOTICS	Institute for Robotics and Mechatronics
COREMED	Cooperative Centre for Regenerative Medicine
HEALTH	Institute for Biomedicine and Health Sciences
LIFE	Institute for Climate, Energy and Society
POLICIES	Institute for Economic and Innovation Research

### I.2 Investment report

As at 31 December 2019 JOANNEUM RESEARCH held corporate investments in the following companies :

#### ► I.2.1 Shares in affiliates

In der Bilanz wird die JR-AquaConSol GmbH, Graz, als verbundenes Unternehmen ausgewiesen.

	Share in %
JR-AquaConSol GmbH	100.0 %

#### ► I.2.2 Corporate investments

	Share in %
ALP.Lab GmbH	16.0 %
decide Clinical Software GmbH	10.0 %
EPIG GmbH	25.0 %
FH JOANNEUM Gesellschaft mbH	14.9 %
Geo5 GmbH	10.0 %
Holz.Bau Forschungs GmbH	5.98 %
Human.technology Styria GmbH	7.0 %
Pacemaker Technologies GmbH	3.0 %
Rebeat Innovation GmbH	2.0 %

# MANAGEMENT REPORT

## ► I.2.3 Corporate investments - COMET (K1, K2)

### Competence Centre Programme

As at 31 December 2019 the company owned shares in the following companies, which are funded through the COMET (Competence Centers for Excellent Technologies) Programme of the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK) and the Federal Ministry for Digital and Economic Affairs (BMDW):

	Share in %
ACIB GmbH	8.0 %
BEST-Bioenergy and Sustainable Technologies GmbH	10.0 %
CBmed GmbH	12.5 %
Know-Center GmbH Research Center for Data-Driven Business & Big Data Analytics	10.0 %
Materials Center Leoben Forschung GmbH	17.5 %
Polymer Competence Center Leoben GmbH	17.0 %
Research Center Pharmaceutical Engineering GmbH	15.0 %
Virtual Vehicle Research GmbH	8.4 %

## ■ I.3 Branches

The company has no branches.

## ■ I.4 Course of business

As at 31 December 2019 the orders on hand amounted to approximately EUR 66.6 million. The work on hand amounted to approximately EUR 39.0 million; the value of offers submitted was approximately EUR 49.0 million. The loss for the financial year 2019 amounted to approximately kEUR 1,202.8 (previous year: profit for the year of approximately kEUR 496.9). Accordingly, the self-financing ratio (operating result / total expenses) was calculated at 77% (previous year: 80%).

The operating result from contract research projects for the financial year 2019 was approximately EUR 16.5 million (previous year: approximately EUR 16.7 million). Funded research projects generated an operating result of approximately EUR 15.6 million (previous year: approximately EUR 14.0 million).

At an international level JOANNEUM RESEARCH solicited contract research projects and funded research projects worth approximately EUR 10.5 million in the aggregate in the reporting year (previous year: approximately EUR 12.0 million). An amount of approximately EUR 3.9 million thereof (previous year: approximately EUR 4.3 million) is attributable to projects with the European Union and approximately EUR 6.6 million (previous year: approximately EUR 7.9 million) to contract research projects. Due to the participation of JOANNEUM RESEARCH in the programmes of the European Union and calls for proposals by the European Space Agency (ESA) the company generated total revenues of approximately EUR 5.5 million in the financial year 2019. Under the Horizon 2020 programme projects with a funding volume of approximately EUR 8.1 million were awarded to the company and in connection with ESA projects an order volume of approximately EUR 1.1 million was solicited.

In the financial year 2019 revenues of approximately EUR 6.0 million (previous year: approximately EUR 5.8 million) were generated through national cooperative research projects related to the Austrian Research Promotion Agency (Österreichische Forschungsförderungsgesellschaft mbH/FFG).

Under a 2019 – 2021 funding agreement with the Federal Ministry for Transport, Innovation and Technology (BMVIT) funds in the amount of EUR 7.8 million were granted. In the reporting period JOANNEUM RESEARCH generated revenues totalling approximately EUR 2.6 million from BMVIT.

In the financial year 2019 the attributable business share amounted to EUR 14.2 million.



# MANAGEMENT REPORT

## ➔ I.4.1 Financial position

The company's assets and financing structure developed as follows:

As at the balance sheet date, 31 December 2019, JOANNEUM RESEARCH had a balance sheet total of approximately EUR 63.1 million (previous year: approximately EUR 57.9 million). This is comprised of non-current assets in the amount of approximately EUR 19.6 million and current assets (inclusive of prepayments and accrued income and escrow funds) of approximately EUR 43.5 million.

As at 31 December 2019 shareholders' equity including investment grants amounted to EUR 11.3 million (thereof investment grants of approximately EUR 1.7 million) or 18% of the balance sheet total compared to approximately EUR 12.9 million or 22% of the previous year's balance sheet total. Borrowings (inclusive of accruals and deferred income and escrow liabilities) increased by approximately EUR 6.8 million to approximately EUR 51.8 million (previous year: EUR 44.9 million) and amounted to 82% (previous year: 78%) of the balance sheet total.

In the financial year 2019 cash flows from the profit or loss as the sum total of generated profit for the year and the income and expense items (the company's internal financing potential) amounted to approximately EUR 1.9 million. Working capital (current assets minus short-term borrowings) was approximately EUR 12.2 million (previous year: approximately EUR 12.9 million).

No derivative financial instruments were used in the past financial year 2019. The financial instruments recognised in the balance sheet are part of the company's general risk management, which is reflected in the bookkeeping and accounting policies.

## ➔ I.4.2 Financial performance

In the financial year 2019 the operating result including own work capitalised and other operating income net of shareholder contribution and research tax premium amounted to approximately EUR 33.4 million (previous year: approximately EUR 31.1 million).

Domestic revenues accounted for 65% and international revenues accounted for 35% of the operating result

generated in projects. The share of the operating result of 13% generated in projects attributable to Styria did not change compared to the previous year.

The amount of services not yet chargeable decreased by approximately EUR 0.6 million compared to the previous year and amounted to approximately EUR 7.6 million as at 31 December 2019.

The expenses in the amount of approximately EUR 48.2 million (previous year: approximately EUR 43.3 million) are made up of staff costs including statutory social security charges and voluntary social benefits plus allocations to pension provisions (former managing director) and severance payments of approximately EUR 31.6 million (previous year: approximately EUR 29.6 million), cost of materials and other services purchased of approximately EUR 3.4 million (previous year: approximately EUR 3.5 million), amortisation and depreciation of approximately EUR 3.1 million (previous year: approximately EUR 2.7 million) and other operating expenses of approximately EUR 10.1 million (previous year: approximately EUR 7.5 million).

As at the balance sheet date the self-financing ratio was 77% (previous year: 80%). The shareholder contributions of the State of Styria, the State of Carinthia through Kärntner Betriebsansiedlungs- und Beteiligungsgesellschaft m.b.H. (BABEG), the State of Burgenland and the Grant Agreement with the Federal Ministry for Transport, Innovation and Technology (BMVIT) constitute material parts of corporate financing and secure accomplishment of the company's mission.

The company closed the financial year 2019 with a loss before taxes (formerly profit or loss on ordinary activities) of -EUR 1,504,207.89. Taking into account income taxes of EUR 1,750.00, reversal of reserves in the amount of EUR 303,174.49 and the profit of EUR 1,265,962.97 carried forward from the previous year, the net profit for the year is EUR 63,179.57.

After the accounts for the financial year 2019 were closed no other significant events occurred which would have affected the financial position or financial performance in the financial year 2019.

# MANAGEMENT REPORT

## ► I.4.3 Capital expenditure report

In the financial year 2019 approximately EUR 4.9 million (previous year: approximately EUR 2.9 million) were spent on property, plant and equipment (scientific equipment, electronic data processing systems, furniture and fixtures, land with buildings).

## ► I.4.4 Staff report

As at the balance sheet date the company had 469 employees (175 women and 294 men), +3.99% (+0.00% regarding women and +6.52% regarding men) compared to the previous year's figures. This corresponds to 390.1 full-time equivalents as at 31 December 2019, i.e. an increase by 2.93% compared to the previous year.

With 87 new employees (39 women and 48 men) and 69 employees (39 women and 30 men) who left the company in the reporting period the fluctuation regarding active employees was approximately 14.71% (22.29% women and 10.20% men). This figure has slightly decreased compared to the previous year (15.96%).

The average age of the company's employees is 41.6 years and has therefore changed only slightly compared to the previous year (41.2 years).

As at 31 December 2019 the share of graduates from universities and universities of applied sciences was 70.15% (31.91% women); the share of grammar school graduates was 19.19%.

As at the balance sheet date 6 apprentices, 3 female and 3 male, were undergoing training at JOANNEUM RESEARCH.

In the reporting period a total of 11 interns (5 women, 6 men) were employed, who completed their compulsory internships in connection with their studies at universities of applied sciences or universities or international exchange programmes. In addition, 28 students (12 female and 16 male) were granted an opportunity to write their diploma or doctoral theses in an employment relationship with JOANNEUM RESEARCH in cooperation with the relevant universities.

## II. Report on prospective developments and risks of the company

### ■ Economic policy framework conditions for research and development (R&D)

After a period of global economic boom, which was most pronounced in the years 2017 and 2018, indications of a continuous downswing have begun to show in the last few months both at an international and a national level. For the forecast period until 2021 the dynamics of the world economy are expected to be low, but no recession is anticipated at the moment.

A major factor of that development is the sustained downturn in international trade relations due to severe uncertainties about the course of economic policies. From an Austrian perspective especially Brexit and its consequences, which are still not clear, the increasing protectionism of the USA combined with recurring trade conflicts with China and the European Union (EU), and discussions about the greening of the economy (keyword: „European Green Deal“ of the European Commission) and the taxation of international groups of companies play an important role.

The moderate expectations regarding economic growth are also reflected in the forecast on future economic developments in the EU. For example, currently only very little growth of real gross domestic product (GDP) of 1.6% has been calculated for the EU 27 for 2019 (WIFO [Austrian Institute of Economic Research] Monthly Reports 01/2020) compared to the previous year, while 1.5% are expected for 2020 and again 1.6% for 2021.

A slightly more pronounced fluctuation of real GDP is expected for the Austrian economic area. While in 2018, at the end of the economic boom, growth of 2.4% compared to 2017 was recorded, a reduction to 1.7% has been forecast for 2019, which might decrease even further to 1.2% in 2020 and 1.4% in 2021. Important influencing factors in this connection are the decreasing export share and recession trends in the industrial sector, whereas the successful service sector and high consumption within Austria are still having a balancing effect.

# MANAGEMENT REPORT

In 2019 a total of EUR 12.8 billion was spent on research and experimental development (R&D) (estimate of Statistics Austria in press release 12.001-067/19), which constitutes a research share of 3.19% of GDP and an increase of 4.5% compared to 2018. Forty-nine per cent (49%) (approximately EUR 6.27 billion) of that capital expenditure was borne by the business sector, 34.9% (approximately EUR 4.47 billion) by the public sector and 16.1% (approximately EUR 2.06 billion) by foreign investors and private non-profit organisations.

## ■ Shareholder contribution from the State of Styria

The Government of the State of Styria provided JOANNEUM RESEARCH with a shareholder contribution of EUR 7,800,000.00 for 2019 as a contribution to recurring expenses.

For 2020 an amount of EUR 7,700,000.00 will be provided as a shareholder contribution to recurring expenses.

## ■ Shareholder contribution from Kärntner Betriebsansiedlungs- und Beteiligungsgesellschaft m.b.H. (BABEG)

The shareholder contribution agreement between BABEG and JOANNEUM RESEARCH will be in force until the end of 2020. BABEG granted JOANNEUM RESEARCH a shareholder contribution of EUR 1,424,000.00 for 2019.

## ■ Shareholder contribution from the State of Burgenland

Under the Participation and Cooperation Agreement between the State of Styria, Kärntner Betriebsansiedlungs- und Beteiligungsgesellschaft m.b.H. (BABEG) and Landesholding Burgenland GmbH the State of Burgenland agreed to grant JOANNEUM RESEARCH a shareholder contribution of EUR 464,500.00 for the term of the investment.

## ■ Grant Agreement Federal Ministry for Transport, Innovation and Technology (BMVIT)

Under the Grant Agreement 2015-2018 the Federal Ministry for Transport, Innovation and Technology (BMVIT) provided funding in a total amount of EUR 9.40 million for near-basic research projects.

Under the Grant Agreement 2019-2021 the Federal Ministry for Transport, Innovation and Technology (BMVIT) provides funding in a total amount of EUR 7.755 million for near-basic research projects.

In the course of formation of the new government and the ensuing amendment to the Austrian Statute on Federal Ministries [Bundesministeriengesetz/BMG] the Federal Ministry for Transport, Innovation and Technology (BMVIT) changed its name to Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK).

The shareholder contributions of the State of Styria, Kärntner Betriebsansiedlungs- und Beteiligungsgesellschaft m.b.H. (BABEG), the State of Burgenland and the Grant Agreement with the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK) are significant financing tools of JOANNEUM RESEARCH.

## ■ Risks and prospective development

As a research company JOANNEUM RESEARCH faces changing national and international framework conditions in research funding and due to the formation of new initiatives. The competition for available grants and excellent researchers is becoming increasingly tough.

Starting new research topics requires adequate resources taking into account the development risk inherent in research.

The company's financial performance is expected to be stable in the financial year 2020.



# MANAGEMENT REPORT

## ■ IT security at JOANNEUM RESEARCH

Since the previous year the damage suffered by Austrian business entities due to attacks on IT and communications systems has increased slightly. For 2019 a study on this subject showed that 66% of the 342 surveyed entities had been victims of cyber attacks (previous year: 61%; comparison of the KPMG studies „Cyber security in Austria“ for 2019 and 2018). In almost half of the cases (41%) the attacks caused financial losses, sometimes resulting in severe consequences. The estimated number of undetected cases is much higher, as only one third of the entities report the attacks to the authority.

One in two entities was exposed to attacks which spied out log-in data (phishing) and also caused damage („malware“). Therefore, the question is not whether an attack will occur but only when and in what form.

In terms of the human factor gullibility of the victims, lack of awareness of the need for security measures and the increasing prominence of digital equipment in everyday life are used as attack vectors. Technological threats are manifold and change constantly.

In connection with its company-wide risk provision JOANNEUM RESEARCH has therefore carried out IT risk analyses in cooperation with the Federal Agency for State Protection and Counter Terrorism (BVT) and taken appropriate measures to enhance IT security.

The Computing Center of JOANNEUM RESEARCH (RZJ) has protected the company against external intrusion attempts by an improved double firewall according to the risk catalogue for critical infrastructure issued by the BVT. Here 55 million incoming emails are filtered every year, with only around 3% being identified as business emails; the rest is spam or dangerous. The challenge is to provide for the right settings to be sure to identify the approximately 0.8 thousandth of actually dangerous emails and to avoid blocking important ones by false positive identification. Since this is often difficult due to improved methods of attack, training is offered to support staff who are particularly exposed. In addition, the Computing Center has establis-

hed a special unit where suspicious emails are analysed. Warnings from the police against current campaigns of attack are addressed immediately and all staff members are informed.

As a company that generates knowledge JOANNEUM RESEARCH faces worldwide competition in specific research areas. Accordingly, there is a strategic risk of trade secrets being spied out by competitors possessing significant resources or government-related agencies. In order to avoid that risk, the company invests in creating high awareness among its staff, comprehensive authorisation concepts, a strict password policy, a private cloud, encryption, and much more.

In summary it can be said that JOANNEUM RESEARCH has further improved and enhanced its IT security measures. Implementing the new technical standards and legislation throughout the company measures are regularly taken to enhance security, which, however, make capital expenditure necessary.

# MANAGEMENT REPORT

## III. Report on research and development

### ■ III.1 Research units

#### ➔ **DIGITAL – Institute for Information and Communication Technologies**

*Activities planned for financial 2020:*

DIGITAL is by far the company's largest research unit and will continue its chosen path of consolidation and realignment in terms of content and organisation in 2020. In principle, the institute is in an excellent starting position, as it covers many of the most recent technologies, such as artificial intelligence, machine learning, sensor technology (video and audio), radar, data transmission via satellite, cyber security and cyber defence, etc. and is active in markets with high economic potential, even though they are challenging in terms of technology. For example, DIGITAL is to a major extent also involved in establishing JOANNEUM RESEARCH in EIT manufacturing across different institutes and in location initiatives, such as DIGITAL MATERIAL VALLEY STYRIA and ALP.Lab GmbH.

#### ➔ **MATERIALS – Institute for Surface Technologies and Photonics**

*Activities planned for financial 2020:*

In 2019 MATERIALS celebrated its 20th anniversary at the facility in Weiz and looked back at a very positive evolution. Due to those favourable developments capital expenditure is planned for 2020 to further expand the research infrastructure at the different locations of the institute. In addition, many strategic investments will be made, e.g. in the areas of roll-to-roll processes, inkjet printing, laser production technology and nanoanalytics. Internationally significant scientific cooperation projects will also be expanded and continued in the new financial year. They constitute the basis of the great successes in European calls for proposals, which applies to all institutes.

#### ■ **ROBOTICS – Institute for Robotics and Mechatronics**

*Activities planned for financial 2020:*

In 2019 ROBOTICS set the basis for successfully entering the second development phase on the foundations of a new institutional and research infrastructure. After a first phase of setting up the institute it is now possible to address new research topics and in this way new business partners. As the site and technological infrastructure can now be used jointly with the University of Klagenfurt, the close cooperation already in place between applied research and academic research at the facility in Klagenfurt will be strengthened. In 2020 the new independent and accredited ROBOTICS Evaluation Lab (REL) and the ROBOTICS Training Center (RTC) will start or continue their activities, respectively.

#### ➔ **COREMED - Cooperative Centre for Regenerative Medicine**

*Activities planned for financial 2020:*

COREMED has given new impulse to medical research at the Styrian site. The research topics addressed at the Centre are of high social relevance and possess large development potential in the medium and long term. In financial 2020 two important development steps will be taken: on the one hand, the first research group, namely „Technologies for Tissue Regeneration“, will be established and, on the other hand, the first laboratory of the Centre will be put into operation. The laboratory is designed to enable cell culture experiments, and a molecular biology laboratory will be set up to facilitate sample preparation, in particular for RNA analyses, and also for protein analyses.

#### ➔ **HEALTH – Institute for Biomedicine and Health Sciences**

*Activities planned for financial 2020:*

For almost twenty years HEALTH has been engaged in

# MANAGEMENT REPORT

close cooperation with the Medical University of Graz as the link between basic medical research and industrial application. In financial 2020 a new competence group called „Data Management and Biostatistics“ will be founded. The successful activities in the areas of bioequivalence studies, bioanalysis and metabolomics will be further advanced. The competence groups „Clinical Decision Support“ and „Medical Sensors“ will further develop the institute's core technologies with the objective of exploiting them through licensing.

## ► LIFE – Institute for Climate, Energy and Society

*Activities planned for financial 2020:*

LIFE deals with crucial issues of climate change. Due to the necessary detailed specification of national and regional climate policies according to the Paris Agreement of 2015 the institute's orientation is clear; however, an increasing number of entities address the necessary decarbonisation and research into climate risks related to their own business activities. Against the background of the worldwide debate the institute is lucky enough to refer to its own competence and excellence in this regard. At the Carinthian site the focus is on multi-agent modelling of mobility, which is above all necessary to illustrate future developments in the area of autonomous and shared mobility.

## ► POLICIES – Institute for Economic and Innovation Research

*Activities planned for financial 2020:*

In 2020 POLICIES will continue its fundamental mission of providing advice on and support in strategic and operational decisions to customers from politics and business. For financial 2020 it is planned to maintain the level of scientific output, while at the same time the focus across research groups will be on the competence basis in the area of big data analysis (big data, register data ...) and

modelling, as well as the production sector (e.g. digitisation of agriculture, EIT manufacturing). The institute's new facility in Carinthia (the Regional Economics and Location Policy research group) will be further expanded in 2020.

Graz, 6 March 2020



**Prof. Dr. Wolfgang Pribyl, MBA**  
Managing Director

# **CONSOLIDATED FINANCIAL STATEMENT**





# AUDITOR'S REPORT

## Report on the Consolidated Financial Statements

### ■ Audit Opinion

We have audited the consolidated financial statements of JOANNEUM RESEARCH Forschungsgesellschaft mbH Graz and of its subsidiaries (the group). These consolidated financial statements comprise the consolidated balance sheet as of December 31, 2019, with an equity of EUR 10,905,483.96, the consolidated income statement, the consolidated statement of changes in equity and the consolidated statement of cash flows for the fiscal year then ended and the notes to the consolidated financial statements.

Based on our audit the accompanying consolidated financial statements were prepared in accordance with the legal regulations and present fairly, in all material respects, the assets and the financial position of the group as of December 31, 2019 and its financial performance for the year then ended in accordance with Austrian Generally Accepted Accounting Principles.

### ■ Basis for Opinion

We conducted our audit in accordance with Austrian Standards on Auditing. Those standards require that we comply with International Standards on Auditing (ISA). Our responsibilities under those regulations and standards are further described in the „Auditor's Responsibilities for the Audit of the Financial Statements“ section of our report. We are independent of the company in accordance with the Austrian General Accepted Accounting Principles and professional requirements and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

### ■ Responsibilities of Management and of the Audit Committee for the Financial Statements

Management is responsible for the preparation of the consolidated financial statements in accordance with Austrian Generally Accepted Accounting Principles, for them to present a true and fair view of the assets, the financial position and the financial performance of the Group and for such internal controls as management determines are

necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

The Audit Committee is responsible for overseeing the Group's financial reporting process.

### ■ Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with International Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with Austrian Standards on Auditing, which require the application of ISA, we exercise professional judgment and maintain professional scepticism throughout the audit.

### ■ We also:

- ▶ identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error,

as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- ➔ obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- ➔ evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- ➔ conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- ➔ evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- ➔ obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with the Audit Committee regarding, among other matters, the planned scope and timing

of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

### ■ Comments on the Management Report for the Group

Pursuant to Austrian Generally Accepted Accounting Principles, the group management report is to be audited as to whether it is consistent with the consolidated financial statements and as to whether it was prepared in accordance with the applicable legal regulations.

Management is responsible for the preparation of the group management report in accordance with Austrian Generally Accepted Accounting Principles.

We conducted our audit in accordance with Austrian Standards on Auditing for the audit of the group management report.

#### *Opinion*

In our opinion, the management report for the Group was prepared in accordance with the valid legal requirements and is consistent with the consolidated financial statements.

#### *Statement*

Based on the findings during the audit of the consolidated financial statements and due to the thus obtained understanding concerning the Group and its circumstances no material misstatements in the group management report came to our attention.

Vienna, March 6th, 2020

Crowe SOT Wirtschaftsprüfung GmbH  
Dr. Anton Schmidl  
Mag. Andreas Maier

# BALANCE SHEET

Assets	31 Dec 2019 EUR	31 Dec 2018 EUR
<b>A. Non-current assets</b>		
<b>I. Intangible assets</b>		
1. Rights and licences	422,496.00	380,519.00
<b>II. Property, plant and equipment</b>		
1. Land and buildings	10,388,794.02	9,441,378.66
2. Technical plant and machinery	5,367,095.00	4,699,592.00
3. Other plant, furniture and fixtures	780,260.00	644,159.00
4. Advances made and construction in progress	717,039.65	406,980.22
	<u>17,253,188.67</u>	<u>15,192,109.88</u>
<b>III. Financial assets</b>		
1. Participating interests	341,688.25	340,638.25
2. Investment securities (book-entry securities)	1,570,750.00	1,411,750.00
	<u>1,912,438.25</u>	<u>1,752,388.25</u>
	<u>19,588,122.92</u>	<u>17,325,017.13</u>
<b>B. Current assets</b>		
<b>I. Inventories</b>		
1. Raw materials and supplies	3,952.74	3,478.89
2. Services not yet chargeable	8,504,519.93	10,266,805.96
3. Advances made	6,802.85	19,124.92
	<u>8,515,275.52</u>	<u>10,289,409.77</u>
<b>II. Receivables and other assets</b>		
1. Trade receivables	2,383,052.25	1,656,489.28
<i>(thereof due within 1 year</i>	<i>2,349,314.35</i>	<i>1,620,282.65)</i>
<i>(thereof due after more than 1 year</i>	<i>33,737.90</i>	<i>36,206.63)</i>
2. Receivables from affiliates	88,130.23	175,697.93
<i>(thereof due within 1 year</i>	<i>88,130.23</i>	<i>155,556.65)</i>
<i>(thereof due after more than 1 year</i>	<i>0.00</i>	<i>20,141.28)</i>
3. Receivables from subsidies and project grants	4,539,074.02	4,114,526.78
<i>(thereof due within 1 year</i>	<i>4,539,074.02</i>	<i>4,114,526.78)</i>
4. Other receivables and assets	19,349,882.36	15,580,712.07
<i>(thereof due within 1 year</i>	<i>19,349,882.36</i>	<i>15,580,712.07)</i>
	<u>26,360,138.86</u>	<u>21,527,426.06</u>
<i>(thereof due within 1 year</i>	<i>26,326,400.96</i>	<i>21,471,078.15)</i>
<i>(thereof due after more than 1 year</i>	<i>33,737.90</i>	<i>56,347.91)</i>
<b>III. Securities and shares</b>		
1. Other securities and shares	1,786,000.00	1,945,000.00
<b>IV. Cash and balances at banks</b>	4,705,620.78	7,150,343.61
	<u>41,367,035.16</u>	<u>40,912,179.44</u>
<b>C. Prepayments and accrued income</b>	3,520,218.66	1,014,144.58
<b>D. Escrow funds</b>	1,106,851.13	2,309,481.80
<b>Total assets</b>	<b>65,582,227.87</b>	<b>61,560,822.95</b>



Liabilities and shareholders' equity	31 Dec 2019 EUR	31 Dec 2018 EUR
<b>A. Equity</b>		
I. Share capital called in and paid up	3,600,000.00	3,600,000.00
II. Capital reserves		
1. Appropriated	4,633,645.19	4,924,099.68
2. Unappropriated	362,637.44	362,637.44
	4,996,282.63	5,286,737.12
III. Retained earnings		
1. Statutory reserves	159,571.25	159,571.25
2. Other reserves (free reserves)	922,987.93	943,250.31
	1,082,559.18	1,102,821.56
IV. Net profit for the year	1,226,642.15	1,720,780.70
<i>(thereof profit carried forward)</i>	<i>1,720,780.70</i>	<i>968,695.06</i>
	10,905,483.96	11,710,339.38
<b>B. Investment grants</b>	1,679,763.40	1,834,240.95
<b>C. Provisions</b>		
1. Provisions for severance pay	5,559,900.00	5,332,900.00
2. Provisions for pensions	5,572,990.00	5,212,450.00
3. Tax provisions	6,188,800.00	3,363,000.00
4. Other provisions	10,157,130.00	10,945,460.00
	27,478,820.00	24,853,810.00
<b>D. Liabilities</b>		
1. Bank borrowings	3,674,645.11	712,235.65
<i>(thereof due within 1 year)</i>	<i>2,712,194.57</i>	<i>712,235.65</i>
<i>(thereof due after more than 1 year)</i>	<i>962,450.54</i>	<i>0.00</i>
2. Advances received on orders	14,158,491.22	14,697,208.07
<i>(thereof due within 1 year)</i>	<i>7,898,820.21</i>	<i>8,978,583.11</i>
<i>(thereof due after more than 1 year)</i>	<i>6,259,671.01</i>	<i>5,718,624.96</i>
3. Trade payables	2,916,265.98	2,335,936.97
<i>(thereof due within 1 year)</i>	<i>1,857,153.50</i>	<i>1,234,640.41</i>
<i>(thereof due after more than 1 year)</i>	<i>1,059,112.48</i>	<i>1,101,296.56</i>
4. Payables to undertakings with which the company is linked by virtue of participating interests	14,000.00	35,803.52
<i>(thereof due within 1 year)</i>	<i>14,000.00</i>	<i>35,803.52</i>
5. Other liabilities	3,470,554.02	2,793,150.88
<i>(thereof due within 1 year)</i>	<i>2,083,077.02</i>	<i>1,405,673.88</i>
<i>(thereof due after more than 1 year)</i>	<i>1,387,477.00</i>	<i>1,387,477.00</i>
<i>(thereof for taxes)</i>	<i>423,286.26</i>	<i>360,760.89</i>
<i>(thereof for social security)</i>	<i>1,369,112.60</i>	<i>738,331.15</i>
	24,233,956.33	20,574,335.09
<i>(thereof due within 1 year)</i>	<i>14,565,245.30</i>	<i>12,366,936.57</i>
<i>(thereof due after more than 1 year)</i>	<i>9,668,711.03</i>	<i>8,207,398.52</i>
<b>E. Accruals and deferred income</b>	177,353.05	278,615.73
<b>F. Escrow liabilities</b>	1,106,851.13	2,309,481.80
<b>Total liabilities</b>	<b>65,582,227.87</b>	<b>61,560,822.95</b>

# CONSOLIDATED INCOME STATEMENT

<b>CONSOLIDATED INCOME STATEMENT 1 JANUARY 2019 TO 31 DECEMBER 2019</b>	
	<b>31.12.2019 EUR</b>
1. Revenue	20,371,275.75
2. Changes in the amount of services not yet chargeable	-1,762,286.03
3. Project-related other income	15,265,400.36
4. Shareholder contribution	9,746,042.38
5. Other operating income	
a. Income from disposal of non-current assets except for financial assets	18,377.66
b. Income from reversal of provisions	1,266,579.40
c. Income from reversal of investment grants	292,518.95
d. Other	4,064,830.13
	<hr/>
	5,642,306.14
6. Cost of materials and other services purchased	
a. Cost of materials	1,863,402.28
b. Costs of services purchased	1,731,721.77
	<hr/>
	3,595,124.05
7. Cost of staff	
a. Wages	8,996.84
b. Salaries	24,382,298.44
c. Social benefits	
aa) Expenses for old-age provision	712,318.20
bb) Expenses for severance pay and contributions to Severance Pay and Pension Funds	1,232,557.80
cc) Expenses for statutory social security contributions and payroll-related taxes and compulsory contributions	6,639,681.68
dd) Other social benefits	70,231.44
	<hr/>
	33,046,084.40
8. Amortisation of intangible non-current assets and depreciation of property, plant and equipment	3,170,242.00
9. Other operating expenses	
a. Taxes, other than taxes stated in line 17	7,868.50
b. Other	10,239,259.52
	<hr/>
	10,247,128.02
10. Subtotal lines 1 to 9 (Operating result)	-795,839.87
11. Income from other securities	28,282.50

**CONSOLIDATED INCOME STATEMENT 1 JANUARY 2019 TO 31 DECEMBER 2019**

	31.12.2019 EUR
12. Other interest and similar income	48,018.58
13. Expenses for financial assets and securities held as current assets	
a. Other	10,468.37
	<hr/>
	10,468.37
14. Interest and similar expenses	64,850.88
	<hr/>
15. Subtotal lines 11 to 14 (Financial result)	981.83
	<hr/>
16. Profit or loss before tax (Subtotal lines 10 and 15)	-794,858.04
17. Income taxes	2,455.00
18. Profit or loss for the year = profit or loss after tax	-797,313.04
19. Reversal of capital reserves	
a. Appropriated	290,454.49
20. Reversal of retained earnings	
a. Other reserves (free reserves)	12,720.00
21. Profit carried forward from previous year	1,720,780.70
22. Net profit for the year	<b>1,226,642.15</b>

# CONSOLIDATED CASH FLOW STATEMENT

CONSOLIDATED CASH FLOW STATEMENT from 1 January 2019 to 31 December 2019		31.12.2019/EUR
1	Profit or loss before tax	-794,858.04
2	+/- Depreciation amortisation, write-downs/write-ups of investment assets	3,170,242.00
3	-/+ Gain/loss on disposal of investment assets	-4,098.66
4	-/+ Investment income, income from other securities and loans held as financial assets and other interest and similar income/interest and similar expenses	-981.83
5	+/- Other non-cash expenses/income, unless concerning items 7 to 9	-300,061.33
6	Cash flow from profit or loss	2,070,242.14
7	-/+ Increase/decrease in inventories, trade receivables and other assets	-5,564,652.63
8	+/- Increase/decrease in provisions	2,625,010.00
9	+/- Increase/decrease in trade payables and other liabilities	595,949.10
10	Net cash flow from profit or loss before tax	-273,451.39
11	- Income taxes paid	-2,455.00
<b>12</b>	<b>Net cash flow from operating activities</b>	<b>-275,906.39</b>
13	+ Cash inflow from disposal of non-current assets (excluding financial assets)	18,377.66
14	- Cash used for additions to non-current assets (excluding financial assets)	-5,287,576.79
15	- Cash used for additions to financial assets and other financial investments	-1,050.00
16	+ Cash inflow from investment grants	138,041.40
<b>17</b>	<b>Net cash flow from investing activities</b>	<b>-5,132,207.73</b>
18	+ Cash inflow from taking out finance loans	2,997,990.00
19	- Cash used to redeem bonds and finance loans	-35,580.54
20	- Interest paid and similar expenses	-75,319.25
21	+ Interest received and similar income	76,301.08
<b>22</b>	<b>Net cash flow from financing activities</b>	<b>2,963,391.29</b>
<b>23</b>	<b>Cash change in cash and cash equivalents (lines 12+17+22)</b>	<b>-2,444,722.83</b>
24	+ Cash and cash equivalents, beginning of period	7,150,343.61
<b>25</b>	<b>Cash and cash equivalents, end of period</b>	<b>4,705,620.78</b>

# CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

Consolidated statement of changes in equity	Share capital	Capital reserves	Retained earnings	Net profit for the year	Total group share	Non-controlling interests	Total equity
<b>As at 1 January 2019</b>	<b>3,600,000.00</b>	<b>5,286,737.12</b>	<b>1,102,821.56</b>	<b>1,720,780.70</b>	<b>11,710,339.38</b>	<b>0.00</b>	<b>11,710,339.38</b>
Profit or loss for the year				-797,313.04	-797,313.04		-797,313.04
Changes in reserves		-290,454.49	-12,720.00	303,174.49	0.00		0.00
Change in reserves through the income statement item 'Shareholder contribution'			-7,542.38		-7,542.38		-7,542.38
<b>As at 31 December 2019</b>	<b>3,600,000.00</b>	<b>4,996,282.63</b>	<b>1,082,559.18</b>	<b>1,226,642.15</b>	<b>10,905,483.96</b>	<b>0.00</b>	<b>10,905,483.96</b>



## Accounting and validation policies

Consolidated financial statements in accordance with the provisions of Section 244 et seq. of the Austrian Business Code [Unternehmensgesetzbuch/UGB] were for the first time prepared for the financial year 2019 and include JOANNEUM RESEARCH Forschungsgesellschaft mbH, Leonhardstrasse 59, 8010 Graz, and JR-AquaConSol GmbH, Steyrergasse 21, 8010 Graz. JOANNEUM RESEARCH Forschungsgesellschaft mbH holds 100% of the share capital of JR-AquaConSol GmbH in the amount of EUR 150,000.00. JR-AquaConSol GmbH has been included in the consolidated financial statements by way of full consolidation.

### ■ General principles

The company included in the consolidated financial statements used 31 December 2019 as its balance sheet date and applied the Group's standard accounting and valuation policies.

The consolidated financial statements were prepared in accordance with the provisions of the Austrian Business Code as amended, generally accepted accounting principles and the general principle of presenting a true and fair view of the company's financial position and financial performance.

When preparing the consolidated financial statements the principle of completeness was complied with.

Assets and liabilities were measured on a going concern basis according to the principle of item-by-item valuation.

The principle of prudent valuation was taken account of by recognising only the profits realised as at the balance sheet date. All recognisable risks and anticipated losses were taken into consideration.

### ■ Consolidation measures

Capital consolidation was made at the time of foundation of the subsidiary on 9 June 2016. No differences have resulted from initial consolidation of JR-AquaConSol GmbH in financial 2016. In the course of debt consolidation receivables from and payables to the fully consolidated entity were eliminated. Intra-group expenses and income of the entity included in the consolidated financial statements were segregated. In the case of intra-group deliveries and services the interim results are eliminated, where necessary. In financial 2019 there were no material interim results.

### ■ Non-current assets

#### ➔ Intangible assets

Intangible assets are recognised at cost plus incidental acquisition costs less cash discounts deducted and after amortisation on a straight-line basis. The useful life applied is 3 to 5 years (20% – 33%).

#### ➔ Property, plant and equipment

Property, plant and equipment is recognised at cost plus incidental acquisition costs less cash discounts deducted and after depreciation.

Depreciation of property, plant and equipment taken over by the parent group at carrying amounts is made on a straight-line basis over the planned remaining term, which is 0.5 to 6 years.

Public subsidies for non-current assets are presented on the liabilities side as investment grants from public funds. Those investment grants are used for the non-current assets analogously to the depreciation of non-current assets.

Depreciation is calculated on a straight-line basis according to the following useful lives and rates:

Property, plant and equipment	Useful life in years	Depreciation in years rate in %
Buildings, including buildings on land owned by others	10 – 40	2.5 % – 10 %
Machinery, scientific equipment and electronic data processing systems	3 – 10	10 % – 33 %
Other plant, furniture and fixtures	4 – 10	10 % – 25 %

# ANNEX

The full annual depreciation is applied to additions made in the first half of the financial year and half the yearly rate is applied to additions made during the second half of the year.

Low-value assets as defined in Section 13 of the Austrian Personal Income Tax Act [Einkommensteuergesetz/ EStG] 1988, i.e. the cost of acquisition of which is less than or equal to EUR 400.00 per asset, are fully written off in the year of acquisition and presented as additions or disposals in the non-current assets movement schedule.

## ➔ Financial assets

**Investment securities** are recognised at the lower of cost or fair value at the balance sheet date.

In the reporting year no write-downs of financial assets were made.

## ■ Current assets

### ➔ Inventories

**Consumables** are measured at the lower of cost or market.

Services not yet chargeable in connection with contract research are calculated on the basis of cost accounting. Project costs are recognised on the basis of an itemisation by cost centre and direct cost statements. Item-by-item valuation at cost of production or acquisition as defined in Section 206 UGB is applied. Apart from the costs that are attributable according to the costs-by-cause principle, production costs also include pro rata capitalisable production overheads and portions of social expenses as defined in the second to last sentence of Section 206(3) UGB. Interest expenses and the research risk are not accounted for.

Due to the company's project structure administrative overheads must be capitalised for projects with a term of more than twelve months. In order to give a true and fair view of the company's financial position and financial performance, the option right (cf. Section 206(3) UGB) was exercised.

If losses are anticipated in connection with orders or if additional costs are expected to be incurred for services that have been invoiced already, semi-finished products are discounted or provisions are set up. For contingent warranty obligations in connection with contract research provisions are recognised in the balance sheet as well.

## ➔ Receivables and other assets

Receivables and other assets are measured at nominal value, unless the lower fair value is recognised in the case of specific recognisable risks. Provisions for general credit risks are made in the form of general allowances at a rate of 2% (previous year: 2%) of the total net amount of receivables.

## ■ Provisions

Provisions for severance pay are calculated according to principles of financial mathematics on the basis of the 10-year average interest rate and a term of fifteen years. Calculation of the provision for severance pay was based on an interest rate of 2.71% (previous year: 3.21%) as at 31 December 2019, a salary trend of 2.52% (previous year: 2.08%) and a retirement age of 65 years on a going-concern basis.

No fluctuation discount was recognised. The allocation amount resulting from a change in measurement due to the Austrian Act on Changes in Accounting Practices [Rechnungslegungs-Änderungsgesetz/RÄG] 2014 is allocated over five years.

The **pension provision** is calculated in the amount of the actuarial cover requirement on the basis of the provisions of Section 198 and Section 211 UGB as amended by the RÄG 2014 in compliance with the AFRAC Opinion on „Provisions for pension, severance pay, long-service bonus and comparable long-term obligations under UGB provisions“ of June 2016. The calculation was based on the Pagler & Pagler reference tables. The calculatory interest rate used was the 10-year average interest rate of 2.34% (previous year: 2.83%) with an average remaining term of ten years.

**Other provisions** take into account all recognisable risks and liabilities the amount of which is not known and are recognised in the amount which, according to best estimate, is required to fulfil the obligation. No provisions other than those provided for by law are set up.

Changes in provisions concerning reversal of provisions are stated in item 5(b) and allocations to provisions are stated in item 7(b) to the extent that they are attributable to cost of staff, and all other changes were recognised in item 9(b) „Other operating expenses“ in the income statement.

### ■ Liabilities

Liabilities are recognised at the settlement amount in compliance with the principle of prudence.

### ■ Currency translation

Receivables and payables are measured at the mean rate of exchange at the date of the transaction and according to the lower of cost or market principle or higher of cost or market principle at the balance sheet date, respectively.

## Notes to the Balance Sheet

### ASSETS

#### ■ Non-current assets

As regards the development of the individual items of non-current assets and the breakdown of annual amortisation and depreciation reference is made to the non-current assets movement schedule (Annex to the Notes). As at the balance sheet date non-current assets amounted to EUR 19,588,122.92 (previous year: kEUR 17,325.0) in total. In the financial year 2019 capital expenditure amounted to a total of EUR 5,447,626.79 (previous year: kEUR 3,133.4) and amortisation and depreciation amounted to EUR 3,170,242.00 (previous year: kEUR 2,742.6). In the financial year 2019 disposals at historical cost amounted to EUR 723,271.27 (previous year: kEUR 1,004.1).

**Intangible assets** include software and data transmission rights of a carrying amount of EUR 422,496.00 (previous year: kEUR 380.5). Additions in the amount of EUR 337,430.40 (previous year: kEUR 313.3) are attributable to acquisition of licences and various software.

As at the balance sheet date **property, plant and equipment** amounted to EUR 17,253,188.67 (previous year: kEUR 15,192.1). The land value was EUR 2,875,240.02 (previous year: kEUR 2,656.5). The building value of land with buildings and buildings on land owned by others of EUR 7,513,554.00 (previous year: kEUR 6,784.9) is made up of the net building value of EUR 3,348,465.00 (previous year: kEUR 2,737.5) and structural improvements worth EUR 1,816,886.00 (previous year: kEUR 1,884.7), i.e. EUR 5,165,331.00 (previous year: kEUR 4,622.2) are attributable to buildings on land

owned by the company and an amount of EUR 2,348,223.00 (previous year: kEUR 2,162.6) is attributable to capital expenditure on buildings owned by others. Additions in the total amount of EUR 4,950,146.39 (previous year: kEUR 2,735.1) mainly concern the provision of modern scientific equipment for the company's research activities and further expansion of the IT infrastructure. Disposals at historical cost in the amount of EUR 719,447.10 (previous year: kEUR 968.6) mainly concern disposals or, to a small extent, sale of scientific equipment, electronic data processing systems and various office equipment. No impairment losses were recognised.

According to the statement of investments the following **participating interests** are held: see next page.

As at the balance sheet date the carrying amount of **investment securities** was EUR 1,570,750.00 (previous year: kEUR 1,411.8).

#### ➔ Write-up or revaluation

In the reporting year no write-downs of financial assets were made.

Amortisation and depreciation of the remaining non-current assets have completely resulted from ordinary amortisation and depreciation.

# ANNEX

Statement of Investments as at 31 December 2019	Interest		Equity EUR	Net profit or loss in EUR	Balance sheet date
	EUR	%			
ACIB GmbH	16,000.00	8.00%	4,100,347.83	172,102.03	31.12.2018
ALP.Lab GmbH	5,600.00	16.00%	-10,132.43	-45,132.43	31.12.2018
BEST – Bioenergy and Sustainable Technologies GmbH	20,000.00	10.00%	924,605.84	689,251.91	31.03.2019
CBmed GmbH	25,000.00	12.50%	1,294,557.80	1,094,557.80	31.12.2018
decide Clinical Software GmbH	42,500.00	10.00%	237,964.86	-187,035.14	31.12.2018
EPIG GmbH	8,750.00	25.00%	132,719.66	97,719.66	31.12.2018
FH JOANNEUM Gesellschaft mbH	10,828.25	14.90%	4,000,000.00	0.00	30.06.2019
Geo5 GmbH	8,000.00	10.00%	56,110.77	-23,889.23	31.12.2018
Holz.Bau Forschungs GmbH	3,500.00	8.68%	173,024.36	132,704.36	31.12.2018
Human.technology Styria GmbH	2,450.00	7.00%	212,421.56	11,757.73	31.12.2018
Know-Center GmbH Research Center for Data-Driven Business & Big Data Analytics	14,540.00	10.00%	1,658,554.21	0.00	31.12.2018
Materials Center Leoben Forschung GmbH	51,100.00	17.50%	6,260,768.35	503,885.35	31.12.2018
Pacemaker Technologies GmbH	1,050.00	3.00%	n.a.	n.a.	founded in 2019
Polymer Competence Center Leoben GmbH	34,000.00	17.00%	5,013,223.46	555,770.06	31.12.2018
Rebeat Innovation GmbH	80,000.00	2.00%	221,497.77	-915,171.23	31.12.2018
Research Center Pharmaceutical Engineering GmbH	15,000.00	15.00%	4,938,424.80	698,424.80	30.06.2019
Virtual Vehicle Research GmbH	10,640.00	8.40%	5,791,540.92	1,342,603.25	31.12.2018



## ■ Current assets

### ➤ Inventories

The item **raw materials and supplies** in the amount of EUR 3,952.74 (previous year: kEUR 3.5) is made up of consumables (mainly paper, inked ribbons, computer network cards, laser printer spare parts and small items of equipment).

The contract research item **services not yet chargeable** includes work in progress and services not yet charged in the amount of EUR 8,504,519.93 (previous year: kEUR 10,266.8), under which administrative overheads of EUR 1,654,154.48 (previous year: kEUR 2,149.6) were capitalised for contracts the execution of which lasts more than twelve months. The company's project structure requires adequate capitalisation of administrative overheads in order to present a true and fair as well as continuous view of the company.

**Advances made** on inventories amounted to EUR 6,802.85 (previous year: kEUR 19.1).

### ➤ Receivables and other assets of the Group

Itemised allowances in the amount of EUR 622,207.60 (previous year: kEUR 636.5) were made for expected losses of **trade receivables** and deducted from the assets.

#### Receivables from subsidies and project grants

concern grant approvals from various funding agencies. Due to the fact that processing, including receipt of payments, takes more than three months, a discount in the amount of EUR 13,400.00 (previous year: kEUR 16.8) was made. The calculatory interest rate was 0.63% (previous year: 0.88%).

**Other receivables and assets** mainly include entitlements to insurance benefits vis-à-vis the insurance fund due to premiums paid, claims vis-à-vis the Tax Office Graz-Stadt, various interest accrued as well as refunds and aids.

This item also includes a liability commitment of the State of Styria in the amount of EUR 5,600,000.00 (previous year: kEUR 5,600.0) to cover the loss from the tax audit by the Tax Office Graz-Stadt, and claims vis-à-vis the Tax Office Graz-Stadt from research allowances in the amount of EUR 12,290,847.08 (previous year: kEUR 8,609.6).

Receivables and other assets of the Group	Receivables as at 31 Dec 2019 (31 Dec 2018) EUR	thereof due after more than 1 year EUR	thereof evidenced by bills of exchange EUR	Capitalised accruals Section 225(3) UGB EUR	General allowance EUR
Trade receivables	2,383,052.25 (1,656,489.28)	33,737.90 (36,206.63)	0.00 (0.00)	0.00 (0.00)	46,600.00 (35,000.00)
Receivables from undertakings with which the undertaking is linked by virtue of participating interests or book-entry securities	88,130.23 (175,697.93)	0.00 (20,141.28)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Receivables from subsidies and project grants	4,539,074.02 (4,114,526.78)	0.00 (0.00)	0.00 (0.00)	4,539,074.02 (4,114,526.78)	0.00 (0.00)
Receivable from the liability commitment of the State of Styria	5,600,000.00 (5,600,000.00)	0.00 (0.00)	0.00 (0.00)	5,600,000.00 (5,600,000.00)	0.00 (0.00)
Other receivables and assets	13,749,682.36 (9,980,712.07)	0.00 (0.00)	0.00 (0.00)	13,473,582.37 (9,784,526.62)	0.00 (0.00)
<b>Total</b>	<b>26,360,138.86</b> <b>(21,527,426.06)</b>	<b>33,737.90</b> <b>(56,347.91)</b>	<b>0.00</b> <b>(0.00)</b>	<b>23,612,656.39</b> <b>(19,499,053.40)</b>	<b>46,600.00</b> <b>(35,000.00)</b>

# ANNEX

## ➔ Securities held as current assets

**Securities held as current assets** in the amount of EUR 1,786,000.00 (previous year: kEUR 1,945.0) concern bank bonds with a term until the end of September 2020.

## ➔ Cash and balances at banks

This item in the amount of EUR 4,705,620.78 (previous year: kEUR 7,150.3) is made up of cash in the amount of EUR 9,501.09 (previous year: kEUR 8.0) and bank balances of EUR 4,696,119.69 (previous year: kEUR 7,142.3).

## ■ Prepayments and accrued income

**Prepayments and accrued income** in the amount of EUR 3,520,218.66 (previous year: kEUR 1,014.1) include payments made in the financial year 2019 which have to be charged as expenses to the following year and mainly concern prepayments of maintenance expenses, various subscriptions and membership fees, insurance premiums, travel expenses and congress fees. In addition, this item includes a prepayment of rent in the amount of EUR 3,030,937.49 (previous year: kEUR 660.00) as well as additional expenses of EUR 58,586.47 (previous year: kEUR 117.2) resulting from the change in the calculation of both the provision for severance pay and the pension provision.

## ■ Escrow Funds

Escrow funds include balances at banks for projects with the Austrian Research Promotion Agency (Österreichische Forschungsförderungsgesellschaft mbH) and the European Commission where the Group acts as the coordinator and holds the funds in escrow and manages payments for the project partners (see escrow liabilities).

## LIABILITIES AND SHAREHOLDERS' EQUITY

### ■ Equity

The parent company's **share capital** amounts to EUR 3,600,000.00 (previous year: kEUR 3,600.0), of which 80.75% (previous year: 80.75%) or EUR 2,907,000.00 (previous year: kEUR 2,907.0) are held by the State of Styria and 14.25% (previous year: 14.25%) or EUR 513,000.00 (previous year: kEUR 513.0) by BABEG - Kärntner Betriebsansiedlungs- und Beteiligungsgesellschaft m.b.H. and 5% (previous year: 5%) or EUR 180,000.00 (previous year: kEUR 180.0) are held by Landesholding Burgenland GmbH.

Taking into account the loss for the year of EUR 494,138.55 (previous year: profit for the year of EUR 752,085.64) and the profit carryforward in the amount of EUR 1,720,780.70 (previous year: EUR 968,695.06) the resulting **net profit for the year** is EUR 1,226,642.15 (previous year: EUR 1,720,780.70).

### ■ Appropriated capital reserve

Both in the Participation and Cooperation Agreement with Kärntner Betriebsansiedlungs- und Beteiligungsgesellschaft m.b.H. (BABEG) of 18 December 2014 and in the Participation and Cooperation Agreement with Landesholding Burgenland GmbH of 20 April 2018 the shareholders have agreed that the appropriated capital reserve be reversed as stipulated.

### ■ Special items for investment grants from public funds

In the reporting year **investment grants from public funds** developed as follows:

	As at 1 Jan 2019	Additions	Consumption according to depreciation	Reversal	Reclassifi- cation or corrections	As at 31 Dec 2019
	EUR	EUR	EUR	EUR	EUR	EUR
<b>Property, plant and equipment</b>						
1. Buildings, including buildings on land owned by others	1,219,922.03	0.00	-127,057.95	0.00	0.00	1,092,864.08
2. Machinery, sci- entific equipment and electronic data processing systems	465,028.00	138,041.40	-145,630.00	0.00	0.00	457,439.40
3. Other plant, fur- niture and fixtures	149,290.92	0.00	-19,831.00	0.00	0.00	129,459.92
<b>Financial assets</b>						
1. Financial assets	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>1,834,240.95</b>	<b>138,041.40</b>	<b>-292,518.95</b>	<b>0.00</b>	<b>0.00</b>	<b>1,679,763.40</b>

### ■ Provisions

An amount of EUR 98,506.0 (previous year: kEUR 25.9) of the **provisions for severance pay** was used. In order to meet the cover requirement of EUR 5,559,900.00 (previous year: kEUR 5,332.9), an amount of EUR 325,506.00 (previous year: kEUR 402.2) was allocated to the provision.

An amount of EUR 262,111.48 (previous year: kEUR 256.6) of the provisions for pensions (of former managing directors) was used for pension payments. In order to meet the actuarial cover requirement of EUR 5,572,990.00 (previous year: kEUR 5,212.5), an amount of EUR 622,651.48 (previous year: kEUR 776.7) had to be allocated to the provision.

The item **provision for taxes** concerns additional tax claims resulting from the tax audit in connection with the temporary loss of the status of a non-profit organisation in the amount of EUR 4,731,700.00 (previous year: kEUR 3,363.0), additional tax claims in the amount of EUR 1,361,800.00 (previous year: kEUR 0.0) resulting from the tax audit in connection with the division of input taxes

into a business part and a non-business part, and additional tax claims resulting from the tax audit in connection with VAT treatment of services provided for the State of Styria in the field of „locational positioning“ in the amount of EUR 95,300.00 (previous year: kEUR 0.0).

**Other provisions** include as main items the provision for unconsumed leave in the amount of EUR 2,669,800.00 (previous year: kEUR 2,481.3), provisions for potential claims for refund of various funding parties in the amount of EUR 694,500.00 (previous year: kEUR 763.20), the provision for working time credits in the amount of EUR 855,400.00 (previous year: kEUR 888.4) and the provision for anticipated losses or costs of work in progress in the amount of EUR 721,500.00 (previous year: kEUR 886.8).

This item also includes the **provision for the tax audit** by the Tax Office Graz-Stadt in the amount of EUR 3,980,700.00 (previous year: kEUR 4,847.7).

# ANNEX

## ■ Liabilities

The item **bank borrowings** in the amount of EUR 3,674,645.11 (previous year: kEUR 712.2) includes an export fund credit line of EUR 712,193.77 (previous year: kEUR 712.2), a cash advance of EUR 2,000,000.00 (previous year: kEUR 0.0) and a loan for the acquisition of the property EZ [folio number] 458 GB [Land Register] 60340 in Niklasdorf in the amount of EUR 962,450.54 (previous year: kEUR 0.0).

**Advances received** on orders that may be deducted from inventories in the financial year amounted to a net amount of EUR 14,158,491.22 (previous year: kEUR 14,697.2). This item also includes advances of EUR 6,355,467.23 (previous year: kEUR 5,189.7) made by funding parties.

As at the balance sheet date **trade payables** were EUR 2,916,265.98 (previous year: kEUR 2,335.9), predominantly to Austrian suppliers.

**Other liabilities** include the profit-participating loan granted by the State of Styria on 1 November 2004 in the amount of EUR 1,387,477.00 (previous year: kEUR 1,387.5) and a loan for the acquisition of the property EZ 458 GB 60340 in Niklasdorf in the amount of EUR 962,450.54 (previous year: kEUR 0.0) with a remaining term of more than five years. In addition, this item mainly includes clearing funds with the Health Insurance Fund of the State of Styria [Steiermärkische Gebietskrankenkasse] and other necessary deferrals.

**Other liabilities** include expenses in the amount of EUR 2,071,635.69 (previous year: kEUR 1,487.8) which will be paid only after the balance sheet date.

## ■ Other financial obligations

Obligations arising from use of property, plant and equipment not presented in the balance sheet: see table below.

## ■ Accruals and deferred income

**Accruals and deferred income** in the amount of EUR 177,353.05 (previous year: kEUR 278.6) mainly concern price gains not yet realised.

## ■ Escrow Liabilities

Escrow liabilities result from projects with the Austrian Research Promotion Agency (Österreichische Forschungsförderungsgesellschaft mbH) and the European Commission where the Group acts as the coordinator and holds the funds in escrow and manages payments for the project partners (see escrow funds).

## ■ Contingent Liabilities

(cf. in this respect Other disclosures, contingencies).

	for the next financial year EUR	for financial years 2020 to 2024 EUR
Room rents <i>(previous year)</i>	835,812.00 <i>(907,358.00)</i>	4,179,059.00 <i>(4,491,277.00)</i>
Equipment rents <i>(previous year)</i>	74,012.00 <i>(58,160.00)</i>	370,062.00 <i>(290,802.00)</i>
Lease payments <i>(previous year)</i>	17,198.00 <i>(109,218.00)</i>	18,493.00 <i>(127,711.00)</i>
<b>Total</b> <b><i>(previous year)</i></b>	<b>927,022.00</b> <b><i>(1,074,736.00)</i></b>	<b>4,567,614.00</b> <b><i>(4,909,790.00)</i></b>



## Notes to the Income Statement

The **revenues** generated in the financial year 2019 are classified according to areas of activities and divided into domestic and international revenues:

Domestic revenues	Financial year 2019
Research	11,041,194.15
Royalties	849,059.89
Congress fees	3,861.48
Other	1,675,233.55
<b>Total domestic revenues</b>	<b>13,569,349.07</b>
International revenues	
Research	6,745,701.83
Royalties	55,766.67
Congress fees	0.00
Other	458.18
<b>Total international revenues</b>	<b>6,801,926.68</b>
<b>Total revenues</b>	<b>20,371,275.75</b>

The expenses of EUR 1,232,557.80 stated in item 7.(bb) include contributions to Severance Pay and Pensions Funds in the amount of EUR 248,188.94 and expenses for severance payments in the amount of EUR 979,049.71 and severance compensation in the amount of EUR 5,319.15.

## Other disclosures

### ■ Shares in affiliates and participating interests

As at the balance sheet date, 31 December 2019, the company held a participating interest of 25% or EUR 8,750.00 in EPIG GmbH.

The annual financial statements for the year ended 31 December 2018 showed equity of EUR 132,719.66 (previous year: EUR 51,382.87) including a net profit for the year of EUR 97,719.66 (previous year: EUR 16,382.87).

All other participating interests were below 20%.

### ■ Staff

As at the balance sheet date the company had 491 employees; taking part-time employees into account on a pro rata basis, the number of staff was 405.5. Taking part-time employees into account on a pro rata basis, the average number of employees was 402.0.

In application of the provisions of Section 242(4) UGB no itemisation of salaries, severance payments or pensions for the management as defined in Section 239(1) UGB was made.

No loans or advances were granted to members of the management or of the supervisory board. No liability in favour of that group of persons was assumed either.

The cost of remuneration of the members of the Scientific Advisory Board and of the supervisory board amounted to EUR 108,338.73 in total.

### ■ Results after the balance sheet date

After the closing of accounts for the financial year 2019 no other significant events have occurred which would have affected the financial position or financial performance in the financial year 2019.

# BODIES OF THE COMPANY

## Bodies of the company in the financial year 2019:

### ■ Scientific Advisory Board

Prof. Dr Dr Gerald **SCHÖPFER**  
*Chairman*

Prof. Dr Gerhard **FRIEDRICH**  
*Deputy Chairman*

Prof. Dr Gernot **HANREICH**  
*Deputy Chairman*

Prof. Dr Hansjörg **ALBRECHER**

Prof. Dr Horst **BISCHOF**

Dr Michaela **FRITZ**

Prof. Dr Günter **GETZINGER**

Prof. Dr Gottfried **HABER**  
(until 31 May 2019)

Prof. Dr Dr Manfred **HUSTY**

Prof. Dr Joachim **KRENN**  
(until 25 June 2019)

Dr Mario **MÜLLER**

Michael **PATAK**

Reinhard **PETSCHACHER**

Herbert **RITTER**, MBA

Prof. Dr Karin **SCHAUPP**

Waltraud **SCHINKO-NEUROTH**  
(from 25 June 2019)

Caroline **SCHOBER-TRUMMLER**  
(from 25 June 2019)

Dr Stefan **TASCH**

Prof. Dr Frank **UHLIG**  
(from 25 June 2019)

### ■ Supervisory Board

Dr Martin **WIEDENBAUER**  
*Chairman*

Prof. Fritz **SPERL**, MAS MBA  
*Deputy Chairman*

Dr Erlfried **TAURER**  
*Deputy Chairman*

Prof. Dr Werner **HAUSER**

Prof. Dr Thomas **KRAUTZER**  
(until 31 August 2019)

Michaela **KRENN**  
(from 31 August 2019)

Klaus **HATZL, MA**  
(from 31 March 2019)

Christoph **LUDWIG**  
(until 31 March 2019)

Ingolf **SCHÄDLER**

Dr Birgit **STRIMITZER-RIEDLER**

Ursula **STROHMAYER**

### ■ Members of the works council delegated to the supervisory board:

Ferdinand **GOLJA**  
*Chairman of the Works Council*

Clemens **HABSBURG-LOTHRINGEN**, MAS

Helen **HASENAUER**, MSc

Maria **HINGSAMER**  
(from 4 July 2019)

Gertrude **MATZER**, BA MSc

Gerhard **PROBST**  
(until 4 July 2019)

### ■ Management:

Prof. Dr Wolfgang **PRIBYL**, MBA

## ■ Contingencies

Pursuant to Section 199 UGB a performance bond vis-à-vis the Cochin University of Sciences and Technology (EUR 3,027.25), a bid bond vis-à-vis the Indian Institute of Tropical Meteorology (EUR 1,887.13) and guarantees for rent security deposits vis-à-vis Zentrum für Wissens- und Technologietransfer in der Medizin GmbH (EUR 110,890.00), W.E.I.Z. Immobilien GmbH (EUR 38,019.46) and SFL technologies Science Tower GmbH (EUR 36,000.00) as well as retention guarantees vis-à-vis Autobahnen- und Schnellstraßen-Finanzierungs Aktiengesellschaft (EUR 104,045.15) and voestalpine Wire Rod Austria GmbH (EUR 44,550.00) are presented below the balance sheet as at 31 December 2019.

Pursuant to Section 199 UGB an advance payment guarantee vis-à-vis EPCOS OHG, a TDK group company (EUR 5,225.00), a payment guarantee vis-à-vis ACAM Systemautomation GmbH (EUR 39,000.00) and guarantees for rent security deposits vis-à-vis Zentrum für Wissens- und Technologietransfer in der Medizin GmbH (EUR 110,890.00), W.E.I.Z. Immobilien GmbH (EUR 38,019.46), Lakeside Science & Technology Park GmbH (EUR 36,746.67) and SFL technologies Science Tower GmbH (EUR 36,000.00) as well as retention guarantees vis-à-vis Autobahnen- und Schnellstraßen-Finanzierungs Aktiengesellschaft (EUR 122,512.04) and voestalpine Wire Rod Austria GmbH (EUR 25,850.00) were presented below the balance sheet for the previous year.

## ■ Other information

Based on the objectives defined in Article 1(3) of the Articles of Association the company pursues the furtherance of the general public in the fields of research, development and science exclusively and directly in the interest of public welfare. No net profit for the year that may be generated will be distributed.

According to a decision dated 16 January 1995, reference no. 29/31-10/94, of the finance authority for the State of Styria, JOANNEUM RESEARCH Forschungsgesellschaft mbH belongs to the group of preferential recipients as defined in Section 4(4) No. 5 (e) of the Austrian Personal Income Tax Act [Einkommensteuergesetz/ESTG] 1988 as amended by Art. I No. 4 (a) of the Austrian Tax Reform Act [Steuerreformgesetz] 1993.

The expenses for the statutory auditor for the audit of the consolidated financial statements amounted to EUR 23,080.00. No other certification services, tax advisory services or other services of the statutory auditor were incurred in the reporting year or in the previous year.

Graz, 6 March 2020

**Prof. Dr Wolfgang Pribyl, MBA**  
Managing Director

# CONSOLIDATED NON-CURRENT ASSETS MOVEMENT SCHEDULE

Development of non-current assets	Cost of acquisition			Accumulated amortisation and depreciation			Carrying amounts				
	1 Jan 2019	Additions	Disposals	Reclas-sification	31 Dec 2019	1 Jan 2019	Additions	Disposals	31 Dec 2019	31 Dec 2018	31 Dec 2019
<b>I) Intangible assets</b>											
Software, data transmission rights and other rights	2,683,578.89	337,430.40	3,824.17	27,426.50	3,044,611.62	2,303,059.89	321,486.90	2,431.17	2,622,115.62	380,519.00	422,496.00
Total intangible assets	2,683,578.89	337,430.40	3,824.17	27,426.50	3,044,611.62	2,303,059.89	321,486.90	2,431.17	2,622,115.62	380,519.00	422,496.00
<b>II) Property, plant and equipment</b>											
1) Land, rights equivalent to land and buildings, including buildings on land owned by others											
a) Land value	2,656,523.66	218,716.36	0.00	0.00	2,875,240.02	0.00	0.00	0.00	0.00	2,656,523.66	2,875,240.02
b) Building value	15,542,268.89	1,243,029.15	39,199.42	34,142.94	16,780,241.56	8,757,413.89	543,124.09	33,850.42	9,266,687.56	6,784,855.00	7,513,554.00
Subtotal land and buildings	18,198,792.55	1,461,745.51	39,199.42	34,142.94	19,655,481.58	8,757,413.89	543,124.09	33,850.42	9,266,687.56	9,441,378.66	10,388,794.02
2) Machinery, scientific equipment and EDP systems	26,855,923.71	2,353,054.87	488,224.82	323,467.14	29,044,220.90	22,156,331.71	2,008,818.01	488,023.82	23,677,125.90	4,699,592.00	5,367,095.00
3) Other plant, furniture and fixtures	3,379,235.51	377,493.89	130,078.98	812.23	3,627,462.65	2,735,076.51	240,269.12	128,142.98	2,847,202.65	644,159.00	780,260.00
4) Advances made and construction in progress	421,232.22	739,769.51	5,400.00	-400,100.81	755,500.92	0.00	0.00	0.00	0.00	421,232.22	755,500.92
Offsetting of input tax on advances for non-current assets	-14,252.00	-38,461.27	0.00	14,252.00	-38,461.27	0.00	0.00	0.00	0.00	-14,252.00	-38,461.27
Subtotal advances made and construction in progress	406,980.22	701,308.24	5,400.00	-385,848.81	717,039.65	0.00	0.00	0.00	0.00	406,980.22	717,039.65
5) Low-cost assets	0.00	56,543.88	56,543.88	0.00	0.00	0.00	56,543.88	56,543.88	0.00	0.00	0.00
Total property, plant and equipment	48,840,931.99	4,950,146.39	719,447.10	-27,426.50	53,044,204.78	33,648,822.11	2,848,755.10	706,561.10	35,791,016.11	15,192,109.88	17,253,188.67
<b>III) Financial assets</b>											
1) Shares in affiliates	340,638.25	1,050.00	0.00	0.00	341,688.25	0.00	0.00	0.00	0.00	340,638.25	341,688.25
2) Participating interests	1,411,750.00	159,000.00	0.00	0.00	1,570,750.00	0.00	0.00	0.00	0.00	1,411,750.00	1,570,750.00
Total financial assets	1,752,388.25	160,050.00	0.00	0.00	1,912,438.25	0.00	0.00	0.00	0.00	1,752,388.25	1,912,438.25
<b>Total non-current assets</b>	<b>53,276,899.13</b>	<b>5,447,626.79</b>	<b>723,271.27</b>	<b>0.00</b>	<b>58,001,254.65</b>	<b>35,951,882.00</b>	<b>3,170,242.00</b>	<b>708,992.27</b>	<b>38,413,131.73</b>	<b>17,325,017.13</b>	<b>19,588,122.92</b>

# MANAGEMENT REPORT

The Management Report covers the reporting period of the financial year 2019 from 1 January 2019 to 31 December 2019 for the Group that comprises JOANNEUM RESEARCH Forschungsgesellschaft mbH, Leonhardstrasse 59, 8010 Graz, and JR-AquaConSol GmbH and is divided into three sections: I. Report on the course of the company's business and financial position; II. Report on prospective developments and risks of the company, and III. Report on research and development.

## I. Report on the course of the company's business and financial position

### ■ I.1 Business organisation

As at 31 December 2019 JOANNEUM RESEARCH, being the parent company, was organised in seven research units, which represent the main areas of activities.

Forschungseinheiten	
DIGITAL	Institute for Information and Communication Technologies
MATERIALS	Institute for Surface Technologies and Photonics
ROBOTICS	Institute for Robotics and Mechatronics
COREMED	Cooperative Centre for Regenerative Medicine
HEALTH	Institute for Biomedicine and Health Sciences
LIFE	Institute for Climate, Energy and Society
POLICIES	Institute for Economic and Innovation Research

In financial 2019 JR-AquaConSol GmbH, being a wholly-owned subsidiary of JOANNEUM RESEARCH, was divided into two areas, namely services in water resource management, hydrogeochemistry and laboratory analytics with a focus on measuring stable isotopes of the water cycle.

### ■ I.2 Investment report

As at 31 December 2019 the Group held corporate investments in the following companies:

#### ➔ I.2.1 Corporate investments

	Share in %
ALP.Lab GmbH	16.0 %
decide Clinical Software GmbH	10.0 %
EPIG GmbH	25.0 %
FH JOANNEUM Gesellschaft mbH	14.9 %
Geo5 GmbH	10.0 %
Holz.Bau Forschungs GmbH	5.9 %
Human.technology Styria GmbH	7.0 %
Pacemaker Technologies GmbH	3.0 %
Rebeat Innovation GmbH	2.0 %



# MANAGEMENT REPORT

## ➔ I.2.2 Corporate investments - COMET (K1, K2)

### Competence Centre Programme

As at 31 December 2019 the company owned shares in the following companies, which are funded through the COMET (Competence Centers for Excellent Technologies) Programme of the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK) and the Federal Ministry for Digital and Economic Affairs (BMDW):

	Share in %
ACIB GmbH	8.0 %
BEST-Bioenergy and Sustainable Technologies GmbH	10.0 %
CBmed GmbH	12.5 %
Know-Center GmbH Research Center for Data-Driven Business & Big Data Analytics	10.0 %
Materials Center Leoben Forschung GmbH	17.5 %
Polymer Competence Center Leoben GmbH	17.0 %
Research Center Pharmaceutical Engineering GmbH	15.0 %
Virtual Vehicle Research GmbH	8.4 %

## ■ I.3 Branches

The company has no branches.

## ■ I.4 Course of business

As at 31 December 2019 the orders on hand amounted to approximately EUR 71.8 million. The work on hand amounted to approximately EUR 41.1 million; the value of offers submitted was approximately EUR 49.3 million. The loss for the financial year 2019 (after changes in reserves) amounted to approximately -kEUR 494.1.

The operating result from contract research projects for the financial year 2019 was approximately EUR 18.7 million. Funded research projects generated an operating result of approximately EUR 15.6 million.

At an international level the Group solicited contract research projects and funded research projects worth approximately EUR 10.6 million in the aggregate in the reporting year. An amount of EUR 3.9 million thereof is attributable to projects with the European Union and approximately EUR 6.7 million to contract research projects. Due to the participation of the Group in the programmes of the European Union and calls for proposals by the European Space Agency (ESA) total revenues of approximately EUR 5.5 million were generated in the financial year 2019. Under the Horizon 2020 programme projects with a funding volume of approximately EUR 8.1 million were awarded and in connection with ESA projects an order volume of approximately EUR 1.1 million was solicited.

In the financial year 2019 revenues of approximately EUR 6.0 million were generated through national cooperative research projects related to the Austrian Research Promotion Agency (Österreichische Forschungsförderungsgesellschaft mbH/FFG).

Under a 2019-2021 funding agreement with the Federal Ministry for Transport, Innovation and Technology (BMVIT) funds in the amount of EUR 7.8 million were granted. In the reporting period the Group generated revenues totalling approximately EUR 2.6 million from BMVIT.

# MANAGEMENT REPORT

## ► I.4.1 Financial position

The Group's assets and financing structure developed as follows:

As at the balance sheet date, 31 December 2019, the Group had a balance sheet total of approximately EUR 65.6 million (previous year: approximately EUR 61.6 million). This is comprised of non-current assets in the amount of approximately EUR 19.6 million and current assets (inclusive of prepayments and accrued income and escrow funds) of approximately EUR 46.0 million.

As at 31 December 2019 shareholders' equity including investment grants amounted to EUR 12.6 million (thereof investment grants of approximately EUR 1.7 million) or 19% of the balance sheet total compared to approximately EUR 13.6 million or 22% of the previous year's balance sheet total. Borrowings (inclusive of accruals and deferred income and escrow liabilities) increased by approximately EUR 5.0 million to approximately EUR 53.0 million (previous year: EUR 48.0 million) and amounted to 81% (previous year: 78%) of the balance sheet total.

In the financial year 2019 cash flows from the profit or loss as the sum total of generated profit for the year and the income and expense items (the Group's internal financing potential) amounted to approximately EUR 2 million. Working capital (current assets minus short-term borrowings) was approximately EUR 13.8 million (previous year: approximately EUR 15.0 million).

No derivative financial instruments were used in the past financial year 2019. The financial instruments recognised in the balance sheet are part of the company's general risk management, which is reflected in the bookkeeping and accounting policies.

## ► I.4.2 Financial performance

In the financial year 2019 the operating result including own work capitalised and other operating income net of shareholder contribution and research tax premium amounted to approximately EUR 35.6 million.

Domestic revenues accounted for 68% and international revenues accounted for 32% of the operating result generated in projects. The share of the operating result generated in projects attributable to Styria was approximately 16%.

As at 31 December 2019 services not yet chargeable amounted to approximately EUR 8.5 million (previous year: EUR 10.3 million).

The expenses in the amount of approximately EUR 50.1 million are made up of staff costs including statutory social security charges and voluntary social benefits plus allocations to pension provisions (former managing director) and severance payments of approximately EUR 33.0 million, cost of materials and other services purchased of approximately EUR 3.6 million, amortisation and depreciation of approximately EUR 3.2 million and other operating expenses of approximately EUR 10.3 million.

The shareholder contributions of the State of Styria, the State of Carinthia through Kärntner Betriebsansiedlungs- und Beteiligungsgesellschaft m.b.H. (BABEG), the State of Burgenland and the Grant Agreement with the Federal Ministry for Transport, Innovation and Technology (BMVIT) constitute material parts of parent financing and secure accomplishment of its mission.

The Group closed the financial year 2019 with a loss before taxes (formerly profit or loss on ordinary activities) of -EUR 794,858.04. Taking into account income taxes of EUR 2,455.00, reversal of reserves in the amount of EUR 303,174.49 and the profit of EUR 1,720,780.70 carried forward from the previous year, the net profit for the year is EUR 1,226,642.15.

After the accounts for the financial year 2019 were closed no other significant events occurred which would have affected the financial position or financial performance in the financial year 2019.

# MANAGEMENT REPORT

## ➔ I.4.3 Capital expenditure report

In the financial year 2019 approximately EUR 5.0 million (previous year: approximately EUR 3.0 million) were spent on property, plant and equipment (scientific equipment, electronic data processing systems, furniture and fixtures, land with buildings).

## ➔ I.4.4 Staff report

As at the balance sheet date 491 staff members (183 women and 308 men) were employed. This corresponds to 405.4 full-time equivalents as at 31 December 2019.

With 90 new employees (41 women and 49 men) and 73 employees (40 women and 33 men) who left the Group in the reporting period the fluctuation regarding active employees was approximately 14.87% (21.86% regarding women and 10.71% regarding men).

The average age of the Group's employees is 42.1 years.

As at 31 December 2019 the share of graduates from universities and universities of applied sciences was 69.25% (31.47% women); the share of grammar school graduates was 20.16%.

As at the balance sheet date 6 apprentices, 3 female and 3 male, were undergoing training at the Group.

In the reporting period a total of 12 interns (6 women, 6 men) were employed, who completed their compulsory internships in connection with their studies at universities of applied sciences or universities or international exchange programmes. In addition, 28 students (12 female and 16 male) were granted an opportunity to write their diploma or doctoral theses in an employment relationship with the Group in cooperation with the relevant universities.

## II. Report on prospective developments and risks of the Group

### ■ Economic policy framework conditions for research and development (R&D)

After a period of global economic boom, which was most pronounced in the years 2017 and 2018, indications of a continuous downswing have begun to show in the last few months both at an international and a national level. For the forecast period until 2021 the dynamics of the world economy are expected to be low, but no recession is anticipated at the moment.

A major factor of that development is the sustained downturn in international trade relations due to severe uncertainties about the course of economic policies. From an Austrian perspective especially Brexit and its consequences, which are still not clear, the increasing protectionism of the USA combined with recurring trade conflicts with China and the European Union (EU), and discussions about the greening of the economy (keyword: „European Green Deal“ of the European Commission) and the taxation of international groups of companies play an important role.

The moderate expectations regarding economic growth are also reflected in the forecast on future economic developments in the EU. For example, currently only very little growth of real gross domestic product (GDP) of 1.6% has been calculated for the EU 27 for 2019 (WIFO [Austrian Institute of Economic Research] Monthly Reports 01/2020) compared to the previous year, while 1.5% are expected for 2020 and again 1.6% for 2021.

A slightly more pronounced fluctuation of real GDP is expected for the Austrian economic area. While in 2018, at the end of the economic boom, growth of 2.4% compared to 2017 was recorded, a reduction to 1.7% has been forecast for 2019, which might decrease even further to 1.2% in 2020 and 1.4% in 2021. Important influencing factors in this connection are the decreasing export share and recession trends in the industrial sector, whereas the successful service sector and high consumption within Austria are still having a balancing effect.

# MANAGEMENT REPORT

In 2019 a total of EUR 12.8 billion was spent on research and experimental development (R&D) (estimate of Statistics Austria in press release 12.001-067/19), which constitutes a research share of 3.19% of GDP and an increase of 4.5% compared to 2018. Forty-nine per cent (49%) (approximately EUR 6.27 billion) of that capital expenditure was borne by the business sector, 34.9% (approximately EUR 4.47 billion) by the public sector and 16.1% (approximately EUR 2.06 billion) by foreign investors and private non-profit organisations.

## Specific framework conditions for the parent company

### ■ Shareholder contribution from the State of Styria

The Government of the State of Styria provided the Group with an amount of EUR 7,800,000.00 for 2019 as a shareholder contribution to recurring expenses.

For 2020 an amount of EUR 7,700,000.00 will be provided as a shareholder contribution to recurring expenses.

### ■ Shareholder contribution from Kärntner Betriebsansiedlungs- und Beteiligungsgesellschaft m.b.H. (BABEG)

The shareholder contribution agreement between BABEG and the Group will be in force until the end of 2020. BABEG granted the group parent JOANNEUM RESEARCH a shareholder contribution of EUR 1,424,000.00 for 2019.

### ■ Shareholder contribution from the State of Burgenland

Under the Participation and Cooperation Agreement between the State of Styria, Kärntner Betriebsansiedlungs- und Beteiligungsgesellschaft m.b.H. (BABEG) and Landesholding Burgenland GmbH the State of Burgenland agreed to grant the Group a shareholder contribution of EUR 464,500.00 for the term of the investment.

### ■ Grant Agreement Federal Ministry for Transport, Innovation and Technology (BMVIT)

In the course of formation of the new government and the ensuing amendment to the Austrian Statute on Federal Ministries [Bundesministeriengesetz/BMG] the Federal Ministry for Transport, Innovation and Technology (BMVIT) changed its name to Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK).

The shareholder contributions of the State of Styria, Kärntner Betriebsansiedlungs- und Beteiligungsgesellschaft m.b.H. (BABEG), the State of Burgenland and the Grant Agreement with the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK) are significant financing tools of the Group.

### ■ Risks and prospective development of the Group

The Group faces both changing international framework conditions in research funding and the challenges of the formation of new initiatives. The competition for available grants and excellent researchers is becoming increasingly tough.

Starting new research topics requires adequate resources taking into account the development risk inherent in research.

The company's financial performance is expected to be stable in the financial year 2020.

In financial 2019 JR-AquaConSol took over the lysimeter business (manufacturing, planning, projecting, installation, maintenance and support, data management and analysis as well as distribution) from METER Group AG, the global market leader. As the second new line of business data-based and model-based control systems for daily operation of water supply companies are being developed in 2020. Developing these new business lines binds substantial resources. We expect a slump in profit as a consequence thereof.

# MANAGEMENT REPORT

## ■ IT security within the Group

Since the previous year the damage suffered by Austrian business entities due to attacks on IT and communications systems has increased slightly. For 2019 a study on this subject showed that 66% of the 342 surveyed entities had been victims of cyber attacks (previous year: 61%; comparison of the KPMG studies „Cyber security in Austria“ for 2019 and 2018). In almost half of the cases (41%) the attacks caused financial losses, sometimes resulting in severe consequences. The estimated number of undetected cases is much higher, as only one third of the entities report the attacks to the authority.

One in two entities was exposed to attacks which spied out log-in data (phishing) and also caused damage („malware“). Therefore, the question is not whether an attack will occur but only when and in what form.

In terms of the human factor gullibility of the victims, lack of awareness of the need for security measures and the increasing prominence of digital equipment in everyday life are used as attack vectors. Technological threats are manifold and change constantly.

In connection with its company-wide risk provision the Group has therefore carried out IT risk analyses in cooperation with the Federal Agency for State Protection and Counter Terrorism (BVT) and taken appropriate measures to enhance IT security.

The Computing Center of the Group has protected the company against external intrusion attempts by an improved double firewall according to the risk catalogue for critical infrastructure issued by the BVT. Here 55 million incoming emails are filtered every year, with only around 3% being identified as business emails; the rest is spam or dangerous. The challenge is to provide for the right settings to be sure to identify the approximately 0.8 thousandth of actually dangerous emails and to avoid blocking important ones by false positive identification. Since this is often difficult due to improved methods of attack, training is offered to support staff who are particularly exposed. In addition, the Computing Center has established a special unit where suspicious emails are analysed. Warnings from the police against current campaigns of attack are addressed immediately and all staff members

are informed.

As a company that generates knowledge the Group faces worldwide competition in specific research areas. Accordingly, there is a strategic risk of trade secrets being spied out by competitors possessing significant resources or government-related agencies. In order to avoid that risk, the Group invests in creating high awareness among its staff, comprehensive authorisation concepts, a strict password policy, a private cloud, encryption, and much more.

In summary it can be said that the Group has further improved and enhanced its IT security measures. Implementing the new technical standards and legislation throughout the company measures are regularly taken to enhance security, which, however, make capital expenditure necessary.

## III. Report on research and development

### ■ III.1 Research units of the parent company

#### ➔ DIGITAL – Institute for Information and Communication Technologies

*Activities planned for financial 2020:*

DIGITAL is by far the company's largest research unit and will continue its chosen path of consolidation and realignment in terms of content and organisation in 2020. In principle, the institute is in an excellent starting position, as it covers many of the most recent technologies, such as artificial intelligence, machine learning, sensor technology (video and audio), radar, data transmission via satellite, cyber security and cyber defence, etc. and is active in markets with high economic potential, even though they are challenging in terms of technology. For example, DIGITAL is to a major extent also involved in establishing JOANNEUM RESEARCH in EIT manufacturing across different institutes and in regional initiatives, such as DIGITAL MATERIAL VALLEY STYRIA and ALP.Lab GmbH.

#### ➔ MATERIALS – Institute for Surface Technologies and Photonics

*Activities planned for financial 2020:*

In 2019 MATERIALS celebrated its 20th anniversary at the facility in Weiz and looked back at a very positive evolution.



# MANAGEMENT REPORT

Due to those favourable developments capital expenditure is planned for 2020 to further expand the research infrastructure at the different locations of the institute. In addition, many strategic investments will be made, e.g. in the areas of roll-to-roll processes, inkjet printing, laser production technology and nanoanalytics. Internationally significant scientific cooperation projects will also be expanded and continued in the new financial year. They constitute the basis of the great success in European calls for proposals, which applies to all institutes.

## ➤ **ROBOTICS – Institute for Robotics and Mechatronics**

### *Activities planned for financial 2020*

In 2019 ROBOTICS set the basis for successfully entering the second development phase on the foundations of a new institutional and research infrastructure. After a first phase of setting up the institute it is now possible to address new research topics and in this way new business partners. As the site and technological infrastructure can now be used jointly with the University of Klagenfurt, the close cooperation already in place between applied research and academic research at the facility in Klagenfurt will be strengthened. In 2020 the new independent and accredited ROBOTICS Evaluation Lab (REL) and the ROBOTICS Training Center (RTC) will start or continue their activities, respectively.

## ➤ **COREMED - Cooperative Centre for Regenerative Medicine**

### *Activities planned for financial 2020*

COREMED has given new impulse to medical research at the Styrian site. The research topics addressed at the Centre are of high social relevance and possess large development potential in the medium and long term. In financial 2020 two important development steps will be taken: on the one hand, the first research group, namely „Technologies for Tissue Regeneration“, will be established and, on the other hand, the first laboratory of the Centre will be put into operation. The laboratory is designed to enable cell culture experiments, and a molecular biology laboratory

will be set up to facilitate sample preparation, in particular for RNA analyses, and also for protein analyses.

## ➤ **HEALTH – Institute for Biomedicine and Health Sciences**

### *Activities planned for financial 2020:*

For almost twenty years HEALTH has been engaged in close cooperation with the Medical University of Graz as the link between basic medical research and industrial application. In financial 2020 a new competence group called „Data Management and Biostatistics“ will be founded. The successful activities in the areas of bioequivalence studies, bioanalysis and metabolomics will be further advanced. The competence groups „Clinical Decision Support“ and „Medical Sensors“ will further develop the institute's core technologies with the objective of exploiting them through licensing

## ➤ **LIFE – Institute for Climate, Energy and Society**

### *Activities planned for financial 2020:*

LIFE deals with crucial issues of climate change. Due to the necessary detailed specification of national and regional climate policies according to the Paris Agreement of 2015 the institute's orientation is clear; however, an increasing number of entities address the necessary decarbonisation and research into climate risks related to their own business activities. Against the background of the worldwide debate the institute is lucky enough to refer to its own competence and excellence in this regard. At the Carinthian site the focus is on multi-agent modelling of mobility, which is above all necessary to illustrate future developments in the area of autonomous and shared mobility.

## ➤ **POLICIES – Institute for Economic and Innovation Research**

### *Activities planned for financial 2020:*

In 2020 POLICIES will continue its fundamental mission of providing advice on and support in strategic and operational decisions to customers from politics and business. For financial 2020 it is planned to maintain the level of

# MANAGEMENT REPORT

scientific output, while at the same time the focus across research groups will be on the competence basis in the area of big data analysis (big data, register data ...) and modelling, as well as the production sector (e.g. digitisation of agriculture, EIT manufacturing). The institute's new facility in Carinthia (the Regional Economics and Location Policy research group) will be further expanded in 2020.

## ■ III.2 JR-AquaConSol GmbH

*Activities planned for financial 2020:*

In the financial year 2020 the focus of research activities is on integrating the new lysimeter business into the topical field of „atmosphere, soil and unsaturated zone“, on developing numerical models for agricultural irrigation and developing models for data-based and model-based control systems for water supply companies.

Graz, 6 March 2020



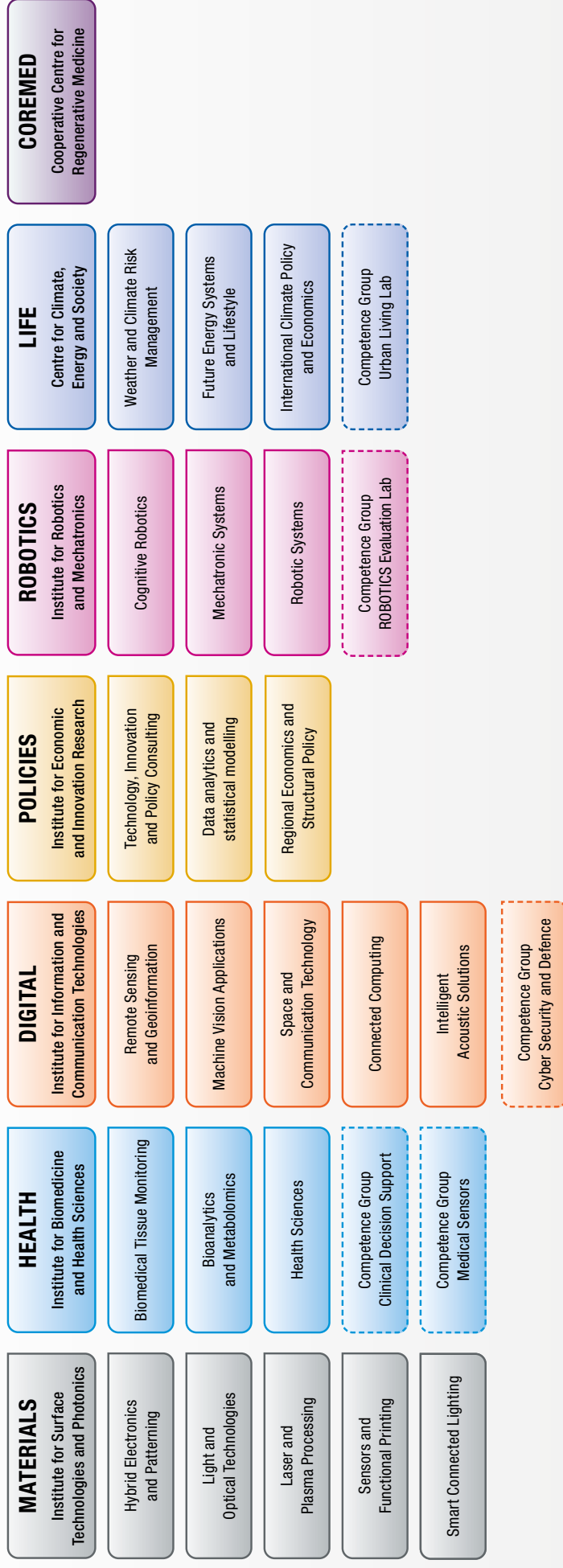
**Prof. Dr Wolfgang Pribyl, MBA**  
**Managing Director**



# JOANNEUM RESEARCH Forschungsgesellschaft mbH

## Executive Board, Corporate Staff and Departments

### Research Units



### Corporate Shareholdings

#### Affiliated Company

- JR-AquaConSol GmbH

#### Shareholdings

- ALP-Lab GmbH
- decide Clinical Software GmbH
- EPIG GmbH
- FH JOANNEUM Gesellschaft mbH

#### Shareholdings COMET-Centres

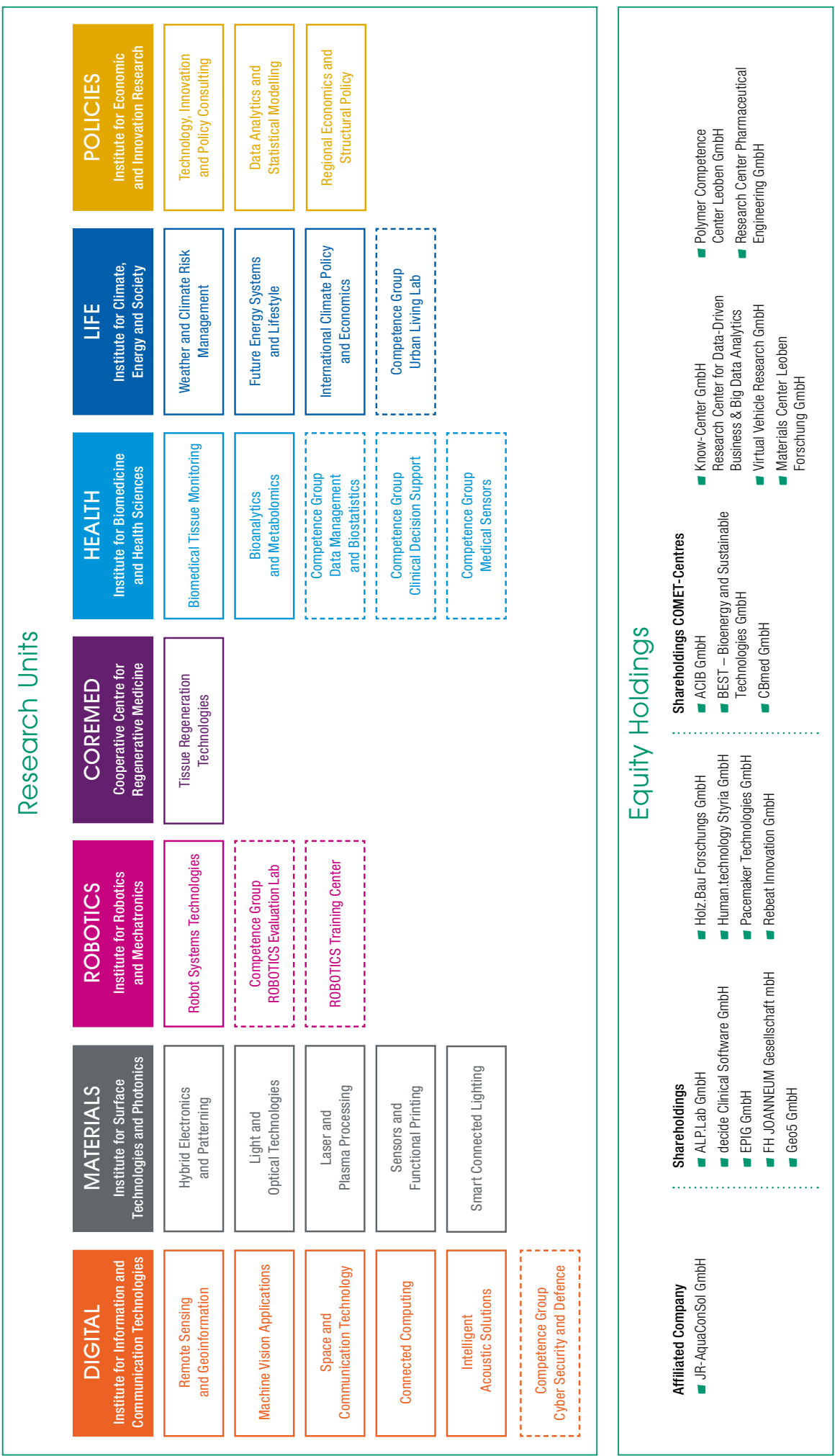
- ACIB GmbH
- BEST – Bioenergy and Sustainable Technologies GmbH
- CBmed GmbH

- Know-Center GmbH
- Research Center for Data-Driven Business & Big Data Analytics
- Kompetenzzentrum – Das virtuelle Fahrzeug, Forschungsgesellschaft mbH
- Materials Center Leoben Forschung GmbH
- Polymer Competence Center Leoben GmbH
- Research Center Pharmaceutical Engineering GmbH

# JOANNEUM RESEARCH Forschungsgesellschaft mbH

Executive Board, Corporate Staff and Departments

as of 2020





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### DIGITAL –

#### Institute for Information and Communication Technologies

- Remote Sensing and Geoinformation
- Machine Vision Applications
- Space and Communication Technology
- Connected Computing
- Intelligent Acoustic Solutions
- Competence Group Cyber Security and Defence

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### MATERIALS –

#### Institute for Surface Technologies and Photonics

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- Light and Optical Technologies
- Laser and Plasma Technologies
- Sensors and Functional Printing
- Smart Connected Lighting

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### ROBOTICS –

#### Institute for Robotics and Mechatronics

- Robot Systems Technologies
- ROBOTICS Training Center
- ROBOTICS Evaluation Lab

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### COREMED –

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### HEALTH –

#### Institute for Biomedicine and Health Sciences

- Biomedical Tissue Monitoring
- Bioanalysis and Metabolomics
- Competence Group Data Management and Biostatistics
- Competence Group Clinical Decision Support
- Competence Group Medical Sensors

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### LIFE –

#### Institute for Climate, Energy and Society

- Weather and Climate Risk Management
- Future Energy Systems and Lifestyle
- International Climate Policy and Economics
- Competence Group Urban Living Lab

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### POLICIES –

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- Data Analytics and Statistical Modelling
- Regional Economics and Structural Policy

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