RESEARCH LOCATION AUSTRIA



# Why You Should Research in Austria:

## Information and Communications Technology

# The Best Contact Partner for Business Location Issues

ABA – Invest in Austrian offers you comprehensive service – from funding and market opportunities to tax regulations. Experienced ABA experts provide you with unbureaucratic support, putting their know-how at your disposal – at no charge at all.

Are you considering setting up business operations in Austria or intensifying your research activities? ABA – Invest in Austria assists you with a complete range of cost-free services, including competent consulting in selecting an optimal site, support in dealing with public authorities and funding bodies, on tax and labor issues or in identifying contact partners. In addition, ABA supports you with its broad-based network of experts and cooperation partners.

More information at: investinaustria.at

# Why You Should Conduct Research in Austria

Seven reasons why you will find optimal conditions here



## Strong funding

14% research tax credit for large companies and SMEs



## Research infrastructure

Thanks to high public investments



## Tax advantages

e.g. 30% tax deduction for migrants working as scientists and researchers



## Stability

Security and quality of life for your company and employees



## Top researchers and specialized employees

Excellent specialized employees thanks to technical schools and top international researchers



## Close-meshed networking

Close ties between the scientific and business communities



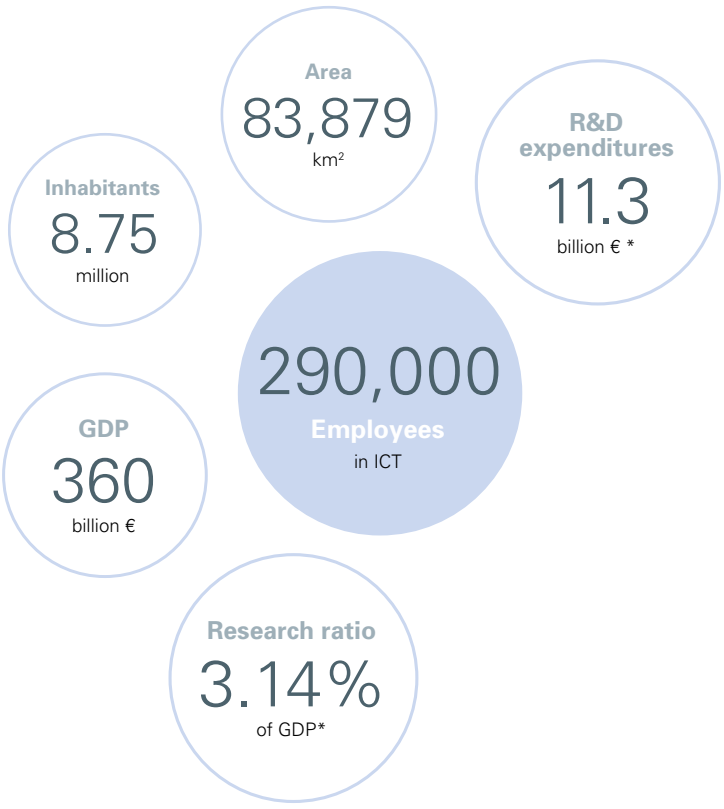
## Multifaceted ecosystem

Fascinating ecosystem featuring a highly interdisciplinary approach and diversity

# Well-established Strengths and New Technological Trends

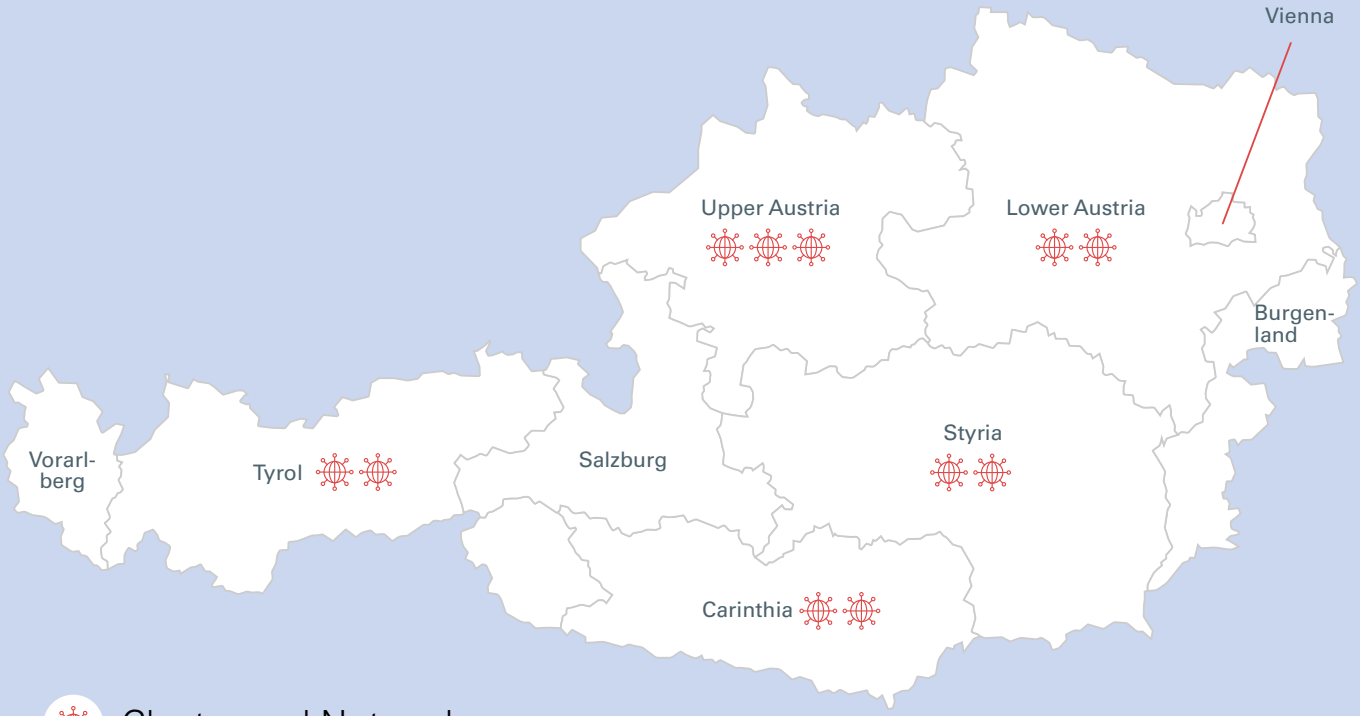
## Austria is a sought-after research location

Austria is a sought-after site for IT innovation in Europe. For example, Near Field Communication (NFC) was developed with significant Austrian participation. The alpine republic is also well-established in the fields of semiconductors, smart cards/near field systems, RFID and IT security. Austria is also well-placed to be a future IT research site: Silicon Austria is a world-class research centre for micro-electronics, international corporate groups, such as Infineon, rely on Austria and special subsidy programmes, such as "ICT for the future", stimulate research. And new technologies have their place and are also subsidised. For example, Vienna has become an international hotspot for chatbots and is committed to the further development of blockchain technology.






* 2017 estimate




## Cluster and Networks

| | |
|---|---|
| Upper Austria | IT Cluster |
| | Mechatronics Cluster |
| | Silicon Austria |
| Lower Austria | Mechatronics Cluster |
| | Technopol Wr. Neustadt |
| Styria | RFID Hotspot Styria |
| | Silicon Austria |
| Tyrol | Cluster Mechatronics Tyrol |
| | Cluster Information Technology Tyrol |
| Carinthia | Silicon Austria |
| | SIC Software Internet Cluster |

Robotics
Smart Cards/RFID/NFC
Visual Computing Semiconductors IT-Security
Embedded Systems
(Real-time Systems)
Micro and Nano Electronics Cryptography
Artificial Intelligence Power Electronics

# Focus on Complex Solutions

## AI LAB combines competencies for Artificial Intelligence

→ www.jku.at

Artificial Intelligence (AI), not only enables digital assistants, such as Siri and Alexa, but can also predict the optimal time to replace a critical machine part. No wonder that this computer science application area is being treated as one of the top technology trends of coming years. To combine competencies in the AI area, Johannes Kepler University is installing its own AI LAB at the Linz Institute of Technology (LIT), which will also include a centre for Deep Learning. "Deep Learning" refers to the use of artificial multi-layer neuronal networks (hence: "deep") to solve complex problems by learning from example data. Deep Learning has been made possible by novel learning processes, large volumes of data ("big data") and the availability of high computing power.

The head of the AI LAB is Sepp Hochreiter. German by birth, he has worked in Linz since 2006. His inventions relating to LSTM (Long Short-Term Memory) architecture can currently be found in practically every smartphone. Deep learning methods, such as LSTM, among others, will be further developed in the LIT AI LAB. In a current project, LSTM networks are being integrated into large AI systems. The goal is to evaluate huge volumes of data with computers and – like the human brain – analyse the data with gigantic neuronal networks.

# Business Oriented Education for Success

## Innovative companies find the best minds in Austria

In addition to top researchers, one needs highly-qualified specialists for practical implementation, to make innovations marketable. ICT site Austria offers both. Application-oriented training is a tradition here – whether it be at the numerous secondary technical schools (HTL), schools with practical technical training, the 22 public universities, the 12 private universities or the 21 technical colleges, which offer more than 550 courses.

The excellent university training facilities and research institutions at the Technical Universities of Vienna and Graz, the University of Innsbruck and Johannes Kepler University in Linz ensure a large pool of computer science experts. There is also a broad range of technical colleges in Austria: the Vienna Technical College Campus, Fachhochschule Technikum Vienna, Austria's largest purely technical college, the Joanneum Technical College or the Technical College of Upper Austria Campus in Hagenberg are only a few, which ensure a large pool of trained IT specialists.

# Investing in Core Technologies

## Silicon Austria – world-class microelectronics research centre

Electronics and microelectronics are the basis for digitisation, and we encounter them in all areas of life – from assistance systems in autos to computer-controlled machines in factories. Today the microelectronics industry is by far the most research-intensive and innovative industry in Austria. To combine the competencies of the leading research regions of the country, a world-class research centre for microelectronics is now being constructed under the name "Silicon Austria" on three sites with different focuses. In the future, work will be done in Villach on high-performance sensors and energy-efficient microchips. Linz will do research in the area of high frequencies, and Graz will ensure that all components are synchronised under the buzzword "system integration".

Agata Ciabattoni
Faculty of Informatics,
Technical University Vienna

→ www.tuwien.ac.at

Prof. Dr. Agata Ciabattoni is Professor of Non-Classical Logic in Computer Science on the Computer Science Faculty at TU Vienna. The native Italian came to Austria in 2000 and was awarded the START Prize, the highest award for young researchers, by the Science Fund in 2011. She is currently working on theories, tools and applications in various areas of logic, which differ from classical Boolean logic.

**Why do you conduct your research in Austria?**
*I originally came to Austria on an EC Grant (Marie Curie Individual Fellowship). My plan was to leave Vienna when the grant ran out. However, the very lively science scene and the high quality of life convinced me to remain here.*

**What makes the research site Austria especially interesting in the ICT area?**
*In my eyes, the excellent promotion companies and subsidy programmes, which support ICT research, are particularly important. In addition, Austria has outstanding research infrastructure and an active research community with excellent colleagues.*

# ICT Research on Highest Level

## Expertise grows inside and outside universities

ICT research is conducted on a high level in Austria – whether in COMET Centres (Competence Centres for Excellent Technologies), which have the goal of further strengthening cooperation between industry and science, or on the university or non-university level. Thus, the Software Competence Centre Hagenberg (SCCH) has been a pioneer in software-related technological research and development trends. The Carinthian Tech Research Centre in southern Austria is a Centre of Excellence for intelligent sensor technology. With Silicon Austria, the country is receiving a world-class research centre for microelectronics. Austria is also a top site for visual computing, thanks to the Centre for Virtual Reality and Visualisation (VRVis).

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|---|---|
| Lower Austria | IST Austria (Institute of Science and Technology) |
| Vienna | AIT (Austrian Institute of Technology), Fraunhofer Austria Research, VRVis – Zentrum für Virtual Reality und Visualisierung Forschungs-GmbH, SBA (Secure Business Austria), FTW (Vienna Telecommunications Research Centre), OFAI (Austrian Research Institute for Artificial Intelligence) |
| Carinthia | CTR (Carinthian Tech Research) |
| Upper Austria | SCCH (Software Competence Centre Hagenberg), UAR (Upper Austrian Research GmbH) |
| Styria | Joanneum Research Forschungsgesellschaft, Know Centre (Research Centre for Data-Driven Business & Big Data Analytics), Virtual Vehicle Research Centre |
| Salzburg | Salzburg Research |

# Direct Subsidy Programme for R&D Champions

## Financial support for innovations

The Research Promotion Agency FFG and Austria Wirtschaftsservice (aws) support research companies with direct grant programmes, counselling and services. The FFG supports application-oriented, business-oriented research. In 2016, EUR 615 million were invested, and 3,307 new projects were approved. As a development bank, the aws supports entrepreneurs and established companies in all phases of the corporate life cycle with loans, grants, and guarantees or investments/equity capital. In 2016, financing services amounted to about EUR 811 million.

In addition, the Austrian Economic Fund (FWF) supports basic research. The FFG Startup Grant supports startups with project financing of up to 70 percent. The aws Startup Centre offers a comprehensive support package to new companies. The "ICT of the Future" Programme also provides a grant specifically for the ICT area.

# 14 Euros Tax Credit for Every 100 Euros in R&D Investments

## Suitable funding for good ideas

Research is conducted in many places. Therefore, small and medium-sized enterprises and large companies are equally supported with research grants in Austria. Thanks to generous research premiums, research companies can claim 14 percent of their R&D expenditures for tax purposes as of 1 January 2018. Research premiums are an effective supplement to direct research grants.

→ www.aws.at
→ www.ffg.at

**Attractive tax benefits**

In addition, Austria offers attractive tax benefits. For example, there is an immigration allowance [Zuzugsfreibetrag] for scientists and researchers, which covers 30 percent of research income and can be used for up to five years. An apprenticeship allowance [Lehrlingsfreibetrag], the ability to carry forward losses, the ability to transfer hidden reserves and a corporate tax rate of 25 percent are also among the tax benefits for companies. With an average effective corporate tax burden of 22.4 percent, Austria is in the middle range in Europe.

# Austria Offers Innovative Milieus

## World-leading semiconductor producer researches in Villach

Infineon Technologies Austria AG, one of the most research-intensive companies in Austria, is an affiliate of Infineon, a leading global provider of semiconductor solutions. As the only site outside of Germany, Infineon Austria combines the competencies for research & development, production and global business responsibility.

Sabine Herlitschka,
Chair of the Management Board of Infineon Technologies Austria AG

**What "holds" you in Austria?**
Austria is innovative soil for Infineon. Otherwise it would not have been possible for us to develop from a small diode factory in Villach to one of the strongest research companies and pioneers for Industry 4.0 in Austria within four decades. With over 21 percent industrial added value, Austria is a high-performance industrial and technology location. Austria provides an excellent environment in terms of the qualifications of its employees, the quality of life, the working conditions and public safety.

**What makes Austria so interesting as a research site in the ICT sector?**
The conditions for industrial research are highly attractive for innovative companies, not least of all because of the 14 percent research premium. Moreover, there are additional initiatives in microelectronics, a key area for ICT systems, such as the "Silicon Austria" research cluster. Here the federal government, the Länder and industry invest jointly to combine all competencies and reach the summit internationally in defined microelectronics priority areas. This will create the necessary critical mass to be on a par with large research clusters in one of the world's most research-intensive and innovative industries. In this way, the global competitiveness of companies operating in Austria, such as Infineon, will be strengthened on a sustained basis.

→ www.infineon.com

# The Choice is Austria

## International players are impressed with Austria as a research site

### (Selected) ICT companies in Austria

| | |
|---|---|
| TTTech | Austrian technology and network specialist, which has had Samsung on board as an investor since 2017 to collaborate on the development of self-driving autos |
| AVL List | The Graz technology group AVL List is the largest independent company worldwide for the development, simulation and testing of drive systems (hybrid, combustion engines, transmissions, electric motors, batteries and software) for autos, trucks and large engines |
| Siemens | As one of the leading technology companies in Austria, Siemens conducts research, among other things, in the areas of highly integrated electronics, high frequency and antenna technology, data analysis, and system and software architecture |
| ams AG | The company, which was founded in Austria, is a multinational specialist in sensors and chips |
| LAM Research | One of the leading manufacturers and providers of processing devices and systems for the semiconductor industry with its headquarters in California and research in Austria |
| Infineon Austria | Infineon Austria, an affiliate of one of the world's leading semiconductor manufacturers, Infineon Technologies AG, is one of the strongest research companies in Austria. As the only location outside of Germany, Infineon Austria combines the competencies for research & development, production and global business responsibility |
| NXP Semiconductors Austria | The Dutch microelectronics group operates at the Austrian site of the Centre of Excellence for Secure Contact-Free Electronic Identification Systems |
| Atos IT Solutions and Services | The Austrian branch of the French IT service provider operates a Centre of Excellence for Industry 4.0 in Vienna |
| Frequentis | The Austrian high-tech company develops and sells communications and information systems for safety-critical solutions for control centres, e.g. in the areas of air traffic management or public transportation |

# Lively Ecosystem for Startups

## Austrian innovations are internationally successful

Startups find a well-functioning ecosystem in Austria – especially for ICT. Whether it is incubators, subsidies, or Europe's largest startup show, the Pioneers Festival – everything is designed for a lively startup culture. And with the addition of weXelerate and Talent Garden, two large European startup hubs, the site has recently become more attractive to founders.

## (Selected) ICT startups

| | |
|---|---|
| Cortical.io | Specialises in Natural Language Processing (NLP). The startup produces software that finds documents based on their meaning and not with key words |
| Dynamic Perspective GmbH | Develops unmanned camera helicopters and camera stabilisation systems |
| runtastic | Develops software and hardware products in the fitness area and was taken over by adidas in 2015 for EUR 220 million |
| Indoo.rs | Enables accurate indoor positioning and navigation solutions inside of buildings on mobile devices |
| Bitmovin | Offers products for the high-efficiency provision and streaming of multi-media data via cost-efficient Internet infrastructure |
| Nuki | Develops intelligent electronic door locks, which can be locked and unlocked with a smartphone |
| Timeluar | Founded in Graz by three South Tyrolians and a German. Timeluar offers ZEI°, a cube that revolutionises timekeeping |
| SES-imagotag | Founded in 2012 as iMAGOTAG, the startup with its own research department, soon became one of the leading companies for electronic shelf solutions and has been part of the French SES-imagotag Group since 2014 |
| iTranslate | Developed one of the leading translation apps worldwide and is now in the same league as Google and Microsoft |
| Wikitude | Has focused on Augmented Reality since 2008 and is a pioneer in this technology |
| Authentic Vision | A spin-off from the Salzburg Technical College. It has developed a method for consumers to distinguish counterfeits from original products |


# When the Smartphone Learns to Read

## Small, smaller, smallest – speakers for ever thinner smartphones

It should be easy to scan letters and numbers with the smartphone. So thought the founder of anyline.io, when he was supposed to be developing a text recognition function for another startup – mySugr. Although the matter was more complex than expected, the startup company, anyline.io, which was founded in 2013, is now being used by mySugr, which was taken over by Multi Roche in the interim, to read blood out sugar values, as well as electric meters, bank statements and lotteries.

In recent years, smartphones have become ever thinner. This is practical for the user, but a challenge in production – e.g. with respect to the speakers. Quality should not suffer but costs should not explode. This is exactly where the Graz startup, Usound, comes in and wants to shake up the market with its micro-speakers for smartphones. The startup has a good argument since the speakers it has developed need 50% less space but are also 50% cheaper to manufacture than regular speakers.

→ www.anyline.io
→ www.usound.com

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