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Dear Readers,

Over the last two years, the Austrian economy has kept surprising economic researchers and they have had to improve their prognoses time and again. The International Monetary Fund, for example, has just adjusted its economic outlook for Austria 2018 upwards: The gross domestic product after inflation amounts to a strong 2.8, possibly even 3 percent. In spring 2018, the IMF projected only 2.6 percent, which is still a respectable number. For 2019, the IMF currently forecasts 2.2 percent, but maybe we will see a higher GDP once more.

The order books of Austrian companies are full, growth ensures even more jobs; according to the Austrian Institute of Economic Research (WIFO), the number of jobs will increase by 88,000, which is 2.5 percent, in 2018. The increase was already 71,000 in 2017 and 2019 should see the creation of another 55,000 jobs. The WIFO forecasts a decrease in the unemployment rate to 4.8 percent in 2018 and 4.5 percent in 2019, after the EU had calculated an unemployment rate of 5.5 percent in 2017. These favourable prospects on the job market coupled with the expectation of significant pay rises will increase the buying mood among Austrians, which in turn will fuel the economy.

But that is not all: Six out of ten euros of the Austrian GDP are generated through foreign trade and every second job depends directly or indirectly on the export business. In 2018, Austrian exports are projected to smash the barrier of 150 billion euros for the first time. The biggest partner remains Germany with almost a third of all Austrian exports. We also see large leaps in growth outside our continent's borders, particularly in Asia, where spending power and demand is rising strongly. This is also reflected in the ranking of those countries where Austria managed to increase its exports the most. South Korea saw the biggest increase in exports (+ 57 percent), followed by Brazil and Malaysia with 35 percent each. Foreign trade with the US is also running smoothly: For the first time, exports across the pond will surpass the barrier of ten billion euros in 2018. According to the Minister for Economic Affairs Margarete Schramböck, 55,000 businesses are exporting and 98 percent thereof are small and medium-sized enterprises.

Economic success, innovative and hard-working entrepreneurs, well-trained employees, social peace and security as well as an economy that banks on internationalisation are important qualities of this country. According to a recent study, Austria also has "excellent preconditions to emerge victorious from the digitalisation race," says Michael Zettel, Country Managing Director of Accenture Austria. He comes to this conclusion because Austria is "a nation of hidden champions while having excellent regional champions and having public champions in many areas". No other country has more globally successful niche players per capita. "They managed to understand and serve their customers and markets," Zettel says. "They have the very special know-how to build future success. With intelligent implementation of new technologies, they will selectively improve their positions."

It is therefore hardly surprising that there are **numerous world market leaders in various sectors** from Austria! Among the model brands and companies are Red Bull and Swarovski, Novomatic and Wienerberger, and many hidden champions who are sometimes even European or world champions in their niche markets. They are joined by highly innovative start-ups and excellent "born global champions". The diversity of Austrian world market leaders includes each type of business ownership and company size.

This book explains their ideas and their achievements.

**We thank all our partners and
hope you enjoy reading this book!**



Paul Christian Jezek,
Editor-in-Chief

A handwritten signature in blue ink that reads "Paul Jezek". The signature is fluid and cursive, with a long, sweeping underline.

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At a glance

12 **How to become a world market leader starting in Austria**

Major corporations and many SMEs, often called hidden champions, who are globally among the top three in their field.

20 **Austria's digital future**

Seven business ideas to secure Austria's future and detailed ideas for research know-how

24 **World market leaders in and from all over Austria**

From Burgenland right through to Vorarlberg: Globally leading products and processes, as far as the eye can see!

30 **Austria's model companies in the spotlight**

ADVANTAGE AUSTRIA honours the best exporting businesses with the annual Austrian Export Award.

36 **Austria's best entrepreneurs 2018**

Katharina List-Nagl from F/List will represent Austria at the global award 2019 in Monte Carlo.

39 **Acoustic LED technology**

European Technology Innovation Award for USound

40 **New record in patent applications**

Austria is in sixth place in the EU and eleventh – and has “patently” reached China.

45 **Ever increasing culinary exports**

Austria's agricultural, food and drinks exports went up by five percent in the first half of 2018.

46 **Gene expression, swimming solar panels**

The renowned Houska Prize awards particularly innovative research projects.

48 **In the land of (almost) unlimited opportunities**

Austria's businesses are still doing excellently in the United States – and there is much potential in America's West.

50 **From Berndorf, Lower Austria, straight to planet Mercury**

Ruag Space built the thermal protection for the satellite BepiColombo in Triestingtal.

52 **Export diversification as a factor of success**

Exclusive interview with OeKB CEO Helmut Bernkopf

55 **Energy.2050: Austria and the energy revolution**

Effective implementation concepts on a regional level

56 **The beautiful blue Danube and its future**

“The Danube: A Stream of Energy” – that was the tagline for the Danube Business Talks in October 2018 in Vienna.

60 **More speed and service thanks to digital logistics**

The possibilities of digitalisation do not end with the tracking of goods.

62 **Railcheck with a perspective**

Pupils at the PTS Mistelbach have developed a robot that can detect fractures in rails.

63 **Mars rover and medical technology**

World market leader Trotec is aiming for a turnover of 200 million: Research and development will be further expanded.

64 **France and China in Lower Austria's sights**

The Lower Austrian economy wants to add two new target countries to its export offensive 2019.

65 **Better forecasting for production**

The Universities of Applied Sciences St. Pölten and Upper Austria are developing innovative forecasting.

66 **3D scanners from Graz want to conquer the US**

3Dcopysystems thrilled New York's fashion scene with “Big Alice” and “Little Alice”.

68 **Austria's life sciences sector is an economic driver**

The sector generated about 22.4 billion euros with 55,000 people and keeps growing steadily.

71 **Austria as the obvious choice**

Interxion, Octopharma and Trumpf invest a total of 150 million euros – and they are not the only ones by far!

74 **Life sciences metropolis Vienna**

The Vienna Business Agency's Round Table

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window to the world

- 80 High-tech suppliers for the automotive industry**
Without Austrian suppliers, there would hardly be any cars in the world.
- 83 A contribution to sustainability**
The Vienna University of Technology has developed a diesel engine that can run on over 70% bioethanol.
- 84 Fully automated driving with the highest safety standards**
BMW et al. use the Viennese company TTTech Auto.
- 86 Staatsdruckerei increases turnover and export ratio**
The Austrian National Printing Office as an international identity manager
- 88 A Viennese start-up gives cities a climate make-over**
With global warming in mind, Greenpass wants to make cities more liveable.
- 94 Hedy Lamarr's "daughters"**
Verena Fuchsberger-Stauer won the first Hedy Lamarr Award for her HCI work.
- 97 IonOXess bets on cold plasma**
PlaMaGrowth as a natural alternative for fertilisers
- 98 Digitalisation in tourism: Alexa, why Feratel?**
Feratel Media Technologies AG supplies the latest technology for the customer journey.
- 100 An innovative technology province in the South**
Carinthia impresses with its beautiful landscapes and lakes with drinking quality water as well as first class technology competence.
- 104 Transport, innovation and technology all in one**
The future is right at home at the Ministry of Transport, Innovation and Technology (the BMVIT).
- 112 Austrian model companies**
ACE, AHT Cooling Systems, AME, Commend, Copa-Data, Emporia, fahr(T)raum, Geislinger, Herz Armaturen, Hofmann Wärmetechnik, ILF Consulting, J. Meissl GmbH, ÖOA, Pfeifer, Polytechnik, Sunpor
- 116 Major stocks listed on the Vienna Stock Exchange**
An overview of publicly traded companies: from Agrana to Zumtobel.

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How to conquer world markets starting from Austria

“Surprisingly ingenious”, that’s the much-quoted slogan of ADVANTAGE AUSTRIA to describe the economic power of Austria. A number of large corporations such as Voestalpine but also many SMEs are among the global top 3 in their sector.

by GEORG JUNGWIRTH

Austrian hidden champions often position themselves on their markets as technology and quality leaders. At the same time, they usually have higher prices and considerably higher returns than their competitors. Communication policy plays a large and apparently successful part in this. In order to learn more about the secrets of success of these companies, the marketing managers of almost 200 medium-sized Austrian world market leaders were asked about the various aspects of their corporate communications.

One question was on the classic and digital communication instruments that these mostly family-run businesses use to gain such a positive image in their business fields and on their markets. Another one was on how they convince their international customers of their products’ superiority in terms of technology and quality.

Almost a decade ago, a very similar study was conducted among the same target group. Therefore, it is possible to deduce clear trends and developments in the field of corporate communications by comparing the results.

2018/19: Hidden champions as world market leaders

“The concept of the so-called hidden champions came up in the 1990s, when the consultant and professor for marketing Hermann Simon explored the strategies of these extremely successful yet to the general public hardly known medium-sized European and world market leaders from Germany,” explains Prof Dr Georg Jungwirth of the Campus 02 University of Applied Sciences in Graz, probably the greatest expert of the Austrian “world champions”.

There was no comparable study in Austria until Jungwirth and his colleagues took up the topic with various research projects as part of the course International Marketing & Sales Management at the Campus 02 College. “At first we identified as many Austrian hidden champions as possible and then we analysed them from a marketing point of view.” For this, Jungwirth used some of Simon’s criteria (sometimes in a slightly modified way) and further studies of Horst Biallo, Manfred Adamer and Günter Kaindl, Jürgen Meffert and Holger Klein as well as of Eckart Schmitt, among others. “But not only the German-speaking world dealt with medium-sized world market leaders. There is for example also a survey of Greek hidden champions.”

If you compare the results of the most important hidden champion studies, it is obvious that almost every time very similar factors of success were named:

- 1) It appears to be typical for the founders and managers of hidden champions to pursue their ambitious goals with much willpower and energy. These companies usually have a strong leadership that consequently aspires for market leadership based on a long-term vision.
- 2) These hidden champions very often seem to have highly performing employees whose motivation is above average and who are identifying themselves very strongly with “their” company. The fluctuation among staff is usually very low. Therefore, it comes hardly as a surprise that these medium-sized world market leaders often give their employees more freedom of decision than most large businesses – despite their



The Austrian plant manufacturer Inteco from Bruck an der Mur is the world market leader in constructing ESU plants as well as in the field of special metallurgy – with less than 100 million euros annual turnover. The export ratio is at 90 percent. Right: The high-tech company Test-Fuchs with its headquarters in Groß-Siegharts.

often relatively authoritative leadership. The organisational structure can often be described as decentralised.

- 3) Compared to other market participants, hidden champions have a much greater depth in terms of value added and production, but also in the field of research and development. Jungwirth: “It is interesting to note that most medium-sized world market leaders seem to largely avoid outsourcing.”
- 4) The hidden champions are often very clearly positioned and are focussing their resources better than their competitors do. Often, they will concentrate only on one niche in order to gain the market leadership there.

The narrow definition of their market allows many hidden champions to enter the international markets very early and to act globally or to even become “world champions”. Jungwirth says: “Some of these medium-sized market leaders are even called ‘born global companies’ as they managed to expand globally from their domestic market already in the same year as they were founded.”

Another factor of success of the hidden champions is their permanent pursuit of innovation. Despite limited R&D budgets, they are significantly more productive than most large industrial companies are, when it comes to registering patents.

Yet another very important puzzle piece on the path to market leadership seems to be a large degree of uncompromising closeness to customers. Long-standing and trusting relationships to their customers are named by many of the interviewed managers of medium-sized world market leaders as one of their greatest strengths.

Mostly unknown – but still world champion

In order to learn more about the secrets of success of these companies, the marketing managers of 191 medium-sized Austrian world market leaders were asked about the various aspects of their corporate communications. One question was on the classic and digital communication instruments that these mostly family-run businesses use to gain such a positive image in their business fields and on their markets. Another one was on how they convince their international customers of their products’ superiority in terms of technology and quality.

But how is it possible that a company can be widely unknown in its home country but at the same time enjoy a high profile around the world among potential and existing customers? What significance do corporate communications have on the international success of hidden champions? Which communication instruments do these mostly family-run businesses use in order to get a positive image in their fields and on their markets, and how do they convince their international customers of their products’ superiority in terms of technology and quality? And: Which role do corporate communications actually play compared to other marketing instruments?

From an Austrian point of view

The study that this article is based on uses almost the same criteria that Simon drew up in order to identify a company as a German hidden champion:

- ▶ Number 1, 2 or 3 on the world market or number 1 in Europe
- ▶ A turnover under 3 billion euros
- ▶ Headquarters in Germany
- ▶ Not widely known to the public



One reason for the seemingly imprecise definition of the market position is that most hidden champions operate in the business-to-business field and due to a lack of regular market analyses, are unable to say which position they have on the world market. Another reason is that only few hidden champions are listed on the stock market – just like their competitors – and are therefore not required to issue reports and publish their turnover.

The last criterion mentioned above is not exactly quantifiable but a qualitative assessment.

Three of these four criteria have been used for Austrian hidden champions though the maximum turnover has to be adapted to the structure of the Austrian economy because in the Alpine Republic businesses that have three billion euros annual turnover are hardly medium-sized nor hidden.

Therefore, companies must fulfil the following criteria in order to be considered for our empirical survey:

- ▶ Number 1, 2 or 3 on the world market or number 1 in Europe
- ▶ A turnover under 200 million euros
- ▶ Headquarters in Austria
- ▶ Not widely known to the public

Just like Simon, we did not evaluate the market share ourselves but took them from company reports and press reports.

The – compared to Simon – significantly lower maximum turnover of 200 million euros corresponds more to the picture of a medium-sized enterprise on the one hand and on the other hand refers to the findings of Meffert and Klein (2007) who determined



that the strategy of specialisation – which is pursued by almost all hidden champions – bears the highest potentials for success for businesses with less than 200 million euros annual turnover.

The survey of Austrian hidden champions did not focus solely on the communications policies of these internationally successful companies but also looked at other classic marketing instruments.

11 factors of success for world market leaders (in no particular order)

- 1) A significant competitive edge and high quality – find your niche
- 2) Long-term thinking without leaving short- and medium-term goals aside
- 3) Innovative power and creativity
- 4) Constant development and flexibility
- 5) Networking and stakeholder management
- 6) Turning a brand into a world market brand
- 7) At the top: a target-oriented visionary
- 8) Inner strength: highly motivated and best-skilled staff
- 9) Being brave but don't start to run before you can walk
- 10) Being trustworthy
- 11) Being able to deal with setbacks and learn from mistakes

Source: UBIT/WKW/Karmasin



First, let us have a look at the structural data of Austrian hidden champions and a few general results of the survey. The world market leader database of the college Campus 02 in Graz, which was set up in 2007 and is being updated regularly, currently includes about 200 Austrian hidden champions. All the companies have an average annual turnover of 53 million euros and employ on average 405 people. 70.6 percent of Austrian hidden champions produce mainly industrial goods, 17.6 percent operate in the field of consumer goods and 11.8 percent offer services. Not less than 63 percent do their business in the three sectors of mechanical engineering, metal and electronics.

Growth even during crises

More than 80 percent of Austrian medium-sized world market leaders are family businesses that usually have their headquarters in rural areas and are by far the biggest employer there. As you would expect, their export share is fairly high (median: 88 percent) and also other figures such as the equity ratio (42 percent) and the operating result (about ten percent) are absolutely above-average.

It is a remarkable fact that more than three quarters of the surveyed businesses (76.5 percent) saw their turnover grow in the last five years – annually by 14.3 percent on average. The turnover of another 16.5 percent of Austrian hidden champions stagnated in this period of the global financial and economic crisis. Only 7 percent of medium-sized Austrian world market leaders saw their turnover diminish in these economically stiff times.

Among the top in global competition

The managers of the Austrian hidden champions that were surveyed said that about ten percent of their turnover is invested into research and development, which is one of the reasons that the majority of their products can be put in the high-tech category.

The majority of customers are loyal and long-standing regulars (72.5 percent) who generate 75.7 percent of turnover. But the intensity of competition in the respective markets is described as very intensive (32.8 percent) or rather intensive (55.2 percent). Even though almost all of the medium-sized Austrian world and European market leaders operate in niche markets they face a number of competitors. On the European market, there are on average 11.9 relevant competitors and on the world market that number rises to 37.5.

From an organisational point of view, a marketing department (63.5 percent) is in charge of the marketing activities of Austrian hidden champions. In 23 percent of the surveyed businesses, marketing and sales are bundled in one department.

The communications policy of hidden champions

In the year 2008, a telephone survey evaluated the marketing activities of these businesses (Pfefferkorn 2008), which allows for comparisons with the results of this study and a deduction of trends and developments.

The surveyed medium-sized Austrian world market leaders invest about 4.1 percent of their turnover into communications activities; in 2008 that figure was only at 3.1 percent. This com-



Technology partner FACC benefits from a boom in the aerospace sector.

munications budget is determined by the targets a company strives for (43 percent), but available funds (35 percent) also play a major role. Only twelve percent of those interviewed gear their communication budgets to the activities of their competitors. During the survey of 2008, 55 percent of hidden champions determined their communications budgets by their targets. Available funds (22 percent) and a fixed amount of turnover (17 percent) were minor considerations.

By the way, 63 percent of Austrian hidden champions employ an agency for their communications (71 percent in 2008), the rest organises their communications activities in-house. This slight

decline could be an indication of businesses trying to build their own know-how in communications.

This would befit other findings, which show that hidden champions like to do all their core processes themselves and outsource only few corporate tasks. Apparently, corporate communications is seen as more and more important for international success.

If you ask the heads of marketing at medium-sized Austrian world market leaders about the significance of classic communications instruments, it shows that fairs and exhibitions are considered by far as the most important among these companies. Not less than 67.9 percent of those interviewed said that classic com-

Hidden champions in Austria

There are currently more than 180 hidden champions with less than 200 million euros annual turnover and 65 world or European market leaders with more than 200 million euros annual turnover, making for almost 250 of these great businesses.

| | Nr. 1 in the world | Nr. 2 or 3 in the world | Nr. 1 in Europe | |
|-------------------------------------|--------------------|-------------------------|-----------------|------------|
| Austrian hidden champions | 137 | 5 | 39 | 181 |
| Major Austrian world market leaders | 50 | 5 | 10 | 65 |
| as of autumn 2018 | 187 | 10 | 49 | 246 |

The international definition of hidden champions does not “only” include the world’s number one but also numbers two and three as well as the number one on its continent (in our case Europe). Therefore, we have split them up in different categories. If a company is a world and European market leader, it is only listed in the first column (the same applies to the other columns). Companies that are listed in the column “No. 1 in Europe” are not among the top three in the world. All listed companies of all sizes are headquartered in Austria.

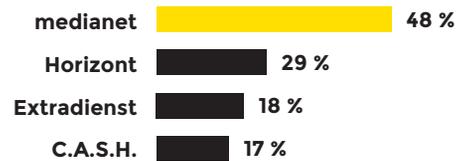
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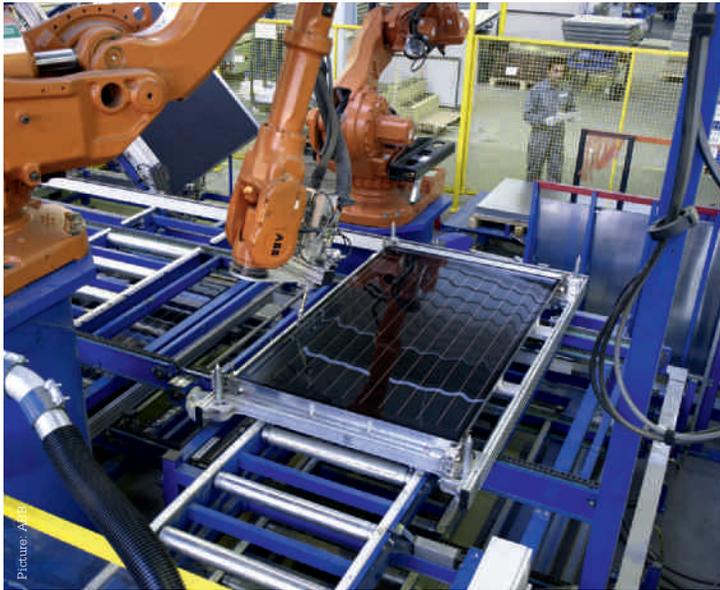
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munications instruments are very important and 26.4 percent thought of them as rather important. Internal communications and public relations are also considered as very important. Communications instruments such as specialist magazines, sales promotions and direct marketing follow behind. Event marketing, media advertising and sponsoring are seen as considerably less important communications instruments by the Austrian hidden champions.

Essentially, these assessments correspond to the reality of companies that operate in the business-to-business segment. Only the very high importance of internal communications is re-

markable and was not expected, especially not among medium-sized businesses.

If you compare this ranking of the most important classic communications instruments with the results of the 2008 study, you will notice only little differences. Four of nine communications instruments are ranked identically with the last survey.

Then, as now, fairs and exhibitions were the most important classic communications instrument for Austrian hidden champions. But right behind them, the positions have slightly changed: Specialist magazines have lost in significance while internal communications and public relations have each gained a position. Furthermore, the instruments of sponsoring and media advertising have switched places at the bottom of the ranking.

The expert on world champions



Prof Dr Georg Jungwirth has masterminded several detailed and comprehensive studies on Austrian hidden champions and even to detailed aspects such as innovation management and customer satisfaction.

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How about digital instruments?

When you ask the heads of marketing at Austrian hidden champions about the significance of digital communications instruments for their companies, the so-called website marketing is considered the most important one. After all, 39.6 percent of those interviewed said that website marketing is very important and another 45.3 percent said it is rather important. This is followed almost equally by the communications instruments that are search engine marketing and email marketing or newsletters respectively. The table is propped up by the digital instruments of social media marketing and mobile marketing; the latter was not once considered very important. On top of that, mobile marketing was considered by the majority of the surveyed companies as rather unimportant (56.6 percent) or even as very unimportant.

Email marketing and newsletters, however, are considered very important or rather important by almost two-thirds (65.4

percent) of the surveyed hidden champions. Still, it is interesting to note that only 22.5 percent of them indicated that they were doing permission marketing. Either there is some kind of misunderstanding about the meaning of this specialist term or the companies are risking legal consequences by sending emails or newsletters to clients without their consent.

As part of the survey, the managers at medium-sized Austrian world market leaders were shown several statements about their company's communications policies. Most agreed with the statement "We integrate many pictures into our communications": 43.4 percent of those interviewed agreed fully, another 45.3 percent rather agreed. Apparently, pictures have a very high significance among companies who operate in the business-to-business segment and who are selling their high-tech products on the world market.

The statement "We adjust our communications specifically to each customer" received a lot of agreement. Only 22.6 percent of those interviewed agreed fully but 54.7 percent of the managers rather agreed. It seems as if these medium-sized world market leaders do not only tailor their products and services to each customer but also their communications.

The statement "Our advertising messages mainly have a technical content" received relatively seen the least agreement. Here, 22.6 percent of the heads of marketing at Austrian hidden champions fully agreed, but only 35.8 percent of those interviewed rather agreed. Still, the communications and in particularly the advertising of these high-tech businesses seem to be dominated by technical contents.

It is worth considering though highlighting the benefit or even the emotional aspects of these already successful companies in their communications.

The key significance of product policies

So, which role does the communications policy play compared to other marketing instruments? If you ask the heads of marketing at Austrian hidden champions how important the four classic marketing instruments – the so-called four Ps – are for their company's success, the answer is clear: The product and brand policy seems to be by far the most important marketing instrument of the medium-sized Austrian world and European market leaders. On a scale of 1 (very important) to 5 (very unimportant) the product and brand policy achieves the very high mean value of 1.34. Distribution policy (mean value of 1.83), com-

munications policy (1.89) and price policy (1.98) follow with a distance.

Previous studies (Jungwirth 2009, 2012) have already shown that the product policies of hidden champions have a key significance. As mentioned above, the high expenditure for research and development seems to be the basis for the products and services of these companies being superior in quality to those of their competitors on the world market. Not only the managers of Austrian hidden champions think so (Pfefferkorn 2008, Stocker 2015), their international customers also confirm this (Jungwirth, Kraus 2010).

67.9 percent of the interviewed heads of marketing at Austrian hidden champions consider their product policy as very important for their company's success. Another 30.2 percent say that the product policy is rather important. The other three marketing instruments are also seen as mostly very and rather important, respectively, but the product and brand policy appears to take up a special role. Communications policy is considered as very important by 39.6 percent and as rather important by 47.2 percent of those interviewed

Convincing clients of world-class quality

Even if the product and brand policy of hidden champions appears to play a key role for a company's success, 86.9 percent of the interviewed managers regard the communications policy as very important or rather important. Its task is to convince the international clients of the medium-sized Austrian world and European market leaders of the high quality of their products and services with the help of various classic and digital communications instruments.

The challenge is to visualise the technological advantages of the usually highly innovative products with the help of pictures among other things. In an ideal case, this will not only convey rational reasons but also emotions. Furthermore, these companies aim to communicate with their usually long-standing and loyal regular customers on the international business-to-business markets in a customised way.

Even though the heads of marketing and communications at Austrian hidden champions face great challenges due to these framework conditions, they manage time and again to make an indispensable contribution to the global success of these widely unknown world market leaders! ◆



What Austria's digital future might look like

Seven visionary business ideas to secure Austria's future and detailed ideas for research know-how.

Financial auditor and tax adviser KPMG Austria GmbH spoke to more than 50 decision-makers at major corporations across all sectors – from tourism to cultural businesses, from agricultural companies to technology start-ups – about the challenges and strategies of their digital transformation.

The company collected a range of topics, processed them and made them comparable to one another; those interviewed regard these topics as significant to not only strengthen Austria as a business location but to ensure that the domestic market is successful in our digital future. KPMG then discussed the advantages and opportunities of these topics in a large workshop with 30 representatives of Austrian companies and associations.



The project "Snowledge" researches snow.

The result was seven business ideas that could help Austria to use the potential of digitalisation:

1) Connecting agriculture and tourism

The generation of young travellers that is now entering the market holds the authenticity of their travel experiences in high regard.

This triggers opportunities to connect agricultural achievements to tourist offers on a local level (*see www.bauernladen.at for the latest example*).

2) Hospital 2.0

Interconnecting data has high administrative potential and could revolutionise health care. Austria takes up a leading position to make the "patient journey" more productive to the benefit of patients and the health system.

3) Human-centred industry 4.0

Having unmanned factories is not desirable in the short-term, say Austria's leading companies.

Austria should rather bank on humans supporting smart factories from the inside; people should be at the centre of innovative ideas.

4) Safe data haven

It would make sense to create a data storage that only trustees can access. Being a neutral country full of highly skilled IT staff, Austria could take up a leading role in this field.

5) Smart mobility

In addition to the high level of expertise in the many levels of automotive manufacturing, Austria's businesses also research the fields of electric mobility, autonomous driving and alternative mobility concepts. Despite the good know-how, additional resources are needed.



Human-centred industry 4.0: Austria should bank on humans supporting smart factories from the inside; people should be at the centre of innovative ideas.

6) Connected administrative platforms

Austria already takes up a leading role internationally when it comes to digitalising administrative tasks.

By opening the ecosystems to private companies, we could see a significant acceleration in implementing more efficient processes.

7) Artificial intelligence

Austria has pioneers in the field of artificial intelligence; many of those have already emigrated because they lack the opportunities to develop their ideas in Austria.

A scientific focal point with leading experts, supported by highly skilled IT technicians, could make use of the current innovative period in IT.

Strengthening data economy creates growth

"Changing rules in the digital economy also requires an adaptation of the framework," says Margarete Schramböck, the minister in charge of digitalisation. "Data is the future's raw material,

it is the foundation for innovative business models. We have decided to end restrictions on data localisation under the name 'free flow of non-personalised data'." The act aims to abolish unjustified restrictions on localising non-personalised data in EU member states.

Abolishing such restrictions on data localisation removes the biggest obstacle for Europe's fledgling data economy. The latest prognoses believe that this will help the European data economy to fire on all cylinders, generating up to 730 billion euros annually by 2020. This would double the data economy's share in the EU's GDP from currently two percent to four percent. At the same time, more than 10.4 million people will work for 360.000 businesses in the data economy. "Abolishing these restrictions is of utmost importance to companies," Schramböck says. "This act is the key to more growth, more flexibility for our businesses and more jobs in future-proof industries."

The new act also has its advantages in everyday business for Austrian companies. They benefit immediately from lower costs

and a larger offer in data services such as cloud solutions. After abolishing the restrictions on data localisation, businesses can now choose any cloud provider without running into danger of breaking any laws. Up until now, the legal situation was rather complicated. "Businesses in Austria and the EU can now use cloud services in any member state, choose the cheapest locations for IT resources or transfer data back to their own IT systems," Schramböck explains. "This can also prevent a doubling-up of data in several locations."

Partnerships between economy and science

The Federal Ministry also provides four million euros for the business location and its digitalisation in order to subsidise digital innovations and to create new partnerships between economy and science. This will help Austrian businesses to master challenges even better. "In times when we lack skilled workers, we cannot afford to not use the existing know-how in companies," Schramböck says.

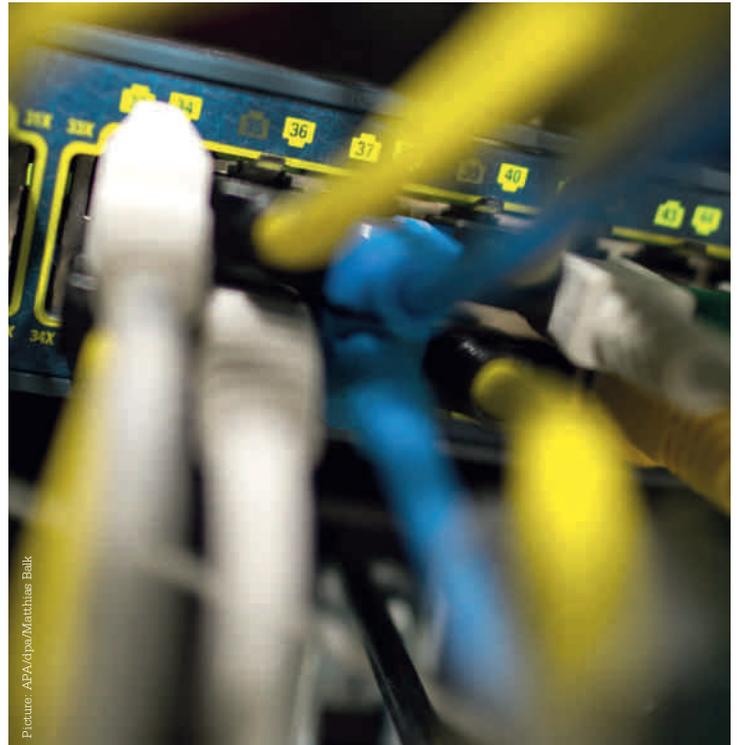
The subsidies programme "Research competence for the economy" takes two approaches: One is to help companies to actively and systematically promote higher skills for its innovative staff.

The other is to support universities and universities of applied sciences in cooperation with companies to determine the know-how required and to provide corresponding further trainings. The curriculum is based directly on the company's needs. "The idea is to pass on decisive knowledge, to entrench it strategically and in the long-term at these companies," Schramböck explains. "This is the only way for Austrian businesses to increase their innovative capacities in a focused way and in tune with market realities."

Eleven new projects

These qualification networks specifically target companies that carry out research and development with their own staff and their own budget. The project will run between one and two years maximum, the subsidy amounts to up to 500.000 euros per project.

This year sees the fourth instalment of the qualification network, which will subsidise eleven projects (see box to the right). For the first time, the focus is on digitalisation in tourism. Four projects deal with this future-oriented topic, which is highly relevant for Austria. They will prepare businesses and their key staff specifically for the digital change. ◆



Digital change means new challenges for the Austrian economy: Economy and science shall help to overcome them.

The eleven subsidised projects at a glance

► Focus on tourism

E-PAST: Mobility and health behaviour
SDAH: Use of data and analysis methods
Snowledge: Scientific-technical use of snow
DigiTOMürz: Digital know-how for small businesses

► Focus on energy and environment

Building Information Modelling: Planning in construction
Ecopack: Sustainable packaging

► Focus on production

Polyflame: Fire behaviour and fire protection for plastics
Addm Anu Knowledge: Additive production, component design and construction
Q-nnect: Connecting Western Austrian businesses

► Focus on IT

DuS: Digitalisation and security
InduSec: Link-up of information and operational technology

Austria can emerge victorious from the digitisation race

The results of Accenture's latest digitisation study on Austria's Top 100 companies.

"Austria has excellent prerequisites to benefit from digitisation," says Michael Zettel, Country Managing Director of Accenture Austria. The results of the latest Accenture study "Leading in the New. The Digital Transformation of Austria's Top 100" on Austria's Top 100 companies clearly shows this. Austria's economy is a "nation of hidden champions" and has at the same time "excellent regional champions" as well as public champions in many areas.

The economic environment eases up

Digitisation is "the" driver of success and growth for Austria's Top 100 companies and the entire economy. The economic analysis of the 100 businesses with the highest turnover also shows that the years 2013 to 2016 were shaped by an economically insecure environment that is now starting to ease up.

The industrial sector, telecommunications and high-tech companies were the clear winners. The situation in the energy sector was difficult, however; the low oil price was clearly noticeable. The study also shows that the industrial sector was the main driver of growth. "This is particularly pleasing as a large number of our hidden champions are industrial companies," Zettel underlines.

Facts & figures

Accenture is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations. Combining unmatched experience and specialized skills across more than 40 industries and all business functions – underpinned by the world's largest delivery network – Accenture works at the intersection of business and technology to help clients improve their performance and create sustainable value for their stakeholders. With 459,000 people serving clients in more than 120 countries, Accenture drives innovation to improve the way the world works and lives.

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Tel. +43 (0)1-205020
www.accenture.at



"The order of the day is to implement the three key technologies artificial intelligence, the cloud and the Internet of Things as quickly and comprehensively as possible."

Michael Zettel, Country Managing Director Accenture Austria

Digitisation lets the number of staff grow

Another pleasing finding: Digitisation will create new jobs in the future. The increasing smart digitisation is not synonymous with the loss of jobs, the study found out. Thanks to digitisation new professions were created, after technological advancement replaced others. This growth can also be seen in the economic analysis: The number of employees at the Top 100 companies rose by about 4,5 percent compared to the previous year; at those with the highest growth that number amounted to 5,5 percent. "This constellation makes us the digital champions of the future," Zettel says. "The order of the day is to implement the three key technologies artificial intelligence, the cloud and the Internet of Things as quickly and comprehensively as possible. It is important to use them broadly and in a productive way – a proof of concept no longer suffices."

At a glance: world market leaders from Austria

From Burgenland right through to Vorarlberg:
Globally leading products and processes, as far as the eye can see!

A large number of companies in all nine Austrian provinces are playing in the economic Champions League and are among global technology leaders.

Here is a selection of more than 100 of these high-end companies (the majority are Hidden Champions) but the list is by no means exhaustive.

Burgenland

- ▶ Isosport Verbundbauteile: plastic composite materials for the ski and snowboard industry; www.isosport.com
- ▶ Lumitec: LED light solutions; www.lumiteclighting.com
- ▶ Mareto: tubes for cosmetic products and lipstick covers; www.mareto.at
- ▶ Swarco Futurit Verkehrssignalsysteme GmbH: polycarbonate traffic lights; www.swarco.com



The Umdasch Group incl. Doka (pictured) celebrated its 150-year anniversary in 2018.

- ▶ Tupack Verpackungen GmbH: plastic tubes and lipstick covers for the cosmetics and pharmaceutical industry; www.tupack.at
- ▶ Unger Stahlbau GmbH: European market leader in steel engineering; www.ungersteel.com
- ▶ Vossen GmbH & Co.KG: European market leader in terry cloth products; www.vossen.com

Carinthia

- ▶ Alpina Sicherheitssysteme GmbH: safety materials for high-speed sports; www.alpina.at
- ▶ Greenonetec Solarindustrie GmbH: panels for solar thermal plants; www.greenonetec.com
- ▶ Hirsch Armbänder GmbH: leather watchstraps; www.hirschag.com



Miba is one of the leading suppliers in the global engine and automotive industry.



Two world market leaders listed on the stock exchange and a special one: FACC, Voestalpine (top right) and specialist machines from Wintersteiger AG (bottom left)

- ▶ Joh. Offner Verwaltung und Vertrieb GmbH: forks; www.ofner.at
- ▶ S.A.M. Kuchler Electronics GmbH: cutting systems for sausages and cheese; www.sam-kuchler.com
- ▶ Treibacher Industrie AG: recycling of vanadium-nickel-molybdenum catalysers, light diodes, precision moulding; www.treibacher.com
- ▶ Wild GmbH: Optomechatronic systems; www.wild.at

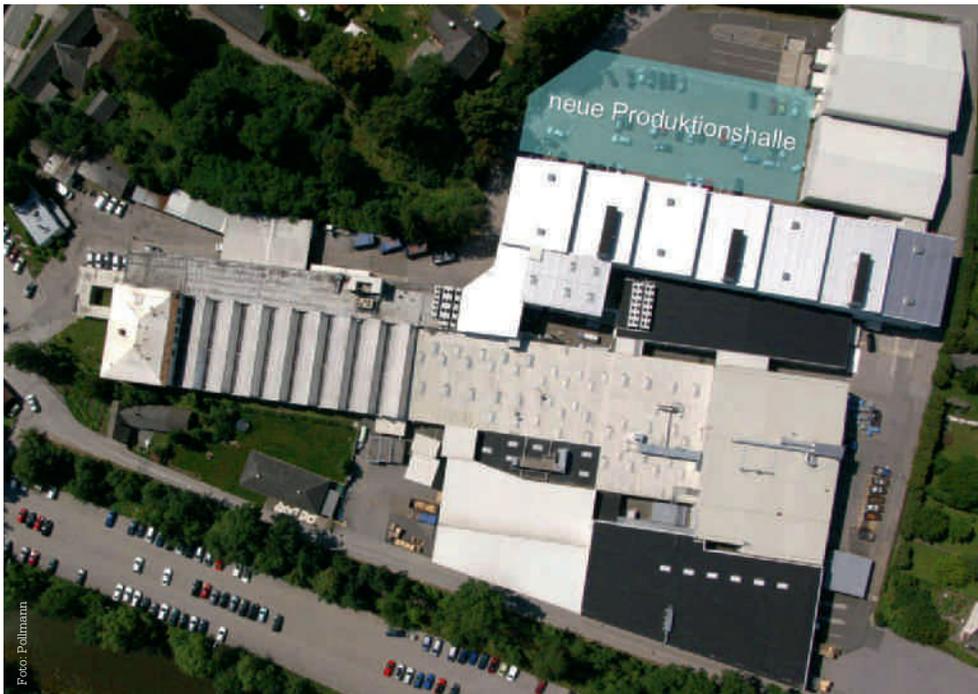
Lower Austria

- ▶ Asta: copper components for energy generation and transmission; www.asta.at
- ▶ Biomin (part of the Erber Group), Getzersdorf: producer of livestock nourishment; www.biomin.net
- ▶ Croma Pharma: hyaluronic acid injections; at.croma.at
- ▶ Doka Group: formwork and safety systems for construction sites; www.doka.com
- ▶ FHW Franz Haas Waffelmaschinen GmbH: waffle and biscuit making equipment; www.haas.com
- ▶ GW Cosmetics: eyelash and eyebrow colours; www.gwcosmetics.at
- ▶ Jungbunzlauer Austria AG: worldwide leader as a producer of biodegradable natural ingredients; www.jungbunzlauer.com

- ▶ Klinger Dichtungstechnik: industrial sealing material; www.klinger.co.at
- ▶ LiSEC Group: flat glass processing; www.lisec.com
- ▶ Novomatic AG: world market leader in the production and operation of electronic gambling equipment; www.novomatic.com
- ▶ Ovotherm International Handels GmbH: transparent packaging for eggs; www.ovotherm.com
- ▶ Pollmann International GmbH: (electro-)mechanical components for sliding roofs; www.pollmann.at
- ▶ Riegl Laser Measurement Systems GmbH: laser measuring devices for the civil sector; www.riegl.com
- ▶ Test-Fuchs GmbH: testing systems for aviation and aerospace, GSE (ground support equipment) and AGE (aircraft ground equipment); www.test-fuchs.com
- ▶ Zizala Lichtsysteme GmbH: headlights for cars, lorries and two-wheeled vehicles; www.zkw.at

Upper Austria

- ▶ Backaldrin International The Kornspitz Company GmbH: Kornspitz (baked goods); www.backaldrin.com
- ▶ Engel Austria: injection moulding machines and their automation; www.engelglobal.com



Pollmann International operates on three continents: Asia, Europa and North America. Right: World market and technology leader in plastics recycling plants

- ▶ Erema Engineering Recycling Maschinen und Anlagen: plastics recycling machines; www.erima.com
- ▶ FACC: winglets et al.; www.facc.com
- ▶ Fill GmbH: ski production machines; www.fill.co.at
- ▶ Fronius International GmbH: robotic welding, light-arc welding and resistance spot welding; www.fronius.com
- ▶ Greiner Tool.Tec (GTT): Tools and devices for the extrusion of plastic profiles; www.greiner.com
- ▶ Hitzinger GmbH: individual power supplies; www.hitzinger.at
- ▶ Keba AG: automating machines; www.keba.com
- ▶ Lenzing: world market leader in cellulose fibres; www.lenzing.com
- ▶ Miba: premium automotive parts; www.miba.com
- ▶ Numtec-Interstahl GmbH: marking and reading machines for the steel and non-ferrous metal industry; www.numtec-interstahl.com
- ▶ PC Electric: industrial connectors, plugs and distribution boxes; www.pcelectric.at
- ▶ Rosenbauer International AG: fire service technology in the areas of firefighting and disaster management; www.rosenbauer.com
- ▶ Rubble Master GmbH: building material recycling plants
- ▶ Teufelberger Seil GmbH: ropes for boats and ships, crane ropes; www.teufelberger.com
- ▶ Trench Austria GmbH: dry insulated air core reactors; www.trenchgroup.com

- ▶ Trodat Holding GmbH: self-inking stamps and laser engraving machines; www.trodat.net
- ▶ Voestalpine: world market leader in switch technology and special rails as well as tool steels and special profiles; www.voestalpine.com
- ▶ WFL Millturn Technologies GmbH & Co KG: world market leader in multifunctional millturn centres; www.wfl.at
- ▶ Wintersteiger: field test technology, wood surface repair, etc.; www.wintersteiger.com

Salzburg

- ▶ Atomic Austria GmbH: alpine skies; www.atomicsnow.com
- ▶ Geislinger GmbH: couplings and dampers for large engines; www.geislinger.com
- ▶ Copa-Data GmbH: software for automated controls of industrial plants and building technology; www.copadata.at





Knapp provides intralogistics solutions & systems for storage logistics and automation.

- ▶ Eisenwerk Sulzau-Werfen: high-tech rollers for the international steel industry; www.esw.co.at
- ▶ J. Meissl GmbH: umbrellas and umbrella bars with the focus on custom products; www.meissl.com
- ▶ Orderman GmbH: wireless electronic ordering and billing systems; www.orderman.com
- ▶ Palfinger AG: mounted loading cranes; www.palfinger.at

Styria

- ▶ AHT Cooling Systems GmbH: cooling and freezing systems for commerce and trade; www.aht.at
- ▶ Andritz AG: production systems for the cellulose, paper and steel industry as well as further industrial sectors; www.andritz.com
- ▶ Anton Paar GmbH: measurement of density, concentration and CO₂, rheometry; www.anton-paar.com
- ▶ AT&S Austria Technologie & Systemtechnik AG: European market leader and globally one of the leading producers of premium circuit boards and IC substrates; www.ats.net
- ▶ AVL List: the world's largest independent company for the development of drivetrains for combustion engines and measurement and inspection technology; www.avl.com
- ▶ Binder + Co AG: screening and glass recycling; www.binder-co.com



Vamed model hotel & silent spa with a health centre: Vitality Med Laa/Thaya



Agrana is the world market leader in fruit processing and major producer of fruit juice concentrates in Europe.

- ▶ CNSystems Medizintechnik; devices for non-invasive cardiovascular monitoring; www.cnsystems.com
- ▶ DiTest Fahrzeugdiagnose GmbH; emission testing; www.avlditest.com
- ▶ IBS Holding GmbH; dewatering systems for the paper industry; www.ibs-ppg.com
- ▶ Inteco special melting technologies: plants for specialist metallurgy; www.inteco.at
- ▶ Isovoltaic AG; special foils for photovoltaics modules; www.isovoltaic.com
- ▶ Komptech GmbH; waste treatment and processing of biomass; www.komptech.com
- ▶ König Maschinen GmbH; baking machines, www.koenig-rex.com
- ▶ LCT GmbH; translucent concrete, <https://lct.co.at>
- ▶ Mayr-Melnhof; coated cardboards; www.mayr-melnhof.com
- ▶ Ölmühle Pelzmann GmbH; pumpkin seed oil; www.pelzmann.com
- ▶ Pewag Group; tyre protection and snow chains; www.pewag-group.com
- ▶ Pieps GmbH; avalanche rescue systems, www.pieps.com
- ▶ Remus; sports exhaust pipes; www.remus.eu
- ▶ Schaller GmbH; biomass and water measuring in recycled paper; www.humimeter.com
- ▶ Wolfram Bergbau und Hütten AG; tungsten carbide and tungsten metal in powder form for the high-tech industry; www.wolfram.at

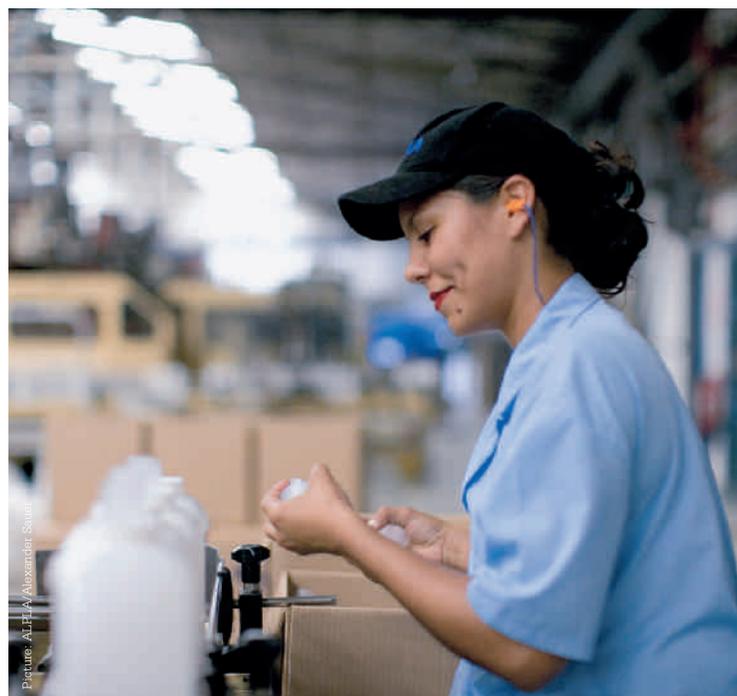
- ▶ Wollsdorf Leder Schmidt & Co GmbH; high-quality leather upholstery for the automotive industry; www.wollsdorf.com

Tyrol

- ▶ Egger Gruppe; thin chipboards; www.egger.com
- ▶ Glockengiesser Grassmayr; bell foundry established in 1599 (!) in Innsbruck, delivered bells to 100 countries; www.grassmayr.at
- ▶ Kompass Karten GmbH; hiking maps; www.kompass.at
- ▶ Pirlo GmbH; snuff boxes, metal packaging; www.pirlo.com
- ▶ Riedel; crystal glasses; www.riedel.com
- ▶ SPGPrints Austria GmbH; laser engraving systems for the textile, carpet and packaging industry; www.spgprints.com
- ▶ Sunkid Skilift Fördertechnik GmbH; ski conveyor belt; www.sunkid.at
- ▶ Swarovski Optik KG; long-range and military optics; www.swarovskioptik.com
- ▶ Vizrt; graphic art for TV and visual studios; www.vizrt.com

Vorarlberg

- ▶ Alpa Werke Alwin Lehner GmbH & Co. KG; plastic packaging; www.alpa.com
- ▶ Bachmann electronic GmbH; controls for wind power; www.bachmann.info

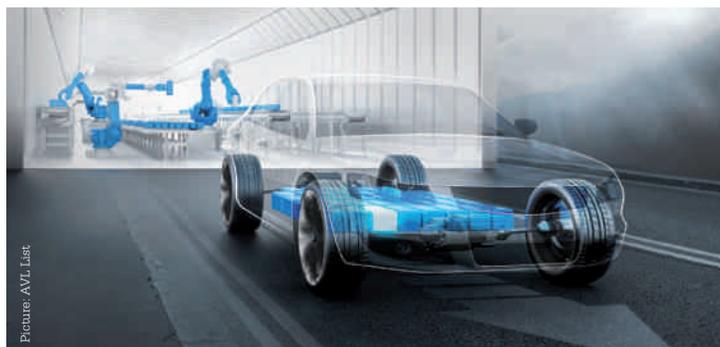


Palfinger is the world market leader in loading, timber, recycling, maritime and wind cranes, hooklifts and railway systems; Alpla is the global leader in plastics packaging.

- ▶ Baur Prüf- und Messtechnik GmbH: high voltage, testing and measuring technology; www.baur.at
- ▶ Doppelmayr: ropeway transportation systems; www.doppelmayr.com
- ▶ Getzner Werkstoffe: vibration insulation; www.getzner.com
- ▶ Julius Blum GmbH: metal fittings; www.blum.com
- ▶ WolfVision GmbH: high-end visualisers; www.wolfvision.com
- ▶ Pörner Ingenieurgesellschaft mbH: bitumen production plants; www.poerner.at
- ▶ Schiebel Elektronische Geräte GmbH: mine detectors and unmanned aerial vehicles; www.schiebel.net
- ▶ Starlinger & Co GmbH: woven plastic bags; www.starlinger.at
- ▶ Thomastik-Infeld GmbH: strings for instruments; www.thomastik-infeld.com
- ▶ VAMED: single source supplier for health facilities www.vamed.com
- ▶ Vienna Symphonic Library: virtual orchestra music; www.vsl.co.at
- ▶ Waagner-Biro: ship stages; www.waagner-biro.com ◆

Vienna

- ▶ 123 Sonography GmbH: online courses for physicians and medical experts who work with ultrasound devices; www.123sonography.com
- ▶ Agrana Beteiligungs AG: world market leader in fruit processing and major producer of fruit juice concentrates in Europe; www.agrana.com
- ▶ Dietzel GmbH: installation systems for electrical engineering; www.dietzel-univolt.com
- ▶ Frequentis AG: information and communication systems for air traffic safety; www.frequentis.com
- ▶ iSi GmbH: compressed gas storage; www.isi.com
- ▶ Lenus Pharma: treatment of male infertility; www.lenuspharma.at
- ▶ Plasser & Theurer: track renewal machines; www.plassertheurer.com



AVL List: World market leader in test blocks and leader in the Austrian patents ranking

Austria's model companies in the spotlight

ADVANTAGE AUSTRIA honours the best exporting businesses with the annual Austrian Export Award.

The trophy of the Austrian Export Award is made from Augarten porcelain and represents the stylised wings of an eagle – the perfect image for upswing and vision.

The Austrian Export Awards 2018 were held at the Exporters' Nite on 21 June, a glamorous evening event that showcases Austria's top exporters. The annual Export Award of ADVANTAGE AUSTRIA, part of the Austrian Economic Chamber (WKÖ), honours businesses that give Austria's economic boom wings thanks to their international commitment. More than 700 guests witnessed the ceremony when Minister for Economic Affairs Margarete Schramböck and President of the Austrian Economic Chamber Harald Mahrer handed out the awards. Entertainer Alfons Haider hosted the ceremony at Vienna's Museum Quarter.

"This evening belongs to the Austrian export industry, which is making a splash worldwide with its successes," emphasised WKÖ President Mahrer. "With the Export Awards, we show our appreciation for Austria's outstanding pioneers in exports."

The annual Export Awards recognise exceptional commitment and success among Austrian companies on international markets. "The prizes are awards for those exporters that ensure Austria's economic boom with their passion and their commitment," underlines Michael Otter, head of Advantage Austria. The winners of the Austrian Export Award are

selected by an independent expert jury that judged more than 300 submissions on the basis of export performance in recent years.

The prize is awarded in six main categories: Craft & Trade, Commerce, Industry, Information & Consulting, Tourism & Leisure, Transportation & Traffic. In addition, there is also the Global Player Award and the Expat Award.

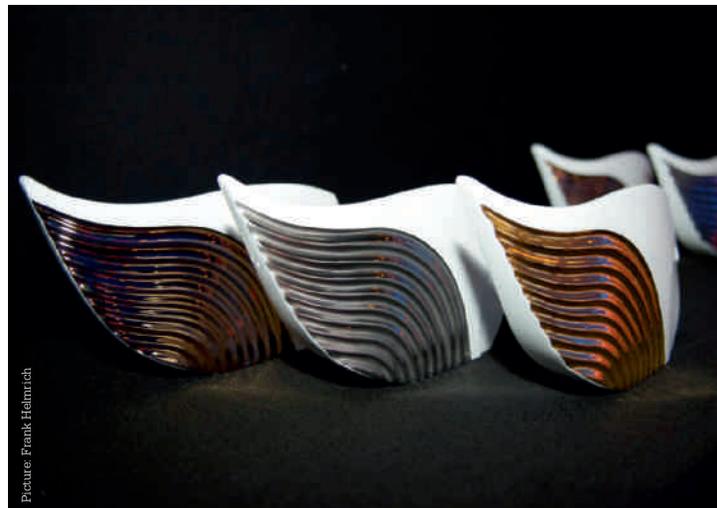
"After Exporters' Nite is already before the Exporters' Nite," says Sigmund Nemeti, organiser of the Exporters' Nite at Advantage Austria. "Planning for the Exporters' Nite 2019 are already under way." Entries can be submitted from December 2018 onwards at exportpreis.at.

The top companies in the six categories

1) This year's gold award in the "Craft and Trade" category went to Schiebel Elektronische Geräte GmbH. Since its foundation in 1951, Schiebel has become the world market leader in unmanned

aerial vehicles and high-tech mine detectors. Schiebel operates globally with an export ratio of almost 100 percent. The Group has subsidiaries in the United States, the United Arab Emirates and Cambodia.

The company's flagship product is the Camcopter S-100, an unmanned helicopter in use with countless security organisations round the world. It can be used in lifesaving operations on the high seas, for missing person searches, for surveying of inhospitable terrain or for monitoring infra-



The Export Award trophy by Augarten



Export Award Craft & Trade: WKÖ President Harald Mahrer, Johannes Kisslinger, Martin Komarek (Schiebel Elektronische Geräte), Minister Margarete Schramböck

structure facilities. In a new field of operation, Schiebel has used radio-controlled drones and helicopters together, where the drones provide the helicopter pilots with information.

The Camcopter S-100 weighs 34 kilogrammes and stays airborne for six ours – with additional fuel tanks even ten hours.

FACC and Econ came second and third behind Schiebel.

2) Rubble Master HMH GmbH won in the category “Commerce”: “We keep our dominant position in the world market because we can rely on excellent staff both in our headquarters in Linz as well as globally at our subsidiaries,” praises Gerald Hanisch, CEO and founder of the Linz-based mechanical engineering company, his team.

Long before terms such as employer branding and corporate culture became fashionable, Rubble Master emphasised the fostering of a special and familiar corporate culture.



Rubble Master has seen two-digit growth rates for years.

The world market leader in the production of mobile crushers for the recycling and natural stones industry recorded a turnover of 110 million euros, which is an increase of 22 percent compared to the previous year.

Audio Tuning Vertriebs GmbH and Alumero Systematic Solutions GmbH came second and third behind Rubble Master.

3) In the category "Industry", Infineon Technologies Austria AG beat RHI Magnesita and WolfVision GmbH to first place. "Over the last five years, Infineon Austria has massively expanded its global product-related business for power electronics. Thus, we could position ourselves perfectly in the important growth markets United States and China with leading competence in electromobility, renewable energies and solutions for energy efficiency," says Sabine Herlitschka, CEO of Infineon Austria, who received the award together with Richard Kuncic, Vice President and General Manager Businessline DC-DC. Thanks to the high demand in energy saving chips and a successful market expansion, Infineon Austria increased its turnover in the last three business years by 78 percent from 1.4 billion euros to about 2.5 billion euros.

Infineon Austria's export ratio is at 100 percent. Currently booming export markets are the expansion of the product-related business for Chinese solar plants. Furthermore, Infineon is expanding its semiconductor sales in China and the United States in the field of data processing centres. Infineon chips from Villach are already controlling the current conversion in more than 50 percent of all servers around the world.

For 2018, Infineon expects continuous growth of more than ten percent in this area. With the latest expansions in production and research & development, Infineon meets the high demand in power electronics and is creating a base for the sustainable safeguarding of the business location Austria.

4) Vizrt Austria GmbH won this year's gold award in the category "Information and Consulting" for its graphics software that is used by TV broadcasters all around the world, ranging from Olympic Games to the US presidential elections and the analysis of the Football World Cup 2018 at Austrian state broadcaster ORF.

The success of this year's winner and world market leader in TV graphics, whose name stands for Visualization in Real Time, is based on Austrian know-how: The responsibility for the group-wide IT and the development of the graphics software VizEngine as the company's core product lies at the headquarters in Vomp, Tyrol.



Infineon topped RHI Magnesita and WolfVision GmbH in the category "Industry".

EXPORT AWARD WINNERS 2018 (gold/silver/bronze)

Craft & Trade

Schiebel Elektronische Geräte GmbH
FACC AG / ECON GmbH

Commerce

Rubble Master HMM GmbH
Audio Tuning Vertriebs GmbH
Alumero Systematic Solutions GmbH

Industry

Infineon Technologies Austria AG
RHI Magnesita
WolfVision GmbH

Information and Consulting

Vizrt Austria GmbH
ASQS GmbH
Bruck Consult

Tourism and Leisure

Novomatic AG
WKE Konzert- & Eventveranstaltungs GmbH
Euroscope Incoming & Events Touristik GmbH

Transportation and Traffic

Beat the Street Jörg Philipp Touring Services GmbH
VERAG Spedition AG
Stark Services GmbH

Global Player Award

Fronius International GmbH

Expat Award

Stefan Mugitsch (General Manager Libya at VAMED)

exportpreis.at



Export Award Transportation & Traffic: Beat the street



Export Award Information & Consulting: Vizrt Austria



Expat Award: Stefan Mugitsch (Vamed, Libya)

40 Born Global Champions, three Born Global Investors

Architecture

Commod House GmbH

Automotive

easE-Link GmbH

Banking/Insurance

Credi2 GmbH

Finnest GmbH

Consulting

JobRocker International GmbH

Education

GoStudent GmbH

Robo Technologies GmbH

Unispotter GmbH

Electrics/Electronics/Mechatronics

SEP Group – SEP Software Engineering GmbH

Furniture/Interiors

Die Koje Christian Leidinger GmbH

Health Infrastructure

2PCS Solutions GmbH

Logistics

StoreMe GmbH

Medical Technologies

Genspeed Biotech GmbH

medPhoton GmbH

Metals

Schrott24 GmbH

Music/Entertainment

Alpha Pianos GmbH

Plant Engineering

Flecks Brauhaus Technik GmbH

Renewable Energy

Aerocompact GmbH

Silver Generation

Texible GmbH

Smart Factory

Blue Danube Robotics GmbH

NiLAB GmbH

Soft Drinks

Pona Sonst Nix GmbH & Co KG

Software & IT

360kompany GmbH

Adverity GmbH

baningo GmbH

byrd technologies GmbH

DealMatrix GmbH

FruX Technologies GmbH

FSPW GmbH – Gustav

guh GmbH – nymea

INS Insider Navigation Systems GmbH

JobSwipr GmbH – hokify

Kivu Technologies GmbH

ProLion GmbH

ready2order GmbH

Storyclash GmbH

Waytation GmbH

Telecommunication

Digital Privacy GmbH

Mikme GmbH

YodelTalk GmbH

Born Global Innovators

Agro Innovation Lab GmbH

Kapsch TrafficCom AG

Primetals Technologies Austria GmbH



Engineering office ASQS (Advanced Safety and Quality Solutions) GmbH stands for safety and won second place with its highly innovative software for quality management in the fields of aviation, sea travel and offshore.

The consulting company Bruck Consult, a specialist in the Russian export business and organiser of the unique cycling event "Red Bull Trans-Siberian Extreme," came third.

5) This year's gold award in the category "Tourism and Leisure" went to Novomatic AG. WKE Konzert & Eventveranstaltungen GmbH came in second place and Euroscope Incoming & Events Touristik GmbH, both from Vienna, won bronze for their outstanding achievements in the export business. Petra Nocker-Schwarzenbacher, head of the Department for Tourism and Leisure at the Austrian Economic Chamber, considers these companies as "role models for entrepreneurial activities in their respective area."

Novomatic with its headquarters in Lower Austrian Gumpoldskirchen is operating internationally with more than 2,100 gaming arcades, casinos and sports betting outlets, making it the European market leader and one of the leading companies world-

wide in its sector. Its flagship is the largest casino in the German capital Berlin. Novomatic is also leading in technology and the production of gaming equipment; the export ratio is at more than 96 percent. The company employs 3,500 staff in Austria alone and 25,000 across the entire group.

The example of Novomatic shows, that the leisure industry is contributing to Austria's income from abroad as we are used to from tourism: More than 18.1 billion euros in revenues were generated in the past year by guests from abroad: "That is about 2,000 euros for every single Austrian," says Nocker-Schwarzenberger. "The sectors tourism and leisure thus contribute greatly to Austria's wealth."

WKE Konzert & Eventveranstaltungen GmbH from Vienna does not only successfully run concerts at the Schönbrunn Palace. The company "regularly goes on tour and therefore increases the bond to Austria as a target market," Nocker-Schwarzenbacher adds. Euroscope Incoming & Events Touristik focuses on incoming tourism to Central and Eastern Europe from South Korea and has achieved a leading market position within a short time.

6) Beat the Street Jörg Philipp Touring Services GmbH has won first prize in the category "Transportation and Traffic". The highly successful transportation company deals with the transport of musical groups and their staff across Europe in specially designed tour busses.

Its customers include international superstars such as U2, The Rolling Stones, AC/DC, Coldplay, Robbie Williams, Lady Gaga and many others. The transport specialist for the music industry generates 98 percent of its turnover abroad and convinced the jury with the high quality and professionalism of its services.

Verag Spedition AG and Startk Services GmbH came in second and third place in the category "Transportation and Traffic".

Global Player Award and Expat Award

The Global Player Award is awarded for the successful internationalisation of a company. The 2018 winner is Fronius International GmbH, a globally operating specialist. "A passion for new technologies, intensive research and revolutionary solutions" have been shaping the Fronius brand since 1945. Back then, Günter Fronius was upset about the short life span of the car batteries that he sold in his electronics shop in Pettenbach, Upper Austria. He went on and developed and revolutionised battery charging technology.



Global Player Award for Fronius International GmbH



Export Award for Tourism and Leisure: Novomatic (CEO Harald Neumann)

The conversion and controlling of energy is still the core competence of Fronius International, which is among the world's leaders in three fields: Perfect Welding, Solar Energy and Perfect Charging. "We will continue to operate in the large area that is energy conversion," says Elisabeth Engelbrechtsmüller-Strauß. She is the granddaughter of the company's founder and since 2011 CEO of Fronius International GmbH. "One thing is particularly important to us: operate in a sustainable way. We are already doing this and this motivates our staff."

Being a family business has not hindered Fronius' international expansion. Quite to the contrary, Engelbrechtsmüller-Strauß is convinced: "I only see advantages here: As a family business we can operate in the long term and are not driven by shareholder values in any way. Fronius is owned by a family trust which serves as a bank to the company in times of crisis and thus gives us additional security."

But there is anything but a crisis going on at Fronius. The company employs more than 4,550 people, thereof 1,550 in 30 subsidiaries across four continents. In addition, there are sales partners and representations in more than 60 countries. The group's turnover in 2017 amounted to 647 million euros, whereof 91 percent were generated abroad.

Fronius is thus a true global player. And how do you manage to keep and expand such a leading position? One answer could be the 1,241 patents that Fronius currently holds. Engelbrechtsmüller-Strauß: "We do not only create new things in research and development. Our staff has always the opportunity to bring up innovations and to implement them." Fronius also comes up with innovations through a dialogue with clients and suppliers as well as the close cooperation with research facilities.

The decisive driver, however, is to constantly remain "hungry and curious", Engelbrechtsmüller-Strauß says. "You can't rest on your laurels, you have to be open for new things and have to see changes as opportunities." It is also important, to question oneself and past decisions, Engelbrechtsmüller-Strauß adds: "We put a lot of emphasis on team spirit. We can only stay at the top if everyone is moving in the same direction." And that is a well-known quality of family businesses.

The 2018 Exporters' Nite also saw the presentation of the Export Award, now in its tenth year. It goes to a person, for example a head of an Austrian subsidiary abroad, that has made a great contribution to the Austrian export economy. This year, Stefan Mugitsch, General Manager Libya at VAMED, won the award. He has been working in Libya since 2004 for the full solution provider in healthcare and oversees about 85 staff on location.

40 Born Global Champions from Austria

Another ceremony was hosted at Advantage Austria's Exporters' Nite 2018: The Born Global Champions Awards for young businesses: "With their fresh ideas, innovative products and the fact that they have focused heavily on international markets from the very beginning, represent some of the most impressive success stories in the domestic export industry", says WKÖ President Harald Mahrer. The awards go to companies that have stood out with their internationalisation successes. They are young businesses – founded in 2012 or later – which have been operating globally since the very beginning, who offer innovative products and services and who enjoy quick international growth.

In 2018, the category "Born Global Innovators" was added. It is for medium-sized and large companies that have cooperated successfully with the Born Global Champions and thus were able to introduce new business models. Since 2015, more than 160 young Austrian companies have received the Born Global Champions Award. ◆

Austria's best entrepreneurs 2018

Katharina List-Nagl from F/List has won in the category "Industry and Hightech" and will represent Austria at the Global Entrepreneur Award 2019 in Monte Carlo.

For the 13th time in Austria, the evaluation and consulting organisation EY held the ceremony for the EY Entrepreneur of the Year Award on 12 October 2018. About 600 guests from the areas of economy, culture and society followed the call to the splendid gala at the ceremonial hall of the Imperial Palace in Vienna.

EY Entrepreneur of the Year is one of the world's most renowned awards for entrepreneurs. The jury evaluates criteria such as growth, future potential, innovation, leadership and social responsibility. "Entrepreneurs are the drivers of social and economic progress," says Gunther Reimoser, Country Managing Partner at EY Austria. "Particularly in times of transformation, as we are experiencing now more than ever, they are of tremendous importance. Successful entrepreneurs seize the opportunities of change, develop their businesses with sound judgement and responsibility, drive innovation forward and constantly keep reinventing their own business model. These skills have always distinguished great entrepreneurs and will keep distinguishing them in future."

Five categories

In 2018, the renowned prize was awarded for the first time in five categories: In addition to the categories "Industry & Hightech", "Trade & Consumer Goods", "Services" and "Start-ups", EY honoured the "Social Entrepreneur of the Year" for the first time.

"We want to put the spotlight on the incredible social value of entrepreneurs with the Entrepreneur of the Year

Award," explains Erich Lehner, new Programme Partner of EY Entrepreneur of the Year in Austria. "This is a co-decisive criterium in all categories. We want to highlight the sustainable social commitment of entrepreneurs with the new category 'Social Entrepreneur' and give them the recognition they deserve."

Interior design for business jets and yachts

In the category "Industry & Hightech", EY awarded Katharina List-Nagl from F/List. She is leading the internationally renowned manufacturer of premium interior trims for business jets and yachts, a third-generation family business from Lower Austria.

Upon completing her business studies, she gained her first professional experience abroad at Hugo Boss Spain, among others. In 2004, she entered the family business where she occupied positions in all departments and contributed considerably to the company's strong growth. Since 2009, the mother of two is F/List's managing director.

The carpentry shop was originally founded in 1950 with five employees and has become an international business group that serves clients in 33 countries. Since Katharina List-Nagls entry in 2004, turnover has grown almost ten-fold.

The business group recorded as of lately a turnover of 60 million euros and employs 750 people all around the world. Katharina List-Nagl was also selected by the jury to represent Austria at the EY World Entrepreneur of the Year Award 2019.



The award is one of the world's most renowned ones for entrepreneurs.



EOY winners: Erich Lehner, EY Austria, Philipp Maderthaner, Walter Emberger, Katharina List-Nagl, Johannes Homa, Werner Trenker; top right: Kreisel Electric.

DIY for diabetics, behaviour-oriented databases

The category “Trade & Consumer Goods” was won by Werner Trenker from Burgenland-based Med Trust. Together with his wife Silvia he founded the company in 1997 in order to enter the market with a non-invasive measuring device for blood sugar levels. After two years of negotiations the efforts failed and Med Trust went on to sell third-party products. Eventually, the company developed the registered trademark Wellion. In 2015, Med Trust finally put the first blood sugar measuring device for animals on the market.

Today, Med Trust is one of the leading manufacturers and suppliers of products for diabetics; it makes 15 different measuring systems that are sold in 78 countries. The company generates 70 percent of its turnover abroad. Med Trust supplies thousands of care homes in Germany, Sweden, the Czech Republic and Austria; in Germany the company is part of care homes specifically designed for the needs of diabetics.

Philipp Maderthaner from Campaigning Bureau won the award in the category “Services”. He founded the company in 2012 as a single-person-business and turned it into a highly specialised company at the focal point of communication, technology and business consulting within five years. His long-standing experience in campaigning helped shape the development of his own methodical approach that is “Movement Campaigning”. It supports customers in activating, mobilising and involving target groups.



Picture: Peter Zanggerl

Entrepreneur of the Year Award: Winners & finalists

Category “Industry & Hightech”

- ▶ Winner: Katharina List-Nagl, F. List GmbH
- ▶ Finalist: Leopold Gallner, ekey biometric systems GmbH
- ▶ Finalists: Johann, Markus and Philipp Kreisel, Kreisel Electric GmbH & Co KG (pictured above)

Category “Trade & Consumer Goods”

- ▶ Winner: Werner Trenker, Med Trust Gruppe
- ▶ Finalist: Albert Schmidbauer, Biogena Naturprodukte GmbH & Co KG
- ▶ Finalist: Thomas Klein, Almdudler-Limonade A. & S. Klein GmbH & CO KG

Category “Services”

- ▶ Winner: Philipp Maderthaner, Campaigning Bureau Kampagnenberatungs GmbH
- ▶ Finalist: Michael Ehlmaier, EHL Immobilien GmbH
- ▶ Finalist: Josef Donhauser, DoN Group

Category “Start-ups”

- ▶ Winner: Johannes Homa, Lithoz GmbH
- ▶ Finalist: Lukas Pastl, surgebright GmbH
- ▶ Finalists: Richard Hirschhuber and Philipp Zimmermann, Greenstorm Mobility GmbH

Category “Social Entrepreneur”

- ▶ Winner: Walter Emberger, Teach For Austria gemeinnützige GmbH
- ▶ Finalist: Gregor Demblin, myAbility Social Enterprise GmbH
- ▶ Finalist: Ali Mahlodji, watchado GmbH

<https://www.ey.com>

At his market entry in 2012 he organised the international congress “Campaigning Summit” with experts from all over the world, which later turned into a hub of the European campaigning sector. In 2014, Philipp Maderthaner received the “Rising Star Award” of the US magazine Campaigns & Elections.

Campaigning Bureau developed its own software “Cam-buildr”, which serves as a behaviour-oriented database. The tool was used, among others, by the election campaign of Austrian Chancellor Sebastian Kurz. Maderthaner’s vision is to create a new ecosystem for businesses and organisations with a mission.

World market and innovation leader in 3D printing

Johannes Homas founded Lithoz in 2011 as a spin-off based on research results from the Vienna University of Technology. Lithoz specialises in the development and production of manufacturing systems for 3D-printed high-performance ceramics. Within only a few years, the academic research projects turned into a spin-off and eventually into the world market and innovation leader for 3D-printed high-performance ceramics for industrial and medical applications.

Lithoz employs 56 staff in Vienna and three more people at the subsidiary Lithoz America, founded in 2017. Almost 100 percent of turnover is generated beyond the borders of Austria and future growth is also projected to take place abroad.

In 2017, Lithoz recorded a turnover of 3.5 million euros and a growth of 50 percent is expected for 2018. In order to remain the world market leader in the field of additive manufacturing of high-



Founder Albert Schmidbauer and managing director Julia Ganglbauer of Biogena, finalist in the category “Trade & Consumer Goods”

performance ceramics, Lithoz is investing 20 to 30 percent of its resources into research and development.

Social Entrepreneur 2019

Since 2004, Walter Emberger has been dealing with the Austrian education system as part of his work as a business consultant. Later he became head of department and eventually vice dean at a private university. Back then, he took notice of the deficits the system had when confronted with children from less-educated families. After learning about Teach First UK in Great Britain, he started a private initiative in 2011

based on this model and founded Teach for Austria. Emberger withstood all resistance and concerns, and made his vision come true: increasing the opportunities for children from disadvantaged social backgrounds through specific offers.

Teach for Austria recruits university graduates for a two-year fellowship programme.

Fellows are characterised by their professional and social commitment and work as full-time teachers at Teach for Austria target schools.

After completing a summer academy, fellows enter schools with a high number of children from less-educated families for two years. Some of them actually stay on after this period and remain full-time teachers as a career while others become social entrepreneurs in the field of education, in science and both the private and public sector.

In the school year of 2017/18, 130 Teach for Austria fellows and alumni taught at secondary schools, cooperative secondary schools and polytechnical schools in 15 districts with more than 10,000 socio-economically disadvantaged children. ◆

“We want to highlight the sustainable social commitment of entrepreneurs with the new category ‘Social Entrepreneur’ and give them the recognition they deserve.”

Erich Lehner, Programme Partner of EY Entrepreneur of the Year

Acoustic LED technology

Frost & Sullivan distinguished Graz-based USound GmbH with the European Technology Innovation Award 2018.

The European Technology Innovation Award 2018 is based on an extensive analysis of the loudspeaker market for micro-electro-mechanical systems (MEMS). Current loudspeaker-systems still use the technology invented 140 years ago and patented by Werner von Siemens in the 19th century.

“We believed it was time to create something new”, said USound chairman Herbert Gartner at the award ceremony in London. USound’s break-through invention in short: Instead of the electrodynamic principle, USound’s products use piezoelectricity. This technology facilitates the development of loudspeakers that are five times smaller than conventional speakers with a size of only 6.7 x 4.7 x 1.6 millimetres, use 90 per cent less energy and provide 100 per cent better audio quality.

Piezoactuators

MEMS is the rising star of audio technology. With the growing application of speech recognition and artificial intelligence in audio systems, USound steps into a huge worldwide market for intelligent micro-speakers.



Herbert Gartner (Business Angel and Chairman USound) and Jan E. Kristiansen (Director, Frost & Sullivan)

“Unlike traditional electro-dynamic speakers that consist of a coil moving within a magnetic field, USound’s MEMS speaker consists of PZT actuators surrounded by a membrane and plate,” explains Gartner. Using multiple cantilevers, a translation action is created that pushes the air to generate sound. This design ensures faster actuation, with a reaction time of a few microseconds, thus resulting in clear sound.

Mass production has already started

After a thorough development and testing phase, the technology has just recently been introduced to the market. USound’s well-established supply chain enables the production of MEMS audio products in large quantities. Bulk orders from renowned OEMs have already been received by USound.

With Digi-Key, USound has acquired a prominent international distributing partner and platform. “Leveraging its audio expertise and portfolio of 130 patents, USound is building the best possible audio systems in the MEMS audio speaker industry, and accelerating their adoption in smart devices worldwide”, says Gartner. ◆

USound GmbH

The audio company was founded in 2014 by Ferruccio Bottoni (CEO), Andrea Rusconi Clerici (CTO) and Jörg Schönbacher (CFO) and already employs 60 people at sites in Graz and Vienna. USound develops advanced MEMS speakers and audio systems for in-ear and over-the-ear headphones as well as wearables. The USound technology is used in the entertainment industry, virtual reality, mobile phones and car infotainment systems. The technology’s advantages are the small size, the durability compared to regular speaker systems as well as a clear and natural sound.

<https://www.usound.com>

Top science country sees a record in patent applications

Austria is in sixth place in the EU and eleventh in the world when it comes to new patents. And Austrian innovations have reached the major market that is China.

At the end of September, the magazine *Nature* recognised Austria as an up-and-coming science country along with Brazil, China, Iran, the Czech Republic and Norway. Measured by the articles in 82 specialist publications, these countries saw the highest growth since 2015.

The index developed by *Nature* is based on articles by scientists in selected major natural science publications. It totals the number of articles quoted by authors and puts them into relation with the number of articles. Therefore, the number of articles is not necessarily important but rather how often they are quoted.

“This is a highly satisfying finding,” says Minister for Education, Heinz Faßmann. “This index analysis by *Nature* confirms independently that Austria is developing particularly well as a science location and that its scientific productivity is increasing in quality.”

Record number of patent applications

Austria has good news when it comes to patent applications. “We are sixth among the EU countries and eleventh in the world with 12,000 new patents per year,” says Minister for Technology, Norbert Hofer. “Traditionally, our companies had their sights on mainly Germany, the United States, France, Great Britain and Italy. This is where they exported to and where they registered their patents.” The number of patent applications from Austria has risen by 260 percent since 2006.

“Copies and counterfeits are a major business,” he adds. “Worldwide, they generate 590 billion euros per year. No Austrian invention should take damage from this though, as we invested more than 12 billion euros into research and development in 2018 – publicly and privately. These investments should not go up in smoke, we must protect them well.

“12,000 patents and almost 9,000 brands globally from Austria are impressive figures,” confirms President of the Austrian Patent

Office, Maria Karepova. Inventions take place everywhere in Austria, which was not always the case. “If we look 30 years back, you will see that Vienna was the capital of inventions. Since then, patents are more evenly distributed across the entire country,” she explains.

“Upper Austria comes first in the province’s patent ranking. But the chance to meet an inventor is highest in Vorarlberg. Measured by the number of inhabitants there is nowhere else with more patents.”

First place for Upper Austria

Upper Austrian businesses registered 610 patents and utility models at the Patent Office. This makes the province the clear leader ahead



AVL is number one by a margin when it comes to new patents.



Thomas Schiefermair (founder of Qbot GmbH), Mariana Karepova (President of the Patent Office), Minister of Technology Norbert Hofer and Robert Fischer (Managing Director of AVL List)

of second-placed Styria with 450 patents by comparison. This leading position is a confirmation of the Upper Austrian research environment with its main partners the businesses, the universities and the research facilities, and also serves as evidence for the innovation-friendly climate in the province: The connection of research and businesses is a significant factor and the quick implementation of research results in the form of marketable products, services and technologies creates a competitive edge over other regions.

The LIT pilot factory at the Johannes Kepler University Linz, which broke ground in summer 2018, is one such tight connection between research and businesses. Starting in 2019, research facilities and companies will develop new production technologies together and also test them in optimum conditions.

Among Austrian companies, AVL List is number one with 155 patent applications, followed by Tridonic (84) and Julius Blum (81).

The Austrian Lotteries registered the most brands (30) ahead of supermarket chain Hofer (Aldi) with 24. AVL List Managing Director Robert Fischer explains: "In our company almost everyone is fulfilling research and development tasks".

"Our staff can bring forward their ideas and if we like them, they can start to work on them. If we can protect an innovation with a patent, that person will receive a bonus. Protecting ideas with a

Competence centre for patents

Since 1899, the Austrian Patent Office has a scientifically curated specialist library with millions of patent documents from 39 countries and five international organisations, monographies and specialist publications. You can search for all Austrian brands (since 1859), international brands (since 1893) and European Union brands (since 1997). Since 1979, the Austrian Patent Office is a member of the Patent Cooperation Treaty (PCT) and therefore one of the world's leading centres for the protection of intellectual property.

► 1200 Vienna, Dresdner Straße 87, Tel.: +43 (0) 1 534 24-340
<http://www.patentamt.at>

ZAHLEN ZU ERFINDUNGEN

1. ANGEMELDETE ERFINDUNGEN IN ÖSTERREICH

So viele Ideen wollen ein Patent oder Gebrauchsmuster werden. Unsere PrüferInnen schauen sich jedes einzelne ganz genau an.

2.900

2. BUNDESLÄNDERRANKING

ÖÖ holt Gold.
Steiermark Silber.
Vorarlberg führt bei Erfindungen pro Einwohner.



3. TOP 3 BRANCHEN

In diesen Bereichen rühten die ÖsterreicherInnen besonders gerne an neuen Ideen.

| Technischer Sektor | Anzahl | Prozent |
|--------------------------------|--------|---------|
| Maschinenbau (inkl. Transport) | 995 | 38 % |
| Sonstige Technologiefelder | 603 | 23 % |
| Elektrotechnik | 436 | 17 % |

4. ERTEILTE PATENTE UND GEBRAUCHSMUSTER

Diese Erfindungsanmeldungen konnten der strengen Prüfung unserer PatentprüferInnen standhalten.

1.450

5. AUFRECHTE PATENTE UND GEBRAUCHSMUSTER

So viele Erfindungen sind derzeit in Österreich durch ein nationales Patent oder ein Gebrauchsmuster geschützt:

149.781

6. SO SEHEN SIEGER AUS

TOP 10

| Platz | Name | Anzahl |
|-------|--|--------|
| 1 | AVL LIST GMBH | 155 |
| 2 | TRIDONIC GMBH & CO KG | 84 |
| 3 | JULIUS BLUM GMBH | 81 |
| 4 | ZKW GROUP GMBH | 69 |
| 5 | ZUMTOBEL LIGHTING GMBH | 38 |
| 6 | TRUMPF MASCHINEN AUSTRIA GMBH & CO. KG | 29 |
| | ENGEL AUSTRIA GMBH | 29 |
| 7 | PLASSER & THEURER, EXPORT VON BAHNBAUMASCHINEN, GMBH | 27 |
| 8 | TECHNISCHE UNIVERSITÄT WIEN | 26 |
| 9 | FILL GESELLSCHAFT M.B.H. | 25 |
| 10 | SIEMENS AG ÖSTERREICH | 24 |



7. TOP-REISEZIELE ÖSTERREICHISCHER PATENTE

Österreichs Patente ganz international: Wohin die Reise geht.



Platz 4: CN → hat die höchste Wachstumsrate

ZAHLEN ZU DESIGNS IN ÖSTERREICH

1. ANGEMELDETE DESIGNS **781**
2. REGISTRIERTE DESIGNS **779**
3. WIRKSAME DESIGNS **104.794**

3.393 Erfindungen

10.277

Österreichische Innovationen gingen durch unsere Hände.

6.093 Marken

791 Designs

ZAHLEN ZU MARKEN IN ÖSTERREICH

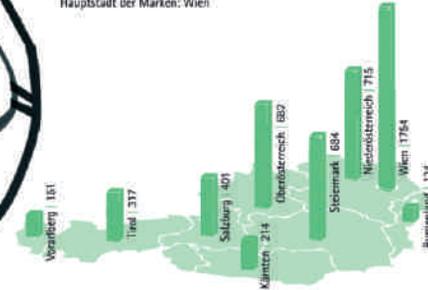
1. ANGEMELDETE MARKEN

Auch dieses Jahr ein Must-have: ein Logo in Österreich

5.541

2. BUNDESLÄNDERRANKING

Hauptstadt der Marken: Wien



3. TOP 5 ANMELDER

Manchmal braucht es mehr als nur eine Marke

TOP 5

| Platz | Name | Anzahl |
|-------|---|--------|
| 1 | ÖSTERREICHISCHE LOTTERIEN GMBH | 30 |
| 2 | HOFER KOMMANDITGESELLSCHAFT | 24 |
| | GENERICON PHARMA GMBH | 19 |
| 3 | VIENNA INSURANCE GROUP AG WIENER VERSICHERUNG GRUPPE | 19 |
| | ÖKO PHARM GMBH | 19 |
| 4 | RED BULL GMBH | 18 |
| 5 | NOVARTIS AG | 16 |

4. REGISTRIERTE MARKEN

4.513

5. WIRKSAME MARKEN

1,7 Mio

SERVICES

Patent Check — **220** discover.ip — **121**
Pre Check — **105** Standardrecherche — **72**

1. ALBERT PATENT BOT

Unser erster digitaler Kollege ist gefragt.

2.978 Beratungsgespräche:

Mehr als **12.000** Fragen beantwortet

Facebook-Bewertung: ★★★★★



2. RECHERCHEN

Weltweite Neuheit erfordert genaues Hinschauen



6.198.073 Seiten wurden durchsucht

3. KUNDENKONTAKTE

Das Interesse ist groß!

45.413

4. ONLINE- VS PAPIER-ANMELDUNGEN



Gesamt **61%**

Gesamt **39%**



5. MITARBEITER/INNEN

Qualifikation im Dienste Ihrer Innovation

Insgesamt **296** Mitarbeiter/Innen

| Bereich | % - Anzahl | |
|---------------|------------|--------|
| | Frauen | Männer |
| Insgesamt | 50 % | 50 % |
| Leitungsebene | 33 % | 67 % |
| Jurist/innen | 55 % | 45 % |
| Technik/innen | 26 % | 74 % |
| Backoffice | 63 % | 37 % |



17% Dr./PhD

43% Akademiker/Innen

patent is of significant importance in order to prevent others from copying it," he says.

Graz-based start-up Qbot is particularly proud of its achievement: "We have been working for three year on our invention alongside our studies," remembers Thomas Schiefermair, who developed a desktop CNC moulding machine with two other founders. It is the counterpart to a 3D printer: A 3D printer creates materials by putting one layer over the other; a moulding machine removes material until your desired object remains. "We consider this patent also a recognition of our work," Schiefermair says proudly.

Austria's best patents

The Austrian State Prize for Patents is the country's highest award for inventions and brands, and was awarded in November 2018 – long after this book's publication – at the Viennese Sofiensäle. For the first time, an Austrian inventor's overall work was recognised with a lifetime achievement award. The jury consists of people who have "made it" themselves, who head universities or large technology companies, who deal philosophically and scientifically with innovation and art and who help start-ups making their first steps: Dean of the Vienna University of Technology Sabine Seidler, KTM boss Stefan Pierer, business angel Michael Altrichter, Vice Dean Andrea B. Braidt, Ja! Natürlich Managing Director Martina Hörmer, expert for innovation in aviation at the Ministry for Transport, Innovation and Technology Ingrid Kernstock, Almdudler boss Thomas Klein, IP expert Guido Kucsko, IBM boss Patricia Neumann, professor for philosophy Stefan Lorenz Sorgner and Boreal Vice President Maurits van Tol.

In 2017, an artificial cloud that puts environment-friendly artificial snow on ski pistes won the Prize. A special infrared semiconductor laser for usage in communication technology also won an award and the lovely and timeless logo of a Viennese furniture company came first in the category Brand of the Year.

These four inventions made it to the State Price Finals 2018:

1) A smart tunnel element that warns of dangers

The intelligent material of the Tübbing element, submitted by the University of Technology Graz and the University of Leoben, allows for maintenance work before damages occur. The invention, which



President of the Patent Office Mariana Karepova and software developer Barbara Ondrisek with the digital brand advisor Albert

is already in use in the Koralmtunnel, facilitates a more efficient construction and higher safety during the operation of tunnels. Cracks can be discovered in time before the use of the tunnel is affected.

"Austria does not need to shy away from international comparison when it comes to creativity."

Norbert Hofer, Minister for Transport, Innovation and Technology

2) Reading your smartphone and mobile devices despite blindness or high levels of visual impairment

The Braille Ring, developed at the Vienna University of Technology, offers help to visually impaired or blind users of smartphones and mobile devices.

It allows reading in Braille for all those devices that have become a part of everyday life. Affected people no longer need to make compromises when it comes to the quality of reading.

3) Indicating the age of road surfaces and whether they need replacing

The Vienna University of Technology submitted another project that was nominated by the jury: A fluorescence scanner. The meter is based on a simple physical principle but provides help with complicated chemical processes. It offers valuable information whether an old road surface can be recycled or not. The scanner offers more reliable data than current methods at a lower cost.

4) *Watering plants from below and saving water*

The company Lite-Soil developed a water-efficient subterranean watering system that adapts to any architecture. Due to its open and flexible shape like a net the roots of plants can grow right through it. Therefore, 100 percent of the water stored in the net is available to the plants.

Austria's best brands

1) *Upcessories* is a clever neologism that made it to the final. The brand name is used for pieces of jewellery made by Christina Hornbacher from recycled newspapers and is a combination of the words 'upcycling' and 'accessories'.

2) *Libertydothome* is a word mark and logo for micro home living concepts that offers homeless people a few square metres of privacy. The brand by Markus Hörmanseder and Philipp Hüttl stands for the product's functionality and the idea, that a home can also mean freedom.

3) *Artivive* offers apps that are a platform for augmented reality. The word mark and logo by the same name of the young company combines technology and art in a creative way. In addition to the app's abilities, the brand name also communicates with the beholder in a vivid way.

"Patent Highway" to China

Since April 2018, Austrian companies that want to enter the Chinese market enjoy a better protection for their inventions. "Many companies refrain from protecting their inventions in China due to the long procedure of doing so," says Minister Norbert Hofer. Thanks to a new patent agreement, such companies will receive their patents quicker and will be able to gain a foothold on the Chinese market. "Our exports to China are flourishing – the annual



Borealis works on innovative technologies, e.g. with base chemicals and polyolefins.



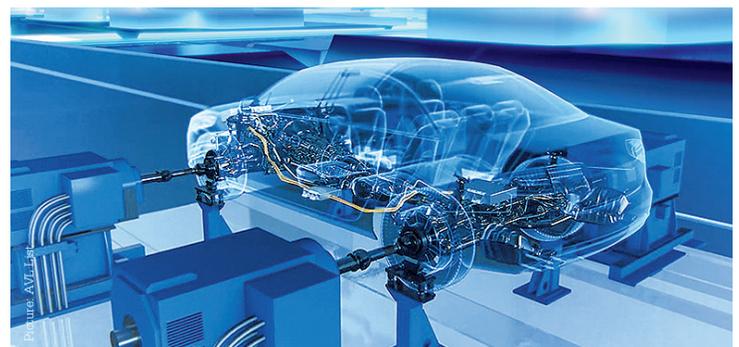
The exoskeleton that makes paralysed people walk again

value of goods amounts to an impressive 4.5 billion euros per year," President of the Patent Office, Maria Karepova, adds.

"Many of these goods are technologically innovative products that are being protected with patents on the Chinese market. I am happy that our Chinese partners are continuing to put their trust in us and give our patent applications priority."

China is the third largest market for Austrian patents. More than ten percent of all customers at the Austrian Patent Office that protect their exports internationally also register their patents in China. But there they wait on average 4.5 years for their patent. Thanks to the Patent Highway they can gain their Chinese patent more directly and much quicker. "The Chinese Patent Office takes the test results of the Austrian Patent Office as the basis for its own tests and thus shortens the path to a Chinese patent significantly," Karepova explains. "If we say that an innovation is patentable then this decision has a lot of gravitas internationally."

The Patent Highway allows patent offices to exchange their results in terms of a submitted innovation's patentability. A patent office can then accelerate registration without being bound to the previous patent office's results. This increases the quality of testing and makes the application process more efficient at the same time.



AVL List is at the top when it comes to using new technologies.

Ever increasing culinary exports

Austria's agricultural, food and beverage exports went up by five percent in the first half of 2018.

Austrian agricultural exports increased by 4.8 percent to 5.78 billion euros compared to the same period in the previous year; the subsector of foods and beverage products rose by 6.3 percent to 3.487 billion euros.

The most important target countries for Austria's agricultural exports are Germany, Italy and the United States. The first six months of 2018 saw agricultural goods worth 2.01 billion euros delivered to Germany, an increase of 6 percent compared to the first half of 2017. 609 million euros of agricultural exports went to Italy and the United States saw an increase of 5.6 percent to 472 million euros despite various trade difficulties. Great Britain received agricultural products worth 109 million euros in the first half of 2018, an increase of 19.2 percent compared to the same period in the previous year.

Export successes around the globe

Michael Blass, Managing Director of AMA Marketing, underlines the strength of a sector that exports Austrian products to 180 countries: "The sector is highly competitive and highly innovative, and comes out on top in the international markets."

Hidden Champions in the food sector

Many businesses in the food and beverage sector can be counted among Austria's "Hidden Champions" for their export achievements. Since joining the EU, Austria was able to increase its total agricultural and food exports by more than 500 percent; exports of products from the food industry even went up by almost 600 percent (from 959 million euros to 6.7 billion euros). This achievement is remarkable as Austria's entire industry increased its overall exports by "only" 237 percent in the same period.

<http://www.ama.gv.at>



Franz Ernstbrunner (ADVANTAGE AUSTRIA), Katharina Kobdorff (Federation of Food Industries), Michael Blass (AMA Marketing)

The most important product groups of the Austrian food and beverage export are soft drinks, energy drinks and ice teas worth 1.072 billion euros with an increase of 8.2 percent compared to the same period in the previous year. A large part thereof comes down to energy drink producer Red Bull. There is a large gap to the next product groups in terms of export turnover: Animal food with 298 million euros, cheese and quark with 290 million euros and fine baked goods with 280 million euros.

More power for more export

The sector is looking for additional support from the Austrian federal government. Representatives of the food and beverage industry hope that much effort will be focused on the export business and the export trade organisation of the Austria Economic Chamber (WKÖ). They also support free trade agreements with Japan and Canada.

Important international trade fairs in the food and beverage sector with Austrian participants are, among others, SIAL in Paris, BIOFACH in Nuremberg, Gulfood in Dubai and Vinexpo in Hongkong. ◆

Gene expression dynamics and swimming solar panels

The renowned Houska Prize awards particularly innovative research projects from Austria.

On 26 April 2018, Austria's best research projects were honoured at a gala with the Houska Prize of B&C Privatstiftung foundation.

In the category "Academic Research", Stefan Amers from the Austrian Academy of Sciences (ÖAW) emerged victorious from five nominated entries and received the main prize worth 150.000 euros. His research team at the Institute for Molecular Biology (IMBA) developed a high-penetration measurement of gene expression patterns called SLAMseq for the decoding of human DNA. This method determines deviations in gene expression patterns that can cause serious illnesses such as cancer. The patented sequencing method has tremendous potential both for basic research as well as for the pharmaceutical industry in terms of mechanisms in the active agents of medication.

SLAMseq has become market-ready with the help of biotech company Lexogen GmbH and is sold as a sequencer kit since the end of 2017. The new method to look at processes in cells allows SLAMseq to drive basic research forward. Thanks to a better insight into the origin of illnesses, the pharmaceutical industry can develop new medication and therapies.

SolarSea, the first maritime solar panels

Three projects had been nominated for the Houska Prize in the category "Research and Development in SMEs". Viennese Swimsol GmbH left the other nominees behind and won the main prize of 150.000 euros.

Martin Putschek and his team developed the world's first maritime, swimming solar panel system SolarSea at the Institute for Production Technology and High-Performance Laser Technology at the Vienna University of Technology. On tropical islands, electricity is generated almost exclusively with diesel generators, which is expensive and harms the environment. At the same time, tropical islands have a high level of sunlight though the space for solar

panels is limited. With the sufficient number of platforms and a battery system, swimming solar panels can replace these diesel generators.

The dependence of islands on fossil fuels is reduced greatly while the positive effect on the climate is tremendous. "The sustainable treatment of our environment is a special commitment of mine," says Putschek. "As our next step we would like to realise further projects through crowdfunding."

Winners of the Houska Prize are getting their own platform

Since the introduction of the Houska Prize in 2005, more than 430 research projects have been submitted and about 3.8 million euros in prize monies was awarded. In order to strengthen the cooperation between science and economy outside the annual gala, the organiser came up with the "Houskapreisträger" platform. All sci-



A team from IMBA/ÖAW won in the category "Academic Research": Michael Krebs (IMBA), Alexander Seitz (Lexogen), Stefan Amers (IMBA), Wolfgang Hofer (B&C), Brian Reichholf, Veronika Herzog, Nina Fasching (all IMBA)



Photos: B&C/APA-Fotosevice/Hommandinger (2)

Swimsol won in the category "Research & Development in SMEs": Claus Raidl (jury), Wolfgang Hofer (B&C), Ian Dmachowski, Sandra Kriechhammer, Martin Putschek, Kristen Dlugosch, Daniel Reinhardt und Wolfgang Sulm (all Swimsol), Erich Hampel (B&C)

entists and heads of projects that have won a Houska Prize in the past and today are now part of an exclusive group of Austrian high-end scientists.

"Austria can only remain competitive and keep its high standard of life through constant technological advancements," says Erich Hampel, CEO of B&C Privatstiftung. "I congratulate both winners of this year's Houska Prize from the bottom of my heart. Their projects are exemplary for high-end research, they are forward-thinking and we would like to put them in the spotlight."

Audience award for the Vienna University for Life Sciences and Qualizyme Diagnostics

Evaluating the submitted projects and choosing a winner is done in two stages by two high-level expert panels and an internationally recognised expert jury. None of the eight nominated project teams went home empty-handed that night, as the remaining nominees received 10,000 euros each for their research.

The Houska Prize Award was designed by Upper Austrian artist Michaela Schupfer. She was inspired by actress and inventor Hedy Lamarr (1914-2000).



The fourth million will come soon

Austria as a business location needs innovative and forward-thinking research in order to stay competitive. Since 2005, the Houska Prize of B&C Privatstiftung aims to improve research conditions and high-end research in Austria. So far, 3.4 million euros in prize monies was awarded.

www.houskapreis.at

In the land of (almost) unlimited opportunities

Austria's businesses are still doing excellently in the United States – and there is much potential in America's West.

The US economy is firing on all cylinders and will see a growth of almost three percent in 2018. With an unemployment rate of 3.5 percent, the country basically enjoys full employment. The USMCA treaty (formerly NAFTA), signed in autumn 2018, forces Europeans and Asians to make more investments in Northern America, particularly the United States, due to stricter rules of origin.

California, the Western-most federal state, alone has the world's fifth largest economy and even surpassed France and the United Kingdom; in the past twelve months it saw an above-average growth. Just like the federal states Colorado, Washington, Arizona and Texas, which are all located in the West.

Particularly when it comes to the issues of immigration, climate change and free trade, the Californian Governor Jerry Brown follows a policy directly contrary to the US federal policy of President Donald Trump. Brown is the longest serving governor with 16 years in office.

Every prognosis believes in a continuation of the successful Californian business policy after the Midterm Elections. As the lack in skilled workers will increase due to the economic boom, California is talking about a balanced and transparent immigration policy instead of a wall. Particularly the high-tech industry in Silicon Valley depends on highly qualified Asians; small and medium-sized enterprises in the trade and commercial sector are often operated by the large Latin American community.

The US economy thrives, the West booms

At the Climate Summit in San Francisco, the Californian government reinforced its commitment to the targets of the Paris Climate Agreement and to 100 percent renewable energies by 2045. Free trade is regarded as particularly important in the West of the United States as about one third of US foreign trade is done at the ports of Los Angeles and Long Beach. Logically, a high number of jobs depend on this and the significance of the trans-pacific growth area is obvious. A fly in the ointment is the steep rise in housing costs, particularly in the Bay Area of San Francisco, which causes a shift of business activities, from start-ups to venture capital, to Greater Los Angeles, to Seattle (Washington), Denver (Colorado) and Austin (Texas).

"Austrian companies can benefit in particular from the hype in the fields of machinery and toolmaking, environment technologies and renewable energies, mobility, logistics and infrastructure software and IT, as well as across the entire range of the creative industry such as sports and entertainment, music, multimedia and industrial design," says Austria's Trade Commissioner in Los Angeles, Walter Koren.

The Western USA is also a paradise for innovations. "Autonomous driving, smart everything, sharing economy, artificial intelligence and design thinking are constant factors in the powerhouse that is California," Koren adds.



"Business Oscar Innovation 2018" for AT&S (Walter Koren far left)



Austrian companies are still doing excellently on the challenging US market with exports worth 5.9 billion euros in the first seven months of 2018. Compared to imports of 3.9 billion euros over the same period, it is possible to smash the barrier that is 10 billion euros in exports for the first time and also achieve the largest bilateral export surplus worldwide. But there is still potential, especially in the West of the United States. "We would like to see even more Austrian trekkers at the new gold rush in the Western USA," Koren says.

Innovative AT&S won the Business Oscar 2018

The USA-BIZ Award, the so-called "Business Oscar" of the Austrian Trade Commission in Los Angeles of the Austrian Economic Chamber (WKO), highlights outstanding achievements of Austrian companies on the US market. This year's winner in the category "Innovation" is the Styrian high-tech company AT&S. The products of AT&S – high-end printed circuit boards and IC substrates – play a key role in the most innovative communication applications in the electronics industry, including the Internet of Things, artificial intelligence and autonomous driving.

It is especially the close cooperation with the US innovation scene that enables AT&S to take up a leading position in the core

segments Automotive, Industrial, Mobile Devices, and increasingly also in the Medical segment.

To apply for the USA-BIZ Award 2019, companies need to only send an informal email in German to LosAngeles@advantageaustria.org, presenting their outstanding achievements on the US market in 2018. The deadline is 31 December 2018 at midnight. ◆

Outstanding Austrian achievements in the US

The USA-BIZ AWARD puts the media spotlight on outstanding achievements of Austrian companies in the highly competitive US market. It was awarded in 2018 in the following categories: Startup, Market Footprint, Trendsetter, Investment, Innovation and Spectacular.

In addition to AT&S, this year's winners were ESS Engineering Software Steyr GmbH, HIRSCH Maschinenbau GmbH, Binder+Co AG, AGRU Kunststofftechnik GmbH and Doka Ventures GmbH.

<http://www.wko.at/aussenwirtschaft/us>

From Berndorf, Lower Austria, straight to planet Mercury

Ruag Space built the thermal protection for the research satellite BepiColombo at the factory in Triestingtal.

In mid-October, BepiColombo launched from the spaceport Kourou in French Guiana onboard an Ariane rocket to explore Mercury, the smallest and very little-known planet in the solar system, in seven years. BepiColombo is a joint project of the European Space Agency (ESA) and Japanese Aerospace Exploration Agency (JAXA). High technology from Lower Austria is part of it.

The thermal protection, which encases BepiColombo, has to deal with the tremendous heat during the approach to the planet closest to the sun. The temperature on Mercury's surface is 450 degrees Celsius and still 350 degrees in its orbit.

"It is as hot as in a pizza oven there," says Spacecraft Operations Manager, Elsa Montagnon. Therefore, Ruag Space GmbH has developed a special ceramics coating that is 35 layers thicker than all previously existing thermal foils for satellites.

The colour is different too

While probes on their way to the outer planets such as Mars, Jupiter or Saturn are protected against the icy coldness in space with black foil, BepiColombo will be white on its trip to Mercury in order to reflect as much heat as possible. "The thermal insulation is defined and selected individually for each spacecraft," explains Max Kowatsch, Managing Director at Ruag.

During the Mercury mission, the hostile temperature is not the only great challenge; the calculation of the best flying path has also demanded clever solutions from the scientists. A direct course, which would be fast, will not reach the orbit of the innermost planet as BepiColombo travels deep into the gravitational field of the sun. "You can get there quite easily but it is much more difficult to stop the probe," says ESA Research Councillor Mark McCaughrean. Before the research satellite enters Mercury's orbit at the end of the year 2025, it has to pass Earth once, Venus twice and six times Mercury itself in order to get to the right speed.

Ruag Space has a production site at the Berndorf industrial area for thermal insulation for satellites. Clients such as the European Space Agency ESA deliver three dimensional models of their probes which will then be wrapped in thermal insulation by the Ruag researchers for tests.

Expansion in Berndorf

Austria's largest space corporation is currently expanding its production at the Business and Industry Park of Berndorf AG. (The companies of the Berndorf Group all have a focus on the high-tech segment of metalworks).

In addition to the existing production building, where the thermal insulation for satellites is made, a second production hall is being built. Upon its completion, Ruag Space will rent it. Completion is planned for spring 2019, the project is led by architects Reithofer-Feuchtenhofer ZT-GmbH.



The Mercury probe BepiColombo was launched into space in October 2018.



Thermal insulation from Austria protects the wind satellite Aeolus from the extreme temperatures in space.

Currently, there are about 20 staff working at the Berndorf site. “The new production hall will add up to ten more industrial jobs,” Max Kowatsch says. Erhard Prechelmacher, Head of Thermal & Mechanical, adds: “We are constantly looking for new qualified specialists and workers at our ever-growing location in Berndorf.” The 650 sqm big production hall will be built by Berndorf Immobilien AG, a subsidiary of Berndorf AG.

Chief Technical Officer of Berndorf AG is Franz Viehböck, Austria's first and only cosmonaut. “As a former cosmonaut I am particularly happy that Ruag Space expands its space research activities at the site of Berndorf AG.”



Groundbreaking ceremony with former cosmonaut Franz Viehböck, CTO of Berndorf AG, Max Kowatsch and Erhard Prechelmacher from Ruag Space Austria

European market leader in thermal insulation for satellites

When it comes to thermal insulation, Ruag Space Austria is the European market leader. Almost every European satellite is protected from extreme cold and heat with thermal insulation from Lower Austria. “Berndorf is the European competence centre for heat and cold protection for satellites,” says Prechelmacher. In addition, the site at Berndorf also manufactures thermal insulation in medical technology, e.g. for magnetic resonance tomographs. ◆

Ruag Space with its 250 staff is Austria's largest space technology corporation.

The high-tech company provides satellites all around the world with electronics, mechanics and thermal insulation. It has an export ratio of almost 100 percent.

<http://www.ruag.com/space>

Export diversification as a factor of success

Foreign trade represents the driving force behind the Austrian economy. “By encouraging exports to new and high-risk markets we are also strengthening Austria as a business location at the same time“, says OeKB CEO, Helmut Bernkopf, in his exclusive interview with Paul Christian Jezek. “When it comes to this, our products provide important momentum“.

Oesterreichische Kontrollbank Group's export services provide support for Austrian exporters with their businesses and investments abroad. Providing financing and protecting against risks (also on stable markets) is what it does. This is also the case with the Republic of Austria's mandate, for which OeKB issues export guarantees and liabilities

for the Austrian economy. They do this with great success: They have taken over 5.4 billion euros of new liabilities for hedging transactions for Austrian exporters abroad, compared to 3.6 billion in the previous year. Moreover, in the previous financial year, the financing volume has also increased once more compared to the year before.



OeKB Group has been a reliable partner for exporters for 70 years, as well as for small and medium-sized companies and large corporations.

OeKB CEO Helmut Bernkopf

Helmut Bernkopf was born in 1967 in Vienna. After leaving school, he studied Commercial Sciences at the Vienna University of Economics and Business. He went back again to his alma mater to complete post graduate studies in Management as part of the General Management Programme. At the start of the 1990s, he started his career in the corporate finance industry at Bank Austria. After having been posted in London, Bucharest and Moscow, he took up a position as CEO at Uni-Credit Bank Austria. In this capacity he managed the global private banking agendas at the company headquarters in Milan. He subsequently managed the bank's private and corporate banking division in Vienna. In 2016, Helmut Bernkopf switched to Oesterreichischen Kontrollbank AG, where in his capacity as CEO, he was responsible for the Export Services division, among others.



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Mr. Bernkopf, what does diversification mean for OeKB when it comes to export trade?

When applied to companies, this means that they gain greater flexibility thanks to the diversification of their markets. The distribution of risk across countries helps guarantee the existence and growth of one's own company in the long term and in this way to strengthen the entire Austrian economy. It is a good motto to specialise products and diversify with a focus on the country.

Austria is consistently attaining new export records. Is there any significant potential at all when it comes to this?

Absolutely! Just one look at our export statistics shows that the degree of diversification of export markets leaves a lot of room for development. Our exports are mostly based in Europe: for example last year, 70 percent of exports went to EU countries, 30 percent alone to Germany.

“There is still room for improvement when it comes to the level of diversification on the export markets.”

Helmut Bernkopf

Growth regions like the ASEAN countries in south east Asia or in Africa are, however, only weakly represented and the proportion of Austrian exports to ASEAN countries was recently just 1.4 percent and 1.2 percent to Africa. So there's still a lot of room for improvement!

Are there any other reasons for more diversification?

Last year, more than half of our exports went to Germany, the US, Italy and Switzerland. Greater diversification of exports would minimise the export dependency on these markets

and significantly increase resilience in the face of unfavourable market trends and crises.

Diversification of export markets yields even more benefits for companies: along with making use of the improved demand dynamics in emerging countries, the dependence on existing markets is reduced. By selling to countries with different political and economic risk profiles, it is possible to spread out the risk. Furthermore,

growing production based on country diversification leads to economies of scale and therefore a decrease in costs. High costs for research and new developments can be more swiftly recouped thanks to additional sales abroad.

How does OeKB provide support for Austrian companies?

We promote greater diversification of our export trade, because we generally provide support for exports on new and high-risk markets. OeKB helps companies to give up a part of the risk involved in the export business via federal export guarantees, which we oversee on behalf of the Federal Ministry of Finance. Additionally, we make low-interest financing available.

Do you also offer support to small and medium-sized companies, which are after all the backbone of the Austrian economy?

At the end of July, OeKB fully integrated what was up until now a 100 percent subsidiary company, Exportfonds. In this way, we can also apply our tried and tested concept of one-face-to-the-customer approach to small and medium-sized companies. With roughly 2,000 customers, Exportfonds- and now also OeKB- has managed to play a significant role in export financing for Austrian small and medium-sized companies.

We managed to reduce the price of Exportfonds loans thanks to the changeover of Exportfonds loans to the conditions applied within the OeKB refinancing framework and with the support of the Federal Ministry of Finance. This merger represents an immediate advantage to our customers, as the changeover of conditions makes Exportfonds loans even less expensive.

Are there also brand new products in your portfolio?

Since June, we also offer financing for Austrian exporter leasing businesses. In this way, the product Exportinvest, which was started in the previous year for new or replacement investments in Austria, will be expanded to businesses financed by leasings.

Our export companies can therefore also benefit from the OeKB's favourable refinancing funds – which used to be exclusively reserved for investments abroad – for projects in Austria, which guarantee their own export activity or which develop and generate high added value.

Is there a demand within the leasing business?

For many companies, the advantages of leasing financing outweighs those of a classic bank loan. For this type of financing, it is even more important that the same range of products remains open. The demand for new production equipment, warehouses and

means of transport is rapid – by financing these investments, a growth stimulus is created, which could be sustainable.

What role do export quotas play when it comes to financing options?

Many Austrian companies have high export rations particularly in the technology sector – with Exportin-

vest, companies with an export ratio of more than 90 percent can cover the full costs of an investment.

If the percentage of goods transported abroad is lower, then financing at the amount of a rounded export quota is possible – at 54 percent, e.g. 50 percent of the actual investment amount. ♦

“Last year’s rise in export guarantees by 16 percent show that companies want to safeguard their export business and its corresponding potential.”

Helmut Bernkopf

Oesterreichische Kontrollbank AG

OeKB is Austria's central financial and information service provider for export trade and the capital market. Its special services strengthen Austria as a business location and support the economy when it comes to global competition. Its diverse services are available to businesses and financial institutions and organisations of the Republic of Austria.

Benefits for Austrian exporters:

- ▶ Lower priced framework loans for export orders
- ▶ Guarantees against payment defaults by foreign customers
- ▶ Favourable and long-term financing for customers
- ▶ Guarantees against nationalisation, confiscation or restrictions of transference of profits from production on foreign markets
- ▶ Attractive financing for investments in foreign companies
- ▶ Financing of new or replacement investments in Austria in order to fulfil the export activity

Energy.2050: Austria is prepared for the energy revolution

A steady push for smart innovations and effective implementation concepts on a regional level are needed.

Which are the most important trends for Energy.2050 and what do we have to do to achieve the energy revolution?

This was the meta question at the Future Talk Energy.2050 of the Austrian Roadmap 2050. Minister for Energy Elisabeth Köstinger spoke with national and international experts about visions for the energy and climate sector at the world's first Plus Energy skyscraper, the Viennese TUtheSky.

A change in energy sources has to be supported and driven by everybody – from private households to large industrial corporations. “To me, bio-economy is an essential topic for the future,” said Minister Köstinger. “We want to put a clear focus on that. I see tremendous potential on the way to decarbonisation by 2050. We want to use the opportunities given by knowledge-based bio-



The new climate and energy strategy of the Austrian government foresees 100 percent of electricity from renewable sources by 2030.

economy in the best way possible and want to turn them into lasting economic growth. Therefore, we will develop a national bio-economy strategy and base an Austrian plan for action on it.”

Achieving the Paris climate goals for 2050 will pose great challenges to various sectors in Austria. With this in mind, the participants of Future Talk Energy.2050 discussed the energy revolution index of the World Economic Forum and McKinsey & Company. Austria ranks eighth out of 114 countries on the index.

An opportunity for the business location

Does Austria have the necessary political, economic and societal prerequisites in order to achieve a sustainable energy revolution? “When it comes to renewable energies, Austria benefits from its natural resources with a lot of hydropower,” said Nico Raabe from McKinsey Berlin. History in Norway and Sweden shows that a coordinated effort is necessary to achieve an overall change in energy generation. Emmanuel Schamp from McKinsey Vienna added: “Being a trailblazer in the energy revolution, Austria has every reason to look forward to this challenge with confidence. The energy revolution can also be an opportunity for the business location.”

Michael Strebel, CEO of Wien Energie, is optimistic about the challenges to reduce CO2 emissions in Greater Vienna by 2050: “It will work, if we want it to work. Our biggest leverage is when it comes to heating. But we will not achieve the energy revolution without transforming our mobility. A common effort from the Austrian federation, the provinces and the economy is needed.”

Ingmar Höbarth, managing director of the Climate and Energy Fund, adds: “A successful energy and mobility revolution needs two things foremost: The will to steadily drive innovation forward and also effective implementation on a regional level. That way we can help people to identify with climate protection issues considerably. Successful projects come with a tremendous multiplying effect, create know-how and continuous advancement.” ◆

The beautiful blue Danube and its future

“The Danube: A Stream of Energy” – that was the tagline for the Danube Business Talks, which took place on 10 and 11 October 2018 in Vienna.

The Danube is an energy source, tourist attraction, leisure paradise and natural area, and at the same time a lifeline for a dynamically developing transport sector that taps into new markets and looks to innovative sectors, such as biomass and bioenergy at the moment.

To preserve the high additional value of the Danube, it has to proactively be developed in an integrative manner. International cooperation is particularly important when it comes to this. Under the umbrella of the European Danube Region Strategy as well as in line with the Federal Ministry for Transport's Danube National Plan of Action, a series of initiatives and projects, such as FAIRway Danube and Danube Stream were created, to collectively harmonise maintenance standards. “Nowadays, no one can tackle the challenges posed by the Danube alone,” says Federal Minister, Norbert Hofer. “The promotion of an efficient and sustainable European transport network can only succeed thanks to joint, international efforts. Furthering this is a clear goal of the Austrian Presidency of the Council of the European Union”.

Head of the Cabinet of Transport and EU coordinator of the Rhine-Danube corridor, Désirée Oen, says that the Danube has also been a priority for Europe for a long time. The Danube attracts an exceptional number of tourists; in 2017 it drew around 1.3 million passengers (+2.8 percent). This positive trend can only continue if the stream remains ecologically intact and also able to function in terms of traffic. In-

ternational projects such as FAIRway Danube for the alignment of information services for fairway data contribute to guaranteeing a dependable basis of decision-making for the planning of ship transportation on the entire Danube – an enormous advantage for the passengers and even more so for freight navigation, which relies on sufficient fairway depths in particular

The blue, blue Danube...

CEO of Lüftner Reisen GmbH, Wolfgang Lüftner, emphasises that the ongoing surveying and maintenance of the fairway along the entire Danube could increase growth even more of a sector, which has already been booming for several years and sees even more potential in cooperation across borders. The countries along the Danube had to therefore be encouraged even further to implement enough information and maintenance standards.

In order to effectively minimise the differences that still exist between the possible capacity and the actual transport volume on

the Danube, according to Otto Schwetz of Pro Danube Austria, innovations such as the consistent transition to LNG fuels, standardised information services and education have to be realised.

Further potential lies in cargo, which is particularly suitable for transportation on the waterways. To bring about targeted incentives for the transport sector, Viadonau along with the ports and skippers, created several priority initiatives in previous years for high



The Danube: lifeline of a dynamically developing transport sector



Picture: Ennshafen

The Enns harbour is constantly developing, from a business park of great significance for Austria to a logistics location renowned across Europe.

and heavy goods, renewable resources, recycling products and construction materials.

The EU-funded project Energy Barge builds on the findings from these initiatives and aims to increase the use of biomass for sustainable energy production in the Danube region and to strengthen biomass transportation on the Danube's waterways. At the Danube Business Talks, Gerhard Gussmagg from Rhenus Donauhafen Krems reported that annually around 30,000 cubic metres of biomass and pulp were shipped, and drew attention to the port's continually expanding infrastructure. The Energy Barge project was set up in 2017 together with 15 partners from the Danube logistics sector and the bioenergy industry, and runs until mid-2019; 85 per cent of it is co-financed by the European Regional Development Fund. "Projects such as FAIRway Danube, Danube Stream and Energy Stream show that a lot has been done particularly in terms of international cooperation," says Viadonau CEO Hans-Peter Hasenbichler.

The trimodal logistics hub

The port of Enns is not only the youngest, but also the most modern public Austrian port. The combined port area and the connected economic zone form the largest contiguous industrial area on the upper Danube, covering more than 3,500,000 sqm. Through numerous investments into infrastructure and the most modern technology, the port has developed into a trimodal logistics hub and a stable and important economic centre for the Enns-Perg-Amstetten region. Around 55 companies in Enns harbour offer employment to more than 2,200 people.

<http://www.ennshafen.at>

“This also gives us the chance to bring these high standards to other countries and to further develop the Danube collectively in an even more goal-orientated manner”.

A task for the future

The grouping of the countries along the Danube in previous years and the readiness of leading business people along the river to emphasise important points for development, have decisively increased the significance of the Danube way beyond borders.

For a secure future for the river as a sustainably developed and thriving living and economic area, more momentum is needed, especially at a national and international political level.

New DHL distribution centre at the port of Enns

2 October 2018 saw the groundbreaking ceremony for the construction of what is now the third distribution centre for parcel service company DHL Paket Austria.

DHL has hired the Meir real estate group from Wels to construct their distribution centre. A roughly 11,000 sqm large logistics warehouse as well as more than 1,000 sqm of office space will be built on the 48,000 sqm big site area. The start of operations is scheduled to be on 30 June 2019. As one of three central transshipment centres in Austria, once construction is complete, Enns will play an important role within the DHL Paket Austria network. The new location will focus on providing parcels to the greater area of Linz.

“The construction of the new distribution centre in the strategically and perfectly located Enns harbour is DHL Paket Austria's strong reaction to a very dynamic e-commerce market in Austria with increasing demands for parcels,” explains DHL Paket Austria CEO Günter Birnstingl in regards to these strategic developments.

“This step consolidates the expansion of our strong market position in Austria. The location in Enns has a sorting capacity of an additional 8,000 parcels per hour and thus represents the expansion of services as well as of infrastructure in Austria for DHL Paket Austria. In this way we will be able to fulfil the increasing e-commerce shipments and further help our customers to grow”.

International logistics site

DHL Paket Austria's building project is an important contribution to further developing the Enns harbour into a business park that is significant across all of Austria as well as into an international logistics site. The numerous investments in infrastructure via the province of Upper Austria and the city of Enns in previous decades



Otto Hawlicek, managing director of Container Terminal Enns, Stefan Krauter, CEO cargo-partner, Werner Auer, managing director of Ennshafen ÖÖ

once again bear more fruits and have made customised, swift solutions possible for investments when it comes to the economy.

“We greatly appreciate the investment in our location made by Deutsche Post DHL Group, which is one of Europe's largest logistics companies,” says mayor of the city of Enns, Franz Stefan Karlinger. “The launch of the new distribution centre means that not only the infrastructure for parcel delivery is optimised in the region, but also that above all, 150 jobs will be created.” Around 50 employees will be employed at the location, in addition there will also be up to 100 deliverers, who will take over parcel deliveries from the new hub.

Since the start of September 2015, Deutsche Post DHL Group's parcel subsidiary group is also delivering parcels in Austria and already occupies second place on the market when it comes to B2C/C2C. Altogether, the company is investing a three-digit million amount in the expansion and development of necessary infrastructure and the parcel network, which will also include successive new locations. Having a network of around 2,200 parcel shops means the company has the largest network of service points in the country.

The Meir real estate group has already become the project partner as well as investor for several DHL logistics locations. Alois Meir, owner and CEO of the Meir real estate group says: “For us this is an incredibly special honour that the biggest logistics company in the world has once more decided to engage our services as a partner for the development and construction of their project. The contract for the construction of the logistics building in Enns harbour speaks in our favour as real estate developers”.

DB Schenker: The leading logistics service provider

Your innovative partner for integrated logistics solutions at all important interfaces with more than 140 years of experience.

From the railroad and Gottfried Schenker to the global, leading logistics provider we are today, the success story of Schenker logistics experts dates back to the 19th century and has always stood for efficient high-quality logistics services. Having 140 years of experience in the exchange of goods across all types of transportation and a global network, the company provides what customers need: comprehensive solutions. Today, DB Schenker offers its entire range of products across the entire region of Austria and South-East Europe with its 7,000 staff at 80 sites in 14 countries – from Austria to Turkey.

Unique range of products

Being an integrated full-range supplier, DB Schenker supports the industrial and the commercial sectors in the global exchange of goods with land transport, worldwide sea and air cargo, contract logistics and supply chain management. The company records top results in the areas of automotive supply, technology, consumer goods, forwarding for fairs, specialist transportation and services for major sports events.

Facts & figures 2017

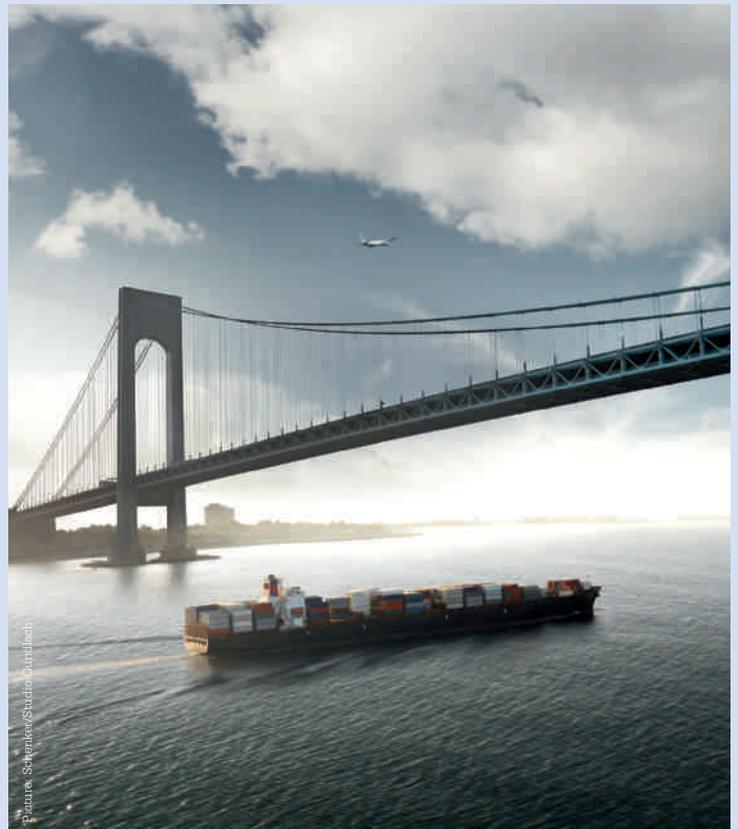
| | |
|--|--------------------|
| Global staff: | 72,000 |
| Global sites: | 2,000 |
| Staff in Austria and SEE: | 7,000 |
| Sites in Austria and SEE: | 80 in 14 countries |
| Record turnover in Austria and SEE (2017): | 1.48 bln euros |

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www.dbschenker.com



Sustainability is an integrated part of DB Schenker's philosophy. Thanks to its global logistics network and the development of innovative traffic routes, the company is in a position to offer its clients the best economic and ecological solutions.

This goes hand-in-hand with innovations that standardise processes, make things easier and accelerate them. 3D printers, platooning vehicles in road traffic, new technologies for increased efficiency such as robotic process automation (RPA) and predictive analytics are no longer futuristic concepts but have been part of DB Schenker's workflow as an innovation leader for a long time.

More transparency, speed and service thanks to digital logistics

The possibilities of digitalisation do not end with the tracking of goods and information platforms.

At first glance, the logistics sector looks like it has done for decades: The picture is full of containers, cranes, giant ships and seemingly endless freight trains. But behind this façade, global data networks and highly specialised computer programmes are the most important tools to keep the global cargo business running. The digital revolution in the logistics sector opens up completely new possibilities for the manufacturing sector due to a higher delivery security and quicker transit times.

The possibilities of digitalisation do not end with the tracking of goods and information platforms through which all players in the logistics chain – suppliers, forwarding companies, sea ports, transportation companies, receivers etc. – can access data. The globally operating forwarding corporation Cargo-Partner supports its clients with the “Purchase Order Management” system. It allows them to check on the suppliers’ production processes in order to improve the delivery and on-time security.

“Many clients do not have staff on location, e.g. in Asia, to doublecheck whether the production of ordered goods is really on time,” Stefan Krater, CEO of Cargo-Partner, explains. “We perform these checks for our clients and react automatically to problems by changing the forwarding plan, e.g. by offering transportation over a maritime route instead of the originally planned air or railways route. The logistics chain is thus integrated even tighter into the interconnected produc-

tion processes and in the end, we can improve the planning security for our clients considerably.”

Werner Auer, managing director of the Danube port Ennshafen OÖ GmbH, takes the same line: “Capacity planning at our port is shaped to a large extent by interlinking information. It is not good enough to wait and see what our cargo and forwarding companies tell us, we have to take part in the process ourselves. We are currently working with two other Danube ports on a cross-company port community system. This gives us vital information on expected deliveries and distributions at the earliest point possible. And at the end of the day, this increases the efficiency of our operations.”

Lorry slot management and autonomous driving

Otto Hawlicek, managing director at the Container Terminal Enns, which handles the container shipment at the Ennshafen port, says that the rapid advancing digitalisation in the logistics sector consists of a number of individual processes, which together lead to a

port operating in a completely different way than only a few years ago.

“We have basically accelerated and optimised every part of the operating process and could therefore improve our performance considerably. This includes, for example, tools for the direct communication between terminal, clients and service providers, automated container dispatch at the gate or optimised crane operation. Further major projects will be tackled in the years to come, such



Innovative digitalised solutions and visionary storage management in logistics



2017 was an excellent business year. Austria's logistics service providers excelled with often double-digit increases in turnover.

as a slot management for lorries to avoid congestion at the terminal thanks to specific information, or forklifts that can drive all by themselves.”

3D service from a logistics company

DB Schenker is the world's first logistics service provider offering its customers an extensive 3D printing service. Customers can now upload the 3D template via the online portal eSchenker, select materials and colours, consult prices, place orders and have the print-out delivered. At present, printing includes medical devices made from stainless steel, robot gripper fingers made from plastic, or customised packaging material.

DB Schenker organises the printing and delivery via its data platform. DB Schenker does not have its own printers, but uses a digital business model within a partner network of start-ups as well as established companies. Together with the Fraunhofer Institute for Material Flow and Logistics, the DB Schenker Enterprise Lab in Dortmund has been analysing the opportunities and results of 3D printing since 2015.

“3D printing can be an alternative to transporting goods in certain cases. As the world's first logistics service provider, we aim to leverage the potential of this technology with an innovative offering for our customers,” says Helmut Schweighofer, CEO of DB Schenker Europe since October.

“In this way, DB Schenker is able to meet growing demand from customers.” According to DB Schenker, growing customer demand

for the printing service can be noted throughout all manufacturing sectors and mostly concerns the sourcing of spare or particularly rare parts. In this regard, a notable growth in demand is expected for spare parts made of metal.

Aluminium, stainless steel and plastic are currently used as materials for 3-D printing. Other materials such as titanium as well as material combinations are set to follow. ◆

DB Schenker

In 2017, the integrated logistics service provider managed to increase its turnover in Austria and South-East Europe by 10.9 percent to about 1.48 billion euros, compared to 1.36 billion euros in the previous year. At the same time about 21.5 million euros were invested into the expansion of its network and the modernisation of its sites. DB Schenker handled more than 11.25 million shipments in the region South-East Europe – across waterways, air and land routes. The logistics service provider could thus increase the number of shipments by 2.6 percent compared to 2016 and even 10.2 percent compared to 2015.

www.dbschenker.com

Railcheck with a perspective

Pupils at the PTS Mistelbach and researchers from the St. Pölten University of Applied Sciences have developed a robot that can detect fractures in rails.

Rails can break due to the strain from various forces such as gravity and acceleration as well as climatic conditions (temperature etc.), which poses a major risk to railway operations. “These fractures are potentially very dangerous,” says Hirut Grossberger, researcher and international coordinator at the Carl Ritter von Ghega Institute for Integrated Mobility Research at the St. Pölten University of Applied Sciences, Department for Rail Technology and Mobility. “It is important to detect any fractures as early as possible and to repair them. This is an essential edge in safety and a time advantage to prevent potential train crashes.”

Together with pupils from the Polytechnical School Mistelbach, Department for SMART Techtronics, the Department for Rail Technology and Mobility at the St. Pölten University of Applied Sciences has developed a fully functional detection robot, which is able to find first signs of fractures through infrared technology. The robot is emitting an infrared signal that is reflected by the rail, an infrared receiver then evaluates said signal and transfers the data to an app, which is also used to control the robot.

In order to find fractures, the pupils also tested an optical barrier and ultrasound but neither turned out to be practical.

Maximum flexibility, minimum costs

The biggest challenges in development were to design the prototype in a way that it wouldn't obstruct ongoing train traffic while being able to cross obstacles such as railway crossings and turnouts. The final design features a special chassis and a WiFi-based control that allow for maximum flexibility and a reduction in material and staff costs.

The St. Pölten University of Applied Sciences supported the project with constructional and scientific knowledge of rail fractures, and evaluated the feasibility of the prototype. “The pupils achieved a high level of technical development and implementation of the project results. This is very impressive,” says Grossberger full of praise. When the experts at the University of Applied Sciences gave their final verdict, they identified the prototype's height and stabil-



The project Railcheck detects fractured rails.

ity in relation to an overpassing train's suction force as a potential source of risks and errors. An adaption of the prototype, however, is possible when it comes to these issues and is considered the next phase of the prototype's development. ◆

Lower Austria's top projects

Lower Austria is promoting the knowledge transfer between science and the population with a number of measures and initiatives. The province founded the project “Science Fair Lower Austria”, which allows senior pupils from secondary schools to develop research projects with scientific sponsors from Lower Austrian research institutes.

<http://www.noel.gv.at>

Mars rover and medical technology

World market leader Trotec is aiming for a turnover of 200 million: Research and development will be further expanded and technicians are desperately sought after.

In the last two decades, Trotec Laser GmbH has managed to evolve from a start-up company to a world market leader in laser machines. Now these laser specialists in cutting, marking and engraving are aiming for increased growth by focussing more on research and development: From its current turnover of over 130 million euros, Trotec wants to break the 200-million-euro barrier by 2020.

Research and development around the world



The spokesperson for the CEO, Andreas Penz (pictured left) clarifies the planned R&D drive: "At the moment Trotec runs development divisions in four locations; at the headquarters in Upper Austria, in China, Germany and Poland".

For Trotec having a global structure when it comes to research & development means investing in the future: "We bring our Trotec sales and service teams with the best technicians from around the world

together," says Penz. "We are implementing this very strategy right now in Warsaw. Together with the technical universities there and a local network of external development partners, we will create another laser competence centre".

Specialists in the areas of mechatronics, construction and software are being desperately sought in Poland and also at the development division locations in Upper Austria, Germany and China. Trotec is therefore investing more, because it wants to expand its product portfolio on existing markets as well as penetrate new market segments. "If we have more employees we will be able to decrease the development timeframe for products as well as significantly realise more projects at the same time," says Penz hopefully.



Pictures: Trotec (3)

Trotec has a large scope of development

From mechanics to electronics, from firmware to user software, everything is developed in-house. Penz adds: "We understand the needs of our customers very well and offer them tailor-made solutions".



The field of lasers is an incredibly dynamic one, you will find them in all areas of life, such as in medical technology: "We manufacture stents for blood vessels, for example, with our laser devices", says Penz.

Laser applications are completely indispensable in industry and business as well as in the field of research. They are even involved in space exploration and the development of the Mars rover.

Trotec's objective is to become number one worldwide in the field of lasers as well as the market leader in the defined core markets. ◆

France and China in Lower Austria's sights

The Lower Austrian economy wants to add two new target countries to its export offensive 2019.

The Lower Austrian export economy is in a very good position: As of lately, goods and services worth 21.8 billion euros left Austria's largest province to go abroad. "By now, we are the second-most important export province after Upper Austria," says Provincial Minister for Economic Affairs Petra Bohuslav. 40 percent of the Lower Austrian gross regional products are generated outside Austria's borders, "which in turn secures 40 percent of our job market."

In order to keep this level and to improve on it, the province wants to increase its activities in France and China in 2019. France currently comes in ninth place in the ranking of Lower Austrian export markets. But with an export volume of 725 million euros, the province sees "room for more" and wants to reach an export volume of 815 million euros by 2023, which corresponds to an annual growth of three percent. The Lower Austrians want to particularly push forward in mechatronics, machinery and plants as well as environment and agricultural technology.

Interesting opportunities

Thomas Salzer, President of the Lower Austrian Federation of Industries, points out that the opportunities are manifold. His paper business already has a market share of 60 percent in France in premium book paper. "Already every second and a half book is printed on our paper," he proudly says. France is his company's second-most important export market.

The economic giant that is China only comes in 15th place in the Lower Austrian export ranking. The aim is to increase the export volume of almost 400 million euros to more than 500 million by 2023. Currently, 95 businesses from Lower Austria operate on the Chinese market, among them automotive supplier ZKW and Waffelmaschinen-Haas from Leobendorf. Johanna Mikl-Leitner, head of the provincial government, will travel with an economic delegation to Shanghai, Hongkong and the partner province Zhejiang in 2019 to try and open a few more doors.

Christian Moser, Vice President of the Lower Austrian Economic Chamber, underlines the significance of the 110 global sites of the Austrian Economic Chambers export organisation.

35 of these sites also serve as trend scouts and innovation centres by now, providing domestic businesses with access to high-ranking research partners such as the Massachusetts Institute of Technology in Boston, Stanford University in California, the ETH Zurich and the German Fraunhofer Institute. "Our innovation centre makes it possible for interested companies to partake in a workshop on 3D printing at Stanford University, for example, for only 300 euros while the market costs amount to 6,000 euros," Moser explains.

A study has shown that exporting businesses invest 72 percent more than those companies that do not trade abroad. Salzer therefore explicitly warns of trade barriers: "Free trade leads to a wider range of products and lower prices. From the industry's point of view, free trade is a decisive driver for economic growth." Lower Austrian industrial companies have an export ratio of 48.8 percent on average, but "many of them have an export ratio of more than 90 percent." ◆



ZKW is a globally operating supplier and partner of the automotive industry.

Better forecasting for production

The Universities of Applied Sciences St. Pölten and Upper Austria are developing innovative forecasting tools together with various companies.

Information technologies are moving forward at lightning speed thanks to digitisation. The classic “Enterprise Resource Planning” (ERP) systems will be offered as “Software as a Service” (SaaS), while „Electronic Data Interchange“ (EDI) will be extended with the use of the “Internet of Things“ (IoT), and passive objects/products will potentially be supplemented by the “Smart Objects“.

The InnoFIT project utilises the advantages of novel information technologies to improve the quality of forecasts. The project investigates the impact of forecast quality and information uncertainty in the information exchange on hierarchical planning

Utilising potentials and creating awareness

“Issues such as consistency of data, distributed intelligence, decentral data availability on demand and general additional information within and between the supply chains can help improve the entire value-added chain,” says Thomas Felberbauer, lecturer and project manager of the University of Applied Sciences St. Pölten. “These potentials are not yet being put into practice when it comes to forecasting processes.”

Planning in production in particular depends on the quality of forecasts and their ongoing changes. “The first step is to create awareness for the impact of forecasts on a company’s performance,” adds Klaus Altendorfer, project manager at the University of Applied Sciences Upper Austria Campus Steyr. “Consequently, the potentials for improvement will be visible through knowledge of forecasting behaviour.”

Realistic simulation studies

In order to be able to use the modern information technologies of Industry 4.0 for forecasts, the project team is developing current innovative visualisations to analyse customer-ordering behaviour and later make these recordable in mathematical models. Realistic simulation studies will then determine the potential for improvement of these new tools. Subsequently, the forecasting tools developed are to be used under real conditions in pilot projects at the



Thomas Felberbauer, University of Applied Sciences St. Pölten (far left) and Klaus Altendorfer, University of Applied Sciences Upper Austria (far right) with the project team

company partners NKE Austria, ZF Steyr, MWS Hightec and Lecapell. The Hagenberg based research company RISC Software GmbH with its focus on logistics informatics is involved in the project as a scientific partner. Later, it will also serve as an IT-implementation partner.

After completion of the project, the results will be made available in the form of a guideline for forecast improvement for Austrian companies. ◆

Forecast improvement

The project “InnoFIT: Information Technology in Forecasting Tools” is funded by the Austrian Research Promotion Agency FFG and runs from the 1st of June 2018 to the 31st of May 2021.

The project partners are Upper Austria UAS Campus Steyr, RISC Software GmbH, NKE Austria GmbH, ZF Steyr, MWS Hightec GmbH and Lecapell GmbH.

<https://www.fhstp.ac.at/de>

3D scanners from Graz want to conquer the US

3Dcopysystems thrilled New York's fashion scene with "Big Alice" and "Little Alice". Soon, 4D motion scanners will follow.

Graz based 3D scanning specialist 3Dcopysystems started its market entry in the United States by presenting innovative perspectives for personalised textile production at the renowned Fashion Institute of Technology (FIT) in New York City.

Big Alice, a mobile 3D full body scanner developed by entrepreneur Christof Kirschner, inspired the students and the faculty at the FIT. Designers from international brands, models and celebrities experienced Big Alice at FIT's Annual Awards Gala in mid-June. Big Alice and her younger sister Little Alice are now starting their tour in the US and will be seen and tested next in Miami and Philadelphia

Mobile scanning systems for personalised clothes

During the Fashion Innovation Week in April 2018 in New York City, 3Dcopysystems first brought its innovative 3D full body scanning systems to the United States. The Week's main theme was the generation of individual 3D data with 3D scanning.

A panel of high-calibre international experts discussed the future possibilities of personalised textile production. Customers could get a full body 3D scan, send their measurements online to a fashion label and then get the perfectly fitting new clothes delivered home.

At the same time, designers of international brands and students from the New York Fashion Institute of Technology (FIT) had the opportunity to test 3Dcopysystems' 3D Full Body Scanner at the Innovation Lab for various applications in the fashion industry.

"The extraordinary quality of our high-resolution 3D scans and the associated texture surprised and inspired the fashion experts at FIT and introduced them to new possibilities for the individualisation of fashion products," says Christof Kirschner, Managing Director of 3Dcopysystems, about his company's successful start in the United States. "In the medium term, partnerships with shop-

ping centres and fashion shows are on the cards, and a few international US companies have expressed their interest in cooperating with us. In order to ensure the best customer care on location, we have taken a US distributor on board."

Big Alice also turned heads when 3Dcopysystems took her to the Annual Foundation Gala, the FIT's annual fundraiser in mid-June; her presence was part of the first major follow-up order since the scanners market entry. Models, celebrities and sponsors had a 3D scan made and received a 3D selfie as a little 'thank you' for their support in the extraordinary atmosphere of the "Cipriani 42nd Street" venue.

Michael Ferraro, head of the Innovation Lab at the Fashion Institute of Technology (FIT), has already declared his interest in cooperating with 3Dcopysystems and the University of Technology Graz; the FIT is an internationally renowned college for design,



The presentation at the FIT was supported by the project "Go International" of the Austrian Economic Chamber.



Michael Ferraro with a fashion model: Big Alice impressed designers, models and celebrities at the Annual Foundation Gala of the New York Fashion Institute of Technology.

fashion, art, communication and business, pledging to support research, innovation and entrepreneurship

Accuracy finer than millimetres

With its Alice 3D full body scanning systems, 3Dcopysystems digitises people and large, organic objects within a few milliseconds and at an accuracy of one millimetre or less. Big Alice is equipped with 64 high-resolution cameras that capture the subject – static or moving – from 64 different angles. Based on this data, she then renders a 3D model.

Along with the 3D model, Alice delivers a high-resolution texture map which is the key factor for a variety of digital 3D applications in fashion, advertising or the gaming and film industry. Additionally, 3D scan data can be used for human body measurements and 3D printing.

The next innovation is on the way

Moving forward, 3Dcopysystems is working on its next innovation: 4D scanning. This will make it possible to digitise not only static positions but entire movements. The movie and the gaming indus-

try, for example, could thus show absolutely realistic motions on the screens.

In the fashion industry, 4D scans help analyse the behaviour of fabrics as they move and the results can be considered already when creating patterns.

To make all of this work perfectly, all tools such as the scanner, the data and the processing software will need to be fine-tuned first. Right now, this is what the experts in Graz are working on. ◆

New possibilities for personalised products

3Dcopysystems has been developing and selling high-quality mobile 3D scanners in different sizes and resolutions for various fields of application for over three years. The company provides a high-resolution texture as a basis for 3D applications in advertising, the gaming industry and the world of fashion.

www.3dcopysystems.com

Austria's life sciences sector is an important economic driver

The sector generated about 22.4 billion euros with 55,000 people and keeps growing steadily.

Austria's life sciences sector developed very positively. Turnovers reached a record level of more than 22 billion euros, which is an increase of 17 percent and amounts to 6.1 percent of Austria's gross domestic product. More than 900 businesses (+11 percent) with more than 55,500 staff are currently operating in this sector, the latest Life Science Report shows.

"The report confirms that we are on the right path with our initiatives and subsidies in the life sciences sector," says Minister for Economic Affairs Margarete Schramböck. "Thanks to the concerted support, for example the subsidies of AWS Austria Wirtschaftsservice, the life sciences sector plays a key role for the Austrian economy by now. The sector is not only particularly important from an economic point of view; the biotech, pharmaceutical and medical technology sectors are essential to master on the biggest social challenges of today, health care."



Bernhard Sagmeister, managing director of AWS, Minister Margarete Schramböck, Marinomed CEO Andreas Grassauer

Great boosts

Bernhard Sagmeister, managing director of AWS Austria Wirtschaftsservice, also underlines the significance of life sciences: "Over the past few years, Austria has become an internationally recognised location for businesses along the entire value-added chain. This dynamic development can be seen, for example, in the big interest of international companies to cooperate with local businesses."

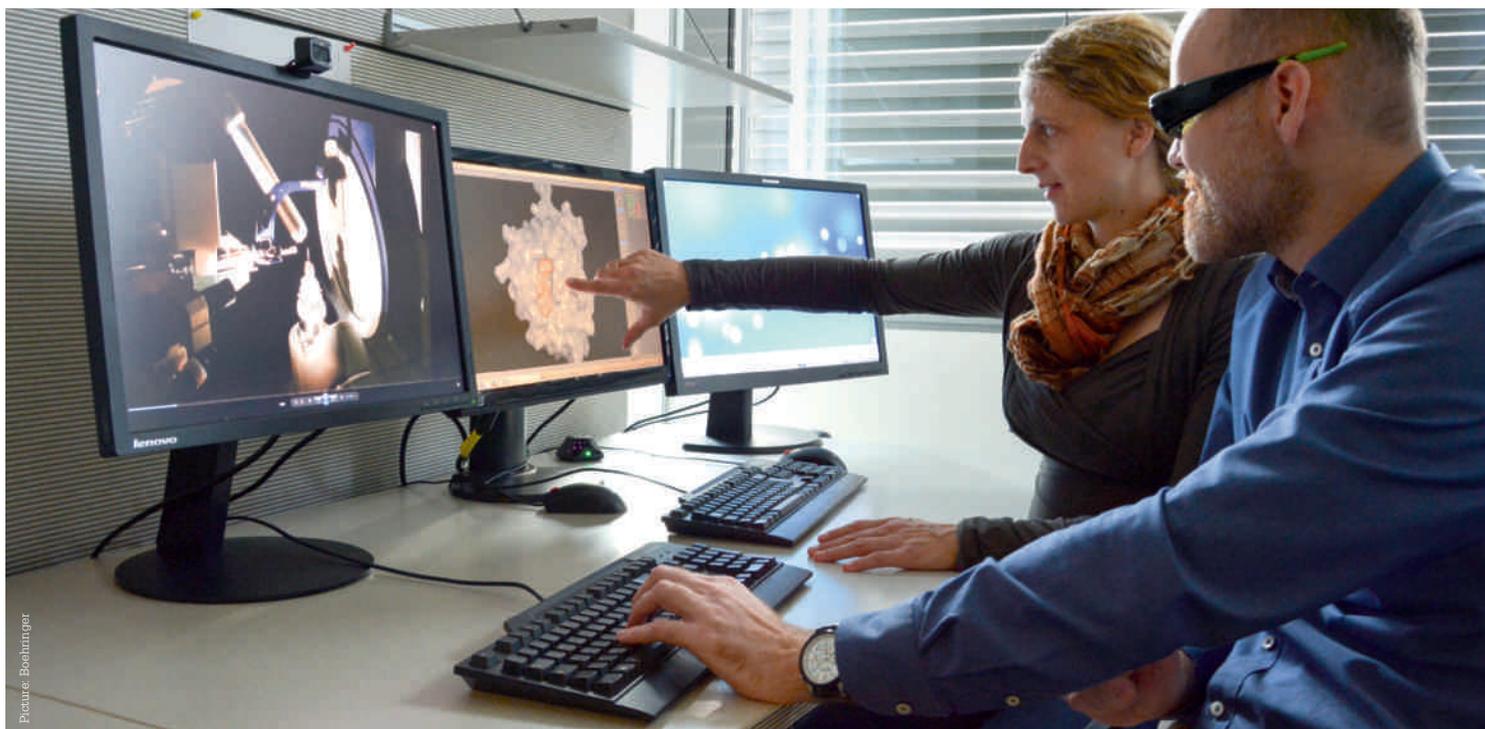
At the same time, innovative businesses receive important financial support in the very early stages of their life with the AWS subsidy programmes LISA Preseed and LISA Seed. The LISA Programme with its competent and tailored consultation and internationalisation measures thus prevents market failure.

In addition to the financial initiatives, the business location for life sciences has also benefitted from a tight connection to academic research with outstanding medical practices, internationally recognised experts and an active start-up scene. Together with the effective public support there is now an ideal environment for innovative businesses when it comes to an efficient knowledge transfer.

Companies confirm the excellent position of life sciences in Austria. Andreas Grassauer, CEO of Viennese Marinomed Biotech AG, explains: "The Austrian life science sector is alive and kicking. Austria has all the ingredients for success: excellent skilled staff, competent institutes, a central geographical location, early support for start-ups. We also benefitted from this and keep therefore the majority of our value-added chain in Austria."

The company was founded in 2006 as a spin-off from the University of Veterinary Medicine in Vienna; today, Marinomed supplies more than 30 countries around the globe with nasal sprays and lozenges for viral respiratory infections.

"We create innovations for the world market with our powerful team of experts," says Grassauer. "We have received optimal support for the strong development of our company."



As of lately, Austria's life sciences businesses invested about 1.1 billion euros into research and development.

Strong focus on digitalisation

After constructing such a strong base, Austria wants to keep building on it. In future, the focus will be on digitalisation, which has become an important driver of innovation in life sciences. In 2017, the field of medical technology has seen real boom in e-health and telemedicine applications.

36 percent of all companies are already operating in this area and half of all newly founded businesses over the last three years can be found in the digital health sector. This development will be used as a stepping stone.

Ideas for new life science projects receive the necessary help to turn them into commercially viable business models: In addition to the LISA Programme, there is also the international business plan competition Best of Biotech, which will see its 9th edition in 2019. It offers both monetary support and tailored mentoring on the way to the successful establishment of a life science company.

The example Marinomed

Marinomed is a Vienna-based biopharmaceutical company focusing on the development of innovative products derived from patent protected technology platforms to treat respiratory and ophthalmic conditions.

The Carragelose platform comprises innovative patent protected products targeting viral infections of the respiratory tract. Carragelose is based on a red algae compound that can treat more than 200 different strains of viruses. It is used in nasal sprays, throat sprays and lozenges, which are sold in more than 30 countries around the world in collaboration with international partners. Carragelose traps cold viruses, stopping them from infecting mucosal cells; it is a polymer derived from red seaweed with a special, clinically proven, efficacy against viral respiratory infections. The polymer also soothes and moistens the mucosa. A new formulation has been developed in Marinomed's laboratories in order to optimise the efficacy of Carragelose with the addition of a decongestant effect based on increased osmolality. Instead of sodium chloride (NaCl), which also has an osmotic effect, a new formulation is used to retain the activity of Carragelose against viruses infecting the respiratory tract.

“Our successful Carragelose platform shows that we can implement and market innovative ideas. To this end, we have built up a global sales network.”

Marinomed CEO Andreas Grassauer

The cough, cold and allergy segment is the second largest category of OTC medicines in the pharmaceutical market. It has the highest potential, with projected annual growth rates of 5 percent according to the OTC Yearbook of Nicholas Hall.

Thanks to a EU-wide certification of the nasal spray that allows the decongestion of the nasal cavity and tackles viral infections of the airways at the same time, this innovative product can be marketed throughout the entire European Union.

The product has already been launched in Austria and in Switzerland under the brand name "Coldamaris akut". In the future, Carragelose products will be distributed in Slovakia, Ukraine, Moldova, Belarus, Georgia, Armenia, Uzbekistan and Mongolia through its partnership with Berlin-Chemie AG.

Via Mundipharma, Marinomed's Carragelose products will be distributed into Canada and Turkey. The new agreements represent a continuation of existing excellent partnerships. Berlin-Chemie has already been commercialising Marinomed products in three countries since 2016. Marinomed's partnership with Mundipharma began in 2015 and relates to the distribution in twelve markets to date.

The next platform is already here: Marinosolv

The company is making significant progress in developing its Marinosolv technology platform and can start a Phase III clinical approval study for the first product derived from the technology platform earlier than expected, still in winter 2018/19. Marinosolv has been developed to increase the efficacy of hardly soluble compounds for the treatment of sensitive tissues such as the eyes and nose.

This innovative technology has the potential to sustainably change a number of therapies for allergies and auto-immune diseases. The allergic rhinitis market is a multiple billion Euro market with strong growth prospects. According to the World Allergy Organization (WAO), up to 30% of the world's population is affected by allergic rhinitis. The most advanced Marinosolv product, Budesolv, for which the pivotal study is expected to start shortly, aims at treating allergic rhinitis.

"We are constantly working on the continued development of our platforms and products," says Marinomed CEO Andreas Grassauer. "We aim to secure longer-term funding for our company's growth, which is why we are currently examining various financing options, including an IPO at the Vienna Stock Exchange."

In addition to the extended partnership agreements with Berlin-Chemie and Mundipharma, Marinomed has already ventured into markets such as China, Saudi Arabia and Australia this year. This strategy has enabled Marinomed to perform 65 product launches since 2008. ◆



Marinomed is continuing its path of growth.

Facts & figures on Austria's life sciences sector

Medical technology is the largest field of life sciences in Austria with more than 550 businesses and 26,630 people working in it. The number of companies has increased since the first census in 2014 by about 14 percent. Turnover has grown by 13 percent to 8.44 billion euros.

The number of biotech companies also went up considerably; it almost doubled since 2010: 127 business currently employ 1,830 people which corresponds to an increase of about 10 percent. The turnover of Austrian biotech companies increased by 58 percent to about 313 million euros compared to 2014. And 170.8 million euros thereof are invested again into research and development.

35 companies are operating in the pure pharmaceutical sector in Austria, employing 3,600 people, which is an increase of 16 percent compared to 2014. They contribute strongly to Austria's economy: Since 2014, the sector's turnovers went up by 30 percent and amount to 1.4 billion euros as of lately.

There are 55 research facilities in the Austrian life sciences sector (universities, universities of applied sciences, non-university research institutes). More than 21,000 people worked in research and education, and the number of students has reached 67,000. The budget for life sciences at these research facilities amounted to 1.55 billion euros as of lately. The majority of the 1.35 billion euros is provided by the Republic of Austria

<http://www.lifescienceaustria.at>

Austria as the obvious choice

Interxion, Octopharma and Trumpf invest a total of 150 million euros – and they are not the only ones by far!

Choosing a business location is always based on trust in the framework conditions and the people involved. “It is our aim to remove investment obstacles and to bring even more companies to our country,” says Federal Minister Margarete Schramböck.

With help from the Austrian Business Agency ABA, another three important companies decided to invest in Austria in autumn 2018. While Interxion and Octopharma invested 40 and 62 million euros respectively into the capital Vienna, Trumpf allocated 48 million euros for its site in Upper Austrian Pasching. “Each investment into our business location is important as it creates jobs and contributes to the value-added chain,” Schramböck says. “I am happy that there are a further 150 million euros of new investments after the decisions of Infineon and Voestalpine. We are working together with ABA to promote Austria as a business location abroad, to serve existing companies and to settle new businesses.” The aim is to generate 30 percent more new settlements in 2019 through the settlement agency ABA.

Several hundred million euros invested in Vienna

“Vienna has a long tradition as the world capital of the plasma sector, an excellently skilled workforce and an outstanding high quality of life,” says Josef Weinberger, member of the board at Octapharma. “Our first production site was installed here and since then we expanded continuously, jumping from 60 to 1,150 staff by now.”

And Octapharma invested several hundred million euros for this: After two and half years of construction, the company opened new research and development headquarters in autumn 2018. The low energy building with heat retrieval includes laboratories, offices, open space areas and conference rooms across six levels. It offers more than 100 highly qualified employees a modern, future-proof workplace on 4,500 square metres. Thus, Octapharma underlines Vienna’s status as a group-wide centre for research and develop-



Christian Panigl (ACOnet & Vienna Internet eXchange VIX), Wolfgang Müller (City of Vienna), Martin Madlo (Interxion), Harald Leitenmüller (Microsoft Austria), Werner Gruber



Josef Kaindl (deputy borough mayor of Vienna-Favoriten), Wolfgang Frenzel, Barbara Rangetiner (both Octapharma), Anton G. Ofner (Vienna Economic Chamber)



The business location Vienna attracts more and more foreign investors including the building and real estate sector.

ment. The construction work for a new pilot plant in Vienna will also finish in 2018. This production line serves as a link between research and routine production.

At the same time as the new research and development centre opened, Octapharma broke ground for a third major investment: A new production hall with 5,500 sqm will double the production capacity by 2026. "With these investments we profess our commitment to the Vienna business location, with which we are linked by a long tradition," explains Barbara Rangetiner, General Manager of Octapharma Pharmazeutika. In addition to the R&D centre, one of the most modern production plants in the world will be built, thus creating many high-quality jobs."

The company, which has been operating in Vienna since 1989, specialises in the development and manufacturing of products derived from human proteins, deals in the three therapeutic fields haematology, immunology and intensive medicine, and is the world's largest family-owned supplier in this field. At the business site in Vienna with a total area of 80,000 sqm the future of the entire production chain is present: from research in small-scale production to routine production. In 2018, about 1.3 million litres of plasma were turned into life-saving medicine in Vienna. With the expansion of the site in Vienna, this figure will rise to 2.3 million litres of plasma in 2023 and 3.6 million litres in 2026, Octapharma hopes.

"One of the company's most important research and development sites is located in Vienna. Here, we are carrying out pre-clinical and clinical research out," explains member of the board Wolfgang Frenzel the decision to invest in Vienna. "We benefit from excellent skilled staff and the good network that is available in Vienna. Research funding is another advantage of the capital."

The upgrade of the Viennese site reflects the expansive development of the entire company. In 2017, Octapharma generated a group turnover of 1.72 million euros with 7,600 staff. In the past few years, turnover rose by an average of 15 percent. Octapharma currently employs about 1,200 people in Vienna. Since the start of 2017, 170 new jobs have been created. The company plans to employ another 300 people by 2026.

Comprehensive advantages

"Austria and therefore Vienna offer Interxion comprehensive advantages as a business site," confirms Martin Madlo, Managing Director of Interxion Austria GmbH. "The central location for the Central and Eastern European markets in particular is a great bonus for us, as Vienna is an important information hub that can serve Eastern and South-East Europe as well as the domestic market." Further benefits for Interxion are the high productivity, appealing framework conditions such as the high quality of life in Austria, for example, the political stability and the reliable legal system.

Interxion has been active in Vienna for two decades as a data centre operator and has invested more than 100 million euros into the data centre campus in the past five years alone. At the moment, a 3,000 sqm big site is being built; it will be put into operation in mid-2019.

The expansion of the now 10,000 sqm big site is of essential importance for the Austrian economy and the IT location Austria: High-performance data centres are the most elementary building blocks for digital infrastructure and the success of new technologies and concepts such as artificial intelligence, the Internet of Things and big data analytics.

The expansion does not only meet the national demand for connectivity but also strengthens Vienna as an important gateway to Central and Eastern Europe.

Pasching is top

Armin Rau, Managing Director of Trumpf Austria, lists several reasons why his company has decided to build a site in Upper Austria.

“The determining factors were the perfect training opportunities at the Johannes Kepler University, the Software Park Hagenberg and University of Applied Sciences Wels, the overall research funding and the already existing experience in automation and robotics. We already have 700 robots in operation; I think this number speaks for itself,” he says.

Amazon opens the first logistics site in Austria

In October 2018, Amazon has put a 9,800 square metres big distribution centre in Großbeersdorf (Lower Austria) into operation, creating more than 100 new jobs there.

The online giant is working in Großbeersdorf with seven independent delivery service partners in order to enable quick and reliable parcel delivery in Greater Vienna. The company is investing into its transport infrastructure and innovations in order to enhance capacities and efficiency of the supply chain. “We are extremely pleased to open up a distribution centre in Großbeersdorf and contribute more than 20 years of logistics competence, technological progress and investments to the transport infrastructure,” says Bernd Gschaidner, Director of Amazon Logistics.

Family business Illichmann settles in Lower Austria

The Weinviertel region in Lower Austria has turned into a booming economic location in the last few years. The business park Ecoplus in Wolkersdorf is a constant strong economic driver. Currently, there



Bernhard Illichmann, member of the supervisory board at Ecoplus, member of the provincial parliament Kurt Hackl, Karl Illichmann

are 96 businesses with 2,050 employees at the business park, and the trend points upwards. Thanks to the newly opened A5 motorway, the demand in real estate and tenancies at the business park have increased strongly. Illichmann is an innovative family business that has recently decided to settle at the business park.

Illichmann Wälzlager Import Export GmbH specialises in the import and export of rolling bearings, drive and sealing technology as well as industrial hygiene. Karl and Bernhard Illichmann stress that “the contracts for a roughly 2,000 sqm big site at the Ecoplus business park in Wolkersdorf have been signed. Construction of a new building, consisting of offices and a hall, will be finished in 2019.”

Almost 380 company headquarters

A study by Philipp Nell, Professor at the Vienna University of Economics and Business (WU), and researcher Jan Schmitt from the WU Institute for International Business, supported by the Erste Bank Trust, shows that between the years 2000 and 2017, more than double as many company headquarters moved to Vienna than moved away. 45 businesses either moved the headquarters of their parent company or a department (35) to Vienna, while only 20 left the country. The years after the financial crisis showed particularly high mobility: 65 percent of companies' leaving (13 of 20) as well as 67 percent of all settlements (30 of 45) took place in this period.

Moving to Austria does not happen due to cost saving measures but due to the value-added chain, the study says. The most important partner in this exchange is Germany. ◆

Life sciences metropolis Vienna

Paul Christian Jezek spoke at the Life Sciences Round Table with Elly Tanaka, mySugr-COO Anton Kittelberger, Boehringer Ingelheim RCV Managing Director Philipp von Lattorff and the Managing Director of the Vienna Business Agency, Gerhard Hirczi.

Vienna is not only the city with the highest quality of life in the world, as the rankings of Mercer and as of recently The Economist confirm, Austria as a business location is also of utmost significance, with highly productive companies and staff – either as a magnet for international businesses, as an academic education hub or as a site for headquarters.



“37.600 people work in Vienna’s life sciences sector, the total turnover in 2017 amounted to 12.2 billion euros. Vienna houses 554 organisations in the life sciences sector, of which 51 were founded between 2014 and 2017.”

Gerhard Hirczi, Managing Director of the Vienna Business Agency

According to Philip von Lattorff (Managing Director of Boehringer Ingelheim RCV Regional Center Vienna), Austria’s capital scores highly with its stable framework conditions and the good quality of life. The RCV is responsible for the human pharma and animal health business in more than 30 countries in Central and Eastern Europe as well as Central Asia. The good scientific environment in Vienna with universities, hospitals and small biotech companies favours a high number of joint ventures while the high level of education makes the recruitment of skilled workers e.g. for cancer research and biotech easier. The Research Premium of 14 percent for researching pharmaceutical companies is of course very attractive by international comparison, von Lattorff confirms.

“The results of various innovation rankings show that Vienna is getting a lot of things right in this area,” he says.

And: “The start-up scene is very active and has established itself as a hub for Central and Eastern Europe.” The City of Vienna has supported these developments early on in a very proactive way: The Impact Hub Vienna was established in 2010 and the Pioneers Festival has become the largest start-up event in Central Europe. “In addition to all of these factors, the Regional Center Vienna benefits from the good international connections with many flights and trains,” von Lattorff stresses. “The city and its cultural environment also make the location more attractive for international experts to work here.”

“Vienna is in a great position”

“Vienna offers many opportunities for start-ups as well as in terms of innovation,” Anton Kittelberger, COO of mySugr agrees. “In the beginning, when a start-up faces a lot of uncertainty, has too little capital and you can’t pay yourself a salary, subsidy agencies such as the Vienna Business Agency basically laid the foundation for mySugr to get a foot on the ground.”



Vienna is one of Boehringer Ingelheim's most important sites.

mySugr had submitted a project for the training of diabetics, the application was done online. There were predefined fields, everything was explained well and the structure was preset. "After a long time of anxious waiting our joy was tremendous," Kittelberger remembers. "There really was a lot of flexibility and in the end everything worked smoothly. It is absolutely okay to let start-ups do their thing during the implementation phase – the founders themselves have to learn and sometimes miss a turn." When it comes to the start-up scene and the seed phase, Vienna is fairly advanced, Kittelberger says: "But I see room for improvement in the follow-up financing: As soon as you have found your market with your product and plan an expansion, that's actually it in Austria. I think we could have better fiscal incentives both for businesses and private investors. There are enough funds, but they are only invested very cautiously."

When it comes to small-scale financing though, everything works very well, founders can use various subsidy programmes and by now, founders can take the first step thanks to "Pioneers" and similar organisations.

"Very flexible people"

"Vienna is rather small as a business location but offers the right quality," says US biochemist Elly Tanaka, researcher at the Institute for Molecular Pathology (IMP). "This also applies especially to the



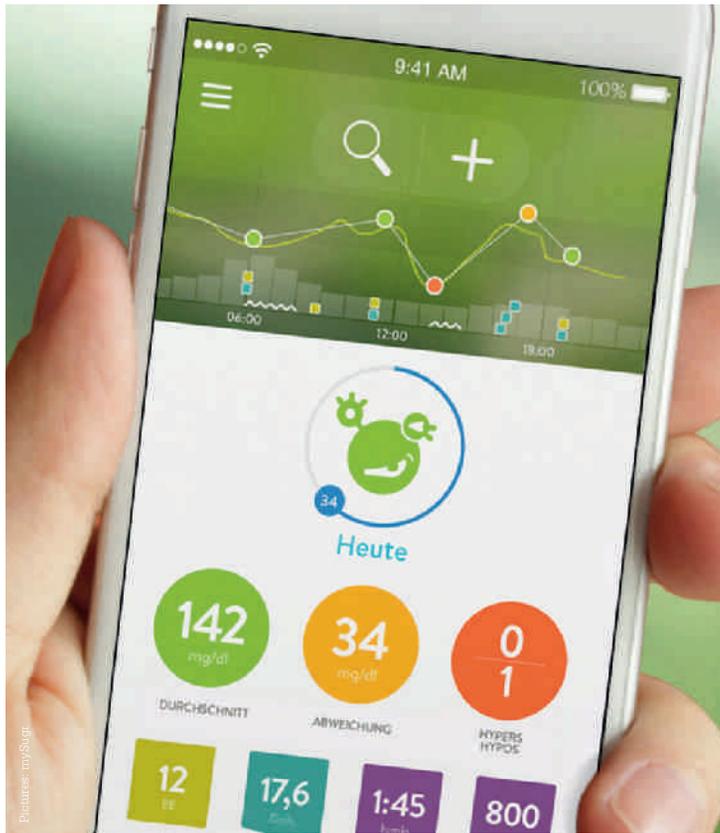
"Vienna can look back on an impressive history in medical research. In addition to its favourable geographic location in the centre of Europe and the good international connections, the city also offers an excellent scientific environment and a high quality of life."

Philipp von Lattorff,
Managing Director of Boehringer Ingelheim Regional Center Vienna

The most research-intensive pharmaceutical company

The Boehringer Ingelheim Regional Center Vienna (RCV) is responsible for the human pharma and animal health business in more than 30 countries. About 3,500 people (thereof 1,700 in Vienna) are working for the RCV. Vienna is also a hub for 21 countries in the field of clinical research. Since the year 2000, Vienna is Boehringer Ingelheim's main location for cancer research and also one of four sites in the group for the research, development and production of biopharmaceuticals. Boehringer Ingelheim invests about 200 million euros into research and development in Austria and is thus the most research-intensive pharmaceutical company in the country.

<https://www.boehringer-ingelheim.at/de>



Pictures: Michael Rottmann

mySugr makes diabetes suck less

The digital health company was founded in 2012 in Vienna to make life easier for diabetics in therapy. mySugr offers a quick and easy solution to collect all therapy data in one place and being an open and independent platform, it allows for the seamless integration into various blood sugar meters.

Users can transfer their blood sugar levels automatically and quickly into the mySugr App and get support for their daily therapy decisions by offering a look into their personal diabetes pattern, getting individual diabetes coaching and optimised medical reports. mySugr's patient-centred and gamified approach in dealing with diabetes and diabetics has received a lot of plaudits among medical experts and makes the use of therapy data easy, practical and valuable.

The mySugr App has more than 1.5 million users and is a registered risk class 1 medical device in the US, the mySugr Insulin Calculator as a module class 2B. mySugr joined Hoffmann-LaRoche in 2017. The company with sites in Vienna and San Diego employs about 100 people. The app is available in 61 countries and 17 languages.

<https://mysugr.com/de>

“We have to work on our reputation that if the world ends you have to be in Vienna, because here everything happens ten years later. If we manage to let the world end ten years later here but come up with innovations ten years earlier, that would be a good combination.”

Anton Kittelberger, COO of mySugr

biomedical sector, which is growing very dynamically. As a country, Austria appears very entrepreneurial to me compared to the rest of Europe. The step up from basic research to medical applications, for example, or another type of commercialisation often happens quicker here than elsewhere.”

A start-up culture and innovations dynamics are maybe limited to small segments but the leading specialist in the field of regeneration biology sees “a lot of movement – even more than in Dresden, where I was living and researching before.”

Research and development could have a bit of a wider spectrum, but Vienna has a lot of promise, Tanaka believes. “Start-ups often crop up, there are good conditions for a cooperation between researchers and businesses, and both sides keep finding one another.”

er.” Compared to the US, there are very few private investors who drive a commercialisation of basic research. “The opportunities to connect relevant players in research and business in Vienna are good though. Furthermore, I believe that people here are more flexible than in other countries that I worked in.”

Tanaka considers Vienna to be generally quite suitable as a life sciences location, as “there is a good number of excellent scientists. The scene could be bigger, of course, and compared to the major scientific centres in the US the interdisciplinary exchange is fairly low.”

“Unfortunately, we don’t believe that we are good”

Gerhard Hirczi, Managing Director at the Vienna Business Agency, summarises the round table discussion up to this point and sees Vienna “quite far at the top or on the best way to the absolute top” when it comes to the international comparison of innovation dynamics: “Since last year, Vienna is part of the initiative Start Alliance and thus part of an association of leading start-up metropolises,” he says. When it comes to technology, the numbers speak for themselves. “In Vienna we have almost 6,000 companies with about 54,000 staff in IT – that’s the entire population of the city of St. Pölten,” Hirczi explains. “In terms of research, Vienna is doing a lot in cancer therapy, for example: completely new approaches, that will hopefully one day make this illness curable or at least controllable.”

However, Hirczi sees one problem in the Viennese’ self-perception: “Unfortunately, we don’t believe that we are good. But international rankings prove clearly that our city is in a great position by international comparison. For six years, we see one record after another in the number of new settlements. Last year, the Austrian Business Agency and us brought 191 international companies to Vienna!” (*For more on this, see page 71.*)

“Being the largest academic location in the German-speaking world, we educate tomorrow’s experts. We are a green metropolis with close distances, affordable rents and reliable infrastructure,” Hirczi continues. “Vienna is becoming younger and younger, sending your children to a kindergarten is free. The city is innovative and at the same time looks after everyone. Just one example: For 365 euros you can use Viennese public transport all year round. It will be a while until another city abroad can match that. But it is part of the Viennese character to enjoy top-class whinging, also in the media. You won’t get that in other cities. I am convinced that we would all benefit from being a bit happier about our achievements.”



Picture: Teufelitz

(Almost) everything is about the axolotl

Elly Tanaka researches the molecular fundamentals of the regeneration of limbs and the spinal cord at the Institute for Molecular Pathology (IMP) at the Vienna BioCenter. Tanaka and her team study salamanders, in particular the axolotl, whose ability to regenerate lost body parts is unique among four-legged vertebrates. The IMP lab holds one of the world’s largest axolotl colonies for her research.

From 1999 to 2008, Elly Tanaka held a position as a group leader at the Max Planck Institute of Molecular Cell Biology and Genetics in Dresden. In 2008, she was promoted to full professor at the Dresden University of Technology. For two years, she acted as director there and in 2016 she moved to IMP in Vienna as a Senior Scientist.

In 2017, Elly Tanaka was awarded the Ernst Schering Prize for her “outstanding research in the field of regenerative biology”. She is also an elected member of the Academia Europaea and the European Molecular Biology Organisation (EMBO).

<https://www.imp.ac.at/groups/elly-tanaka>



According to Hirczi, Vienna is simply a hidden champion, just like Viennese Hedy Lamarr. “This world-famous Hollywood actress invented frequency hopping. Without Lamarr there would be no WiFi, GPS or Bluetooth – so no modern communication. Only now, almost twenty years after her death, people start to speak about her pioneering work.” (For more on this, see page 94.)

500 new jobs for highly-skilled people

“We were very happy to work with the Vienna Business Agency,” Philipp von Lattorff praises the agency. “Everything worked smoothly and the Business Agency took care of many processes as an interface between us and official institutions. Furthermore, the city and the federation stood up for us building a new biopharma plant here. There were clear political signals to get this project to Vienna.”

The overall support for science is very good, confirms Elly Tanaka: “Vienna keeps changing very quickly and integrates modern things very well into the older facets of its culture. I find this interesting and exciting, and I am convinced that in the future Vienna’s universities and research facilities will be the starting point for many new ideas.” Tanaka appreciates how much the city has changed and opened itself up from conversations with people who

have lived and researched here twenty years ago.

“Art, culture and science have grown considerably and I hope that this will continue. All in all, it is exciting to be in Vienna today,” she says.

“We are in a very good position for starting,” mySugr Managing Director Anton Kittelberger believes. “But when it comes to take-off, we still need a little bit of help. Vienna is ideal for founders but in order to make big business you have to look quite quickly abroad. We have good universities and we have good subsidy programmes that support research and development. In the beginning, these programmes were tailored specifically to research or subsidising classic traditional businesses. Then the start-ups adapted to also qualify for the subsidy programmes. Finally, the subsidy programmes were expanded to specifically support start-ups. We have all grown up together, so to speak.”

Culturally and culinary at the top, safe and pretty

Many institutes and universities in Vienna promote entrepreneurship. “When we look abroad, in particular at top universities such as Stanford, we can learn a lot from others,” Kittelberger suggests. “There, companies are created directly at the university, founders are supported actively and the university sometimes even has a



Picture: IMPPF/Murawala

stake in the company. That's a totally different level."

The best thing about Vienna is the city itself. "The combination of a safe and pretty city, which is culturally and culinary at the top, has incredibly much to offer. At the same time, it is very positive that there are numerous good flight connections. The right framework conditions are not only a huge asset to win individual talents for your company but also to convince their families to move to Vienna. We can use this as a unique selling point."

Digital companies such as mySugr need top developers, Kitzelberger stresses. "We surely have good universities in Austria that breed highly skilled developers but we can't meet the demand locally. We also have to look outside our borders. In reality, developers don't have Vienna as a job market but Europe. Therefore, we have to try and get good people from all over Europe and beyond. The framework conditions have to be geared towards this: at the universities, in companies and in Vienna as a business location itself."

"We research the mechanisms that regrow limbs and spinal cord tissue in axolotls. These findings serve as models for the regenerative ability in vertebrates."

Elly Tanaka, researcher at IMP

Everything okay?

Naturally, the production in a major city comes with challenges for companies. Von Lattorff explains: "There are strict requirements, such as zoning regulations or noise pollution laws. The price of land is higher than outside the city and suppliers face more difficulties

in a large city than in the countryside." All in all, Vienna is still a place to be for the international life sciences sector, the four participants of the round table agree. After all, the sector has seen a tremendous increase in turnover over the last few years.

"We have more than 500 players in this field and 430 of them are businesses," says Hirczi. "We get these dynamics due to the fact that companies, research facilities and competence centres for excellent technologies have been tightly connected in Vienna for many years. Life sciences giant Boehringer Ingelheim is proof of this, as it has confirmed its trust in Vienna with its new plant that will be put into operation in 2021." ◆



Automated and electrified: Networked services (also) unburden lorry drivers and logistics specialists.

High-tech suppliers for the global vehicle industry

Without Austrian suppliers, it would barely be possible for cars to leave the production line and reach the world; the export ratio is about 90 percent.

The automotive industry makes up over a tenth of the entire Austrian GDP. For example, more than half of all newly sold vehicles from the BMW Group originate from the engine works in Steyr, where the group-wide centre of competence for the development of BMW diesel motors is located. Every second Opel has a gearbox and every third Opel has an engine manufactured at the engine and transmission

plant in Vienna. At Magna Steyr, around 140,000 manufactured and finished cars leave the production line every year.

Around 7,000 employees for BMW, Mercedes-Benz and Peugeot, among others, are employed in manufacturing in Graz and its surrounding areas and every second all-wheel drive car worldwide has a drive system from Magna Powertrain in Austria.

Intelligent digital solutions

Of course, Austrian car suppliers benefit from the constantly high number of new certifications, particularly in Europe and Asia. There is an additional advantage for Austria too: It has a good distribution of orders among OEMs (Original Equipment Manufacturers). These are Volkswagen, BMW and Mercedes and all their makes from Germany, Fiat from Italy and Peugeot/Citroen as well as Renault from France.

Therefore, the connection with Renault is a strategically important step with regards to the (even) greater internationalisation of the supply industry. Andreas Kuhn, CEO of Andata Entwicklungstechnik GmbH, a small business working in intelligent digital solutions for traffic regulation and vehicle safety, explains: "The digital revolution will not only take place for vehicles but also for business relations between car manufacturers and their suppliers".

Mobility network solutions are also a strategic goal for Bosch. The Austrian regional subsidiary has just celebrated an anniversary: It was founded on 1 July 1918 as Robert Bosch GmbH in Vienna. Recently, the company with nearly 3,000 employees managed to increase its turnover by roughly eight percent to 1.25 billion euros and has invested more than 120 million euros in research and development.

"The new scope of our mobility solutions can be seen particularly well when it comes to networking," says CEO Klaus Peter Fouquet. "On the one hand, there are new products that go beyond cars, such as services for city transport. On the other hand, there are new customers that go beyond the automotive industry – in future it could include all road users." Bosch contributes "avidly to the changes," Fouquet says. "We won't just stand still when it comes to this. We could also connect vehicles to smart homes, so that for example your navigation can send instructions to your heating to heat your living room by the time you come home. This creates a new quality of life. With the versatility of our knowledge we have the best conditions for the mobility of the future."

New approaches to innovation are urgently sought

International experts agree that mobility networking will develop into a central driver of growth in the automotive industry. The connected car segment is already reporting a turnover of 40 billion euros and is set to triple by 2021 to 123 billion euros. Cars will be increasingly seen as a total package of services instead of individual parts – in order to exhaust this potential, suppliers also have to consistently align themselves digitally and transform themselves from product companies into software companies. "This represents a great challenge and requires new approaches and processes when it comes to innovation, as well as a different corporate culture, along with a new understanding of products," says Alex

Koster, partner and digital expert for Strategy&, the global strategy consulting team of PwC.

The enormous market potential and numerous interfaces with mobile devices, software and online applications increasingly attract digital players from outside the industry, such as Apple, Google or Uber to the automotive industry. "Only the automotive companies that can adapt to the speed of IT companies, their innovation and their processes, will be able to fulfil the needs of motorists in the future and become customer-orientated service providers", says Yann-Georg Hansa, partner at KPMG.

Medium-sized structure is an Austrian advantage

The growing pressure to innovate and shorter innovation cycles lead to increased cooperation between players. For example, automobile suppliers have to be ahead of manufacturers by one product cycle so that the developed technology solutions that are already ready for production can flow into vehicle development.

Thanks to innovative strength and high quality, many Austrian suppliers have become world leaders in the automobile industry and participate in the world markets' growth potential. "The medium-sized structure favours short reaction times as well as innovations and adjustments of the business model," explains Horst Bernegger, partner and automobile expert at PwC Austria. "What counts now is to set things straight strategically."

The necessary knowledge in the areas of IT, software, infrastructure, energy as well as telecommunications, is the driver for cooperation between the automotive industry and other companies. For a quarter of suppliers surveyed for the latest PwC automobile study, the expansion of the product portfolio is the most common reason for cooperative work, followed by mutual research and development know-how. Often, cooperation doesn't "only" take place project for project, but in part comprises the close linking of competencies from different industries.

The most important trends

The companies surveyed consider electrification, followed by speed of innovation, as the most significant current development for the automotive industry. Around a third of the participants focussed on products for new mobility or have research and development, test operations and prototype production in their service portfolio.

Another trend is the increasing significance of relationships to (end) customers, as in future the use of vehicles will be increasingly more important. This also corresponds to the shift of the automotive industry in the direction of mobility services. In order to succeed, new business models have to be developed. Nearly 60 percent of all those surveyed expect the need for additional investment and financing in order to achieve this.



A look behind the scenes (here for example at Pollmann).

Over half of the companies stated that they overstepped their production capacity by more than 90 percent on an annual average. Every fifth company grew – mostly organically – by five to ten percent and more than half by even more than ten percent.

Suppliers also see the future positively: More than 80 percent foresee further growth in turnover. Technology, quality and research and development will continue to be considerable factors for success. The participants see future strategic advantages above all in the fields of robotics, sensor technology, digital factory solutions, battery and energy technology as well as data analysis.

Conversely, the shortage of qualified staff, pressure from OEMs and the downward trend in the growth markets were cited as the largest potential dangers; correspondingly, the supply industry wants improvements in the jobs market, non-wage labour costs and new mobility concepts using digital infrastructure in order to be able to keep up and further expand international importance.

Austria versus Slovakia – a look behind the scenes

On top of capturing the status quo of the Austrian automotive industry, the PwC study also drew comparisons between Austria and Slovakia. The automotive industry in both neighbouring countries exhibits an important structural difference: While the majority of suppliers in Slovakia belong to international groups, Austria has a number of medium-sized family businesses, which in part have developed into hidden champions. In many cases, they have established themselves as specialists with local research and development skills in their fields.

What connects the industries in both countries are the issues that preoccupy the acting parties: The shortage of qualified professionals as well as intelligent technology as a challenge to new mobility and industry innovation. These are all hot topics. ◆



The ZKW Group acts as a specialist for premium light and electronics systems.

Examples of Austrian automotive suppliers

- ▶ Borbet Austria: aluminium wheels
- ▶ Bosch Österreich: four centres of competence
- ▶ Boxmark Leather: leather for vehicles
- ▶ BRP Rotax: High-tech premium propulsion systems for motorised leisure products
- ▶ Eaton: propulsion technology
- ▶ Georg Fischer Automotive: lightweight construction, cast components for engines, carriers, brakes, axles, etc
- ▶ Hirschmann: automotive plug-in connectors, e.g. for ABS sensors, key-free unlocking systems, etc
- ▶ Johnson Controls Austria: seating systems, instrument panels & cockpits, door panels, overhead systems and overhead control units
- ▶ Kendrion: electromagnetic and mechatronic solutions
- ▶ M&R Automation: eco-design and smart production, production and test facilities
- ▶ Magna International / Magna Steyr: engineering and manufacturing partner for vehicle manufacturers
- ▶ Mahle: filter systems
- ▶ Melecs: control units for all wheel systems
- ▶ Miba: sintered components, plain bearings, friction linings, power electronics components and coatings
- ▶ Salzburg Aluminum AG: aluminium components
- ▶ Secar Technologie: components made of high performance plastics
- ▶ TTTech: security technology with electronic networks
- ▶ Ventrex Automotive: compressors, climate and special vents e.g. for natural gas vehicles.

Bioethanol in diesel engines: a contribution to sustainability

The Vienna University of Technology (TU Wien) has developed a diesel engine that can run on over 70% bioethanol.

Besides the development of new and more efficient combustion engines, fuel also plays an important role within the efforts to reduce the pollutant and greenhouse gas emissions produced by the transport sector. At TU Wien, the use of bioethanol as an additional fuel in diesel engines has been investigated. "In some countries, it has been common practice to add larger quantities of ethanol to petrol for a long time. However, until now doing this in diesel engines has only been possible to a very limited extent," says Prof. Bernhard Geringer from the Institute for Powertrains and Automotive Technology at TU Wien.

If you were to simply mix bioethanol into the diesel tank, it would cause ignition problems. Bernhard Geringer and his team

have therefore developed a dual-fuel combustion process. "Ignition is initiated by means of a direct injection diesel fuel jet, like in conventional diesel engines," explains Geringer. "In our model, however, the alcoholic fuel is added to the intake air upstream of the engine. It is then ignited after the diesel ignition in the combustion chamber. In a manner of speaking, the diesel functions as a spark plug for the bioethanol."

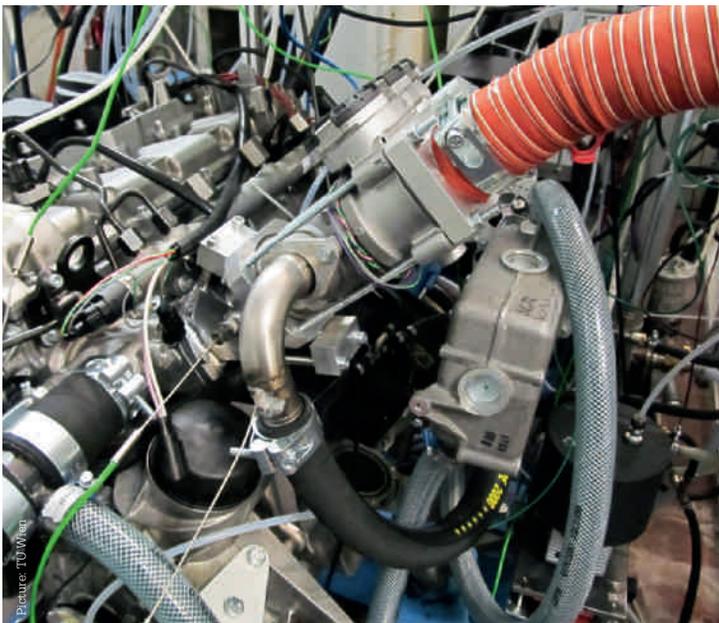
Less CO₂, less soot, less fine dust pollution

In the tests carried out, the replacement of diesel with the alcohol fuel was gradually increased. These tests showed that up to 70% of the diesel fuel can be replaced with bioethanol – and this even had a positive effect on the efficiency of the engine.

"We measured an increase in efficiency of up to 6.1%, and that alone improves the environmental balance of the engine," says Aleksandar Damyanov (TU Wien). "Of course, we must also consider the fact that bioethanol has an excellent CO₂ balance because it is produced from renewable raw materials. When we factor that in as well, we find that there is an overall reduction in CO₂ emissions of up to 39%." Various operating points were tested at an engine test bench at TU Wien – from a low engine load to high-load operation, over a speed range of 1,500 rpm to 3,000 rpm. In all cases, a significant reduction was recorded in the soot mass and number of hazardous fine dust particles produced.

"Our results clearly show that bioethanol can be successfully used as a substitute fuel in a dual-fuel diesel engine, and that this concept has significant benefits for the environment," says Bernhard Geringer.

"In many areas, we will not be able to do without diesel engines in the medium to long term – trucks and tractors, for example. E-mobility has its limits here. With our dual-fuel technology, it is possible to significantly improve sustainability and emissions performance in these particular areas." ◆



The engine at TU Wien, which runs on bioethanol.

Fully automated driving with the highest safety standards

BMW uses TTTech, which specialises in safety software and hardware platforms for automated driving.

The German premium automobile manufacturer BMW has chosen TTTech Auto as the development partner for automated driving functions.

Together with TTTech Auto, BMW will develop functional applications that aim to bring automated driving level 3 and 4 to motorways by 2021, enhancing safety and comfort for the driver and passengers. TTTech Auto contributes its extensive cross-industry software and functional safety experience to this project.

Automated driving is set to be the industry's major trend in this decade. The ambitious projects that arise call for new ways of collaboration and new partnerships to take the next steps in the journey towards fully automated driving.

For BMW, the next goal is to bring automated driving level 3 and 4 to the roads by 2021 and prepare for level 5. Elmar Frickenstein,

Senior Vice President for Fully Automated Driving and Driver Assistance at BMW said of the new cooperation between BMW and TTTech Auto: "As we develop a modular, non-exclusive platform for autonomous driving, TTTech Auto's expertise in functional and software safety and security is extremely valuable. Together, we are determined to bring safe level 3 automated driving to the market in 2021. We are excited to be working together here at our new BMW Group Autonomous Driving Campus."

Safety software platform MotionWise

The functional applications to be developed with TTTech Auto will tackle demanding new functionalities that enhance safety and will create a completely new driving experience. TTTech Auto's automotive experts have already gained extensive experience in auto-



Stefan Poledna and Georg Kopetz, Members of the Executive Board at TTTech Auto

World market leader and technology leader

TTTech is a global leader in the field of robust networking and safety controls. TTTech solutions improve the safety and reliability of electronic systems in the industrial and transportation sectors, with a portfolio of products that are helping to make the Industrial Internet of Things and autonomous driving a reality. Thanks to the proven platform-based architecture, TTTech solutions enable simple system integration with shorter time-to-market and significant cost reductions for customers. TTTech solutions support highly scalable and modular open real-time architectures based on Deterministic Ethernet, including the IEEE TSN standards and the established SAE Time-Triggered Ethernet standard.

www.tttech.com



Together with TTTech Auto, BMW will develop functional applications that aim to bring automated driving level 3 and 4 to motorways by 2021.

ated driving programmes with several key industry players and successfully developed the safety software platform MotionWise for series production.

Stefan Poledna, Member of the Executive Board at TTTech Auto:

“We are very proud that we will be able to contribute with our software and safety know-how to BMW’s automated driving programme, which is also open to further partners. Our engineering team is excited to work with BMW and its partners to bring this highly advanced driving project safely on the road.”

For the development process with partners like TTTech, BMW is implementing “LeSS” (Large Scale Scrum) for highly efficient software development. This versatile software development model with very few hierarchical levels and a large number of small teams

will ensure a speedy development. With BMW, TTTech Auto is entering another close partnership with a global key player in the automotive industry and a distinguished premium OEM.

On the way to level 5

TTTech Auto is a global high-tech company established by TTTech with leading industrial partners in June 2018. It builds upon TTTech Group’s automotive ADAS production programme experience and world-class safety technologies and integrates the software engineering skills of RT-RK Automotive in one dynamic growth venture.

The objective of the company is to provide safety software platforms and integration services for domain ECUs and in-car computers, paving the way to highly automated driving and autonomous vehicles. ◆

“We are contributing to the project our extensive cross-industry experience in software development and functional safety.”

Stefan Poledna, Member of the Executive Board at TTTech Auto

Staatsdruckerei increases turnover, export ratio and number of staff

The Österreichische Staatsdruckerei (Austrian National Printing Office) is continuing its success as an international identity manager and has recently launched a very innovative product.

The long-term strategy of the Österreichische Staatsdruckerei (OeSD) to keep expanding outside of Austria's borders as a service provider in the business field "safe identity" continues to pay off.

"We develop and produce high security identity documents such as biometric passports with integrated chips, driving licenses, identity cards and biometric residence permits with integrated chips as well as registration papers", explains Managing Director Helmut Lackner in an exclusive interview with "World Champion Austria".

Tailor-made customer solutions go to exotic countries like Ethiopia, generally better known for its mid- and long- distance runners, and Ghana, popular as a premium holiday destination. "We've managed to establish this global business in recent years and continue to permanently expand it," says Lackner.

The business year 2017/18 saw the creation and start of a bank client register for the Central Bank of Liberia.

There aren't "just" dozens of countries on the list of clients, there are also international organisations such as the European Union, the Economic Community of African States (ECOWAS) and the Caribbean Community and Common Market CARICOM. Lackner also proudly mentions the African Development Bank with its 80 members. "A few months ago, we put a full solution for laissez passer travel documents into operation for these organisations," Lackner says. Just like for the European Union, the order saw the creation and personalisation of travel documents. "All in all, we deliver to

and look after our customers in over 60 countries on five continents," summarises Lackner.

In high demand all over the world

The OeSD's products and services help it to stand out all over the world. At the end of 2015, the MIA (My Identity App) digital identity card system, which is unique all over the world, was first presented and has continued to undergo development since then. MIA has already found international buyers and in contrast to other "prophetic" innovations, it is also being applied in its own country. "MIA integrates all identity documentation in one app," Lackner explains. The ID can be displayed on a smartphone, without having to store any personal data on it.

Since identification and legitimisation using video identification procedures are legally possible on the domestic market, MICK (My Identity Check) has also continued to gain in significance. All that is needed for the highly secure video service is an internet connection and a computer, tablet or smartphone with a webcam.

While millions of bank accounts in Germany are opened using this method, Austrian companies and institutions can now also benefit from this high security solution for identification validation.

This project was and is supported by the separation of the department "Innovations" from the OeSD to form "Youniqx Identity AG", which exists as a sister company since 22 November 2017 and is owned by Staats-



Managing Director Helmut Lackner spoke exclusively to "World Champion Austria".



Picture: Österreichische Staatsdruckerei

Österreichische Staatsdruckerei, whose products have an excellent reputation in Austria and abroad, is the first port of call for secure IDs.

druckerei Holding AG. It promotes the business with MIA and MICK.

A joint-venture with Cryptas International GmbH and the in-house Trust Center also support these developments.

Success at home

The OeSD passed the “mega passport year” 2017 with flying colours by issuing more than one million (!) passports. The company once again won the tender for printing the ballots for the Austrian general elections in October 2017. The spike in demand was handled with the usual high quality and very short delivery times thanks to the cooperation with the Austrian authorities. “We also won the tender for the production of forms for federal elections until 2022”, Lackner says.

They are also subject to the highest demands in security, of course. “Personal data from around the world, which is put into passport chips, for example, is located in Austria’s safest room without a technical connection to the outside world. It is therefore safe from hackers,” Lackner explains. “After processing the data, it is deleted under government supervision.” Passports, for example, are produced by the OeSD in more than 1,000 (!) individual steps. “Naturally, we fulfil the highest legal security regulations and keep developing them further together with the security services,” Lackner says.

Safety first! The OeSD launches key storage for block chain systems

Together with the Graz-based bitcoin company Coinfinity, the OeSD launched a physical key storage for blockchain systems in order to prevent the theft of crypto currency. “The safest way to

store crypto currencies is to do so offline,” Lackner explains. For this solution – termed cold storage – a physical card with special security features has been developed. Both the bitcoin address as well as the private key needed for bitcoin transactions is printed on this card wallet.

Once the safety seal has been attached, it can not be removed without evidence. Lackner says: “The customer can be sure that he is the first to see the key when he scratches the seal.” In order to maintain secrecy, the card is produced in a closed-circuit security system.

Future fields of use after the first soft launch stage will not be limited to only crypto currencies. “This technology can also be used to protect the provenance of works of art or for proof of entry in the land register,” says Lackner in conclusion. ◆

OeSD Österreichische Staatsdruckerei

In the business year 2017/18, the OeSD significantly increased its turnover (by more than 2 million euros to 46.8 million euros) as well as its export ratio, its operative result, its number of staff and its dividend.

“Stability, value retention and competitiveness remain our most important business objectives,” Helmut Lackner summarises. “Based on the high level of customer satisfaction and our know-how, we kept strengthening the foundations of our future business.”

www.staatsdruckerei.at

Viennese Start-up gives cities worldwide a climate make-over

With global warming and increasing urbanisation in mind, Greenpass wants to make cities around the world more liveable.

Cities all around the world face the huge challenge of reducing the effects of climate change on their inhabitants. Rising temperatures create urban hotspots – quite literally – while massive precipitation causes local flooding with far-reaching and often avoidable damages.

There are seemingly simple and affordable solutions for many of these scenarios, for example integrating more open spaces and more green spaces into a city. But which measures are the most effective, how can the individual effects be factually evaluated and how can these effects be taken into consideration already during the planning stage of buildings and entire urban areas?

Viennese Greenpass GmbH has developed a software that allows exactly all those questions to be answered quickly and simply. The Viennese start-up was founded as an international competence and software centre for climate-resilient city planning. After almost

eight years of international research and development cooperation with the model cities Vienna, London, Hong Kong, Cairo and Santiago de Chile, and investment costs of more than four million euros, the company managed to develop a software that can be easily used by any city planner and architect during the planning stage.

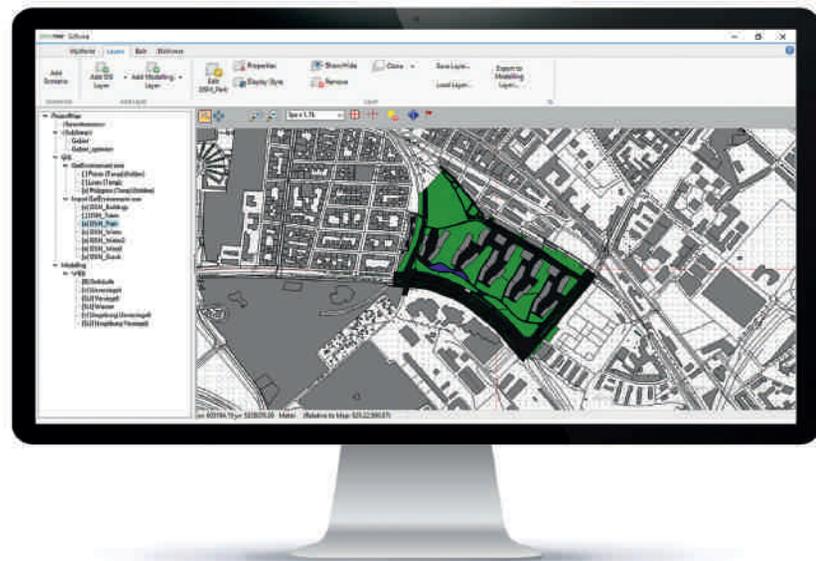
Building projects can be adapted individually to the city climate. The software takes the type of buildings, the materials used, green and blue infrastructures, the existing surroundings and the local microclimate into account. Costs and resources are optimised already during planning and the quality of each project is eventually evaluated with a certificate.

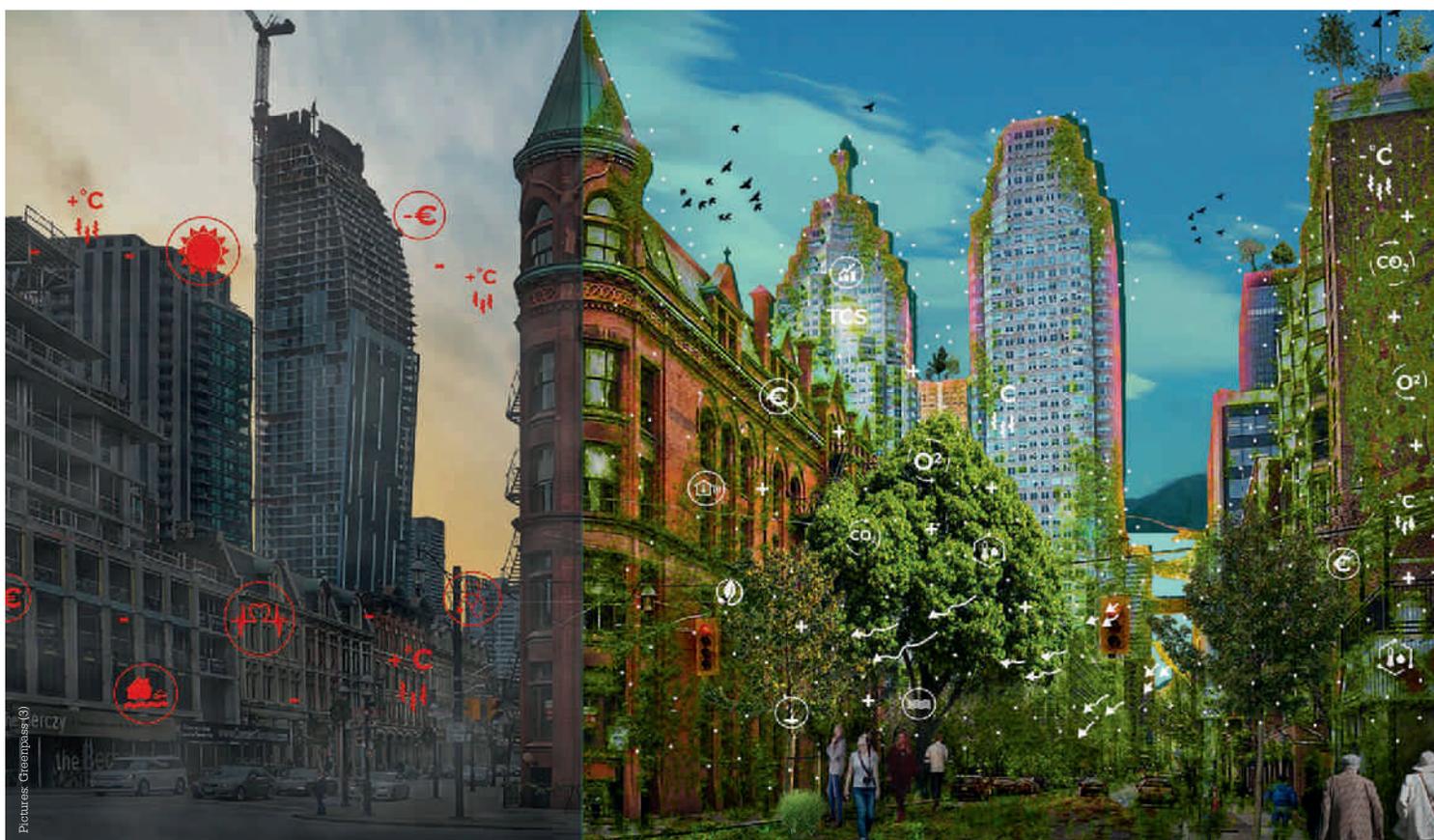
Heat as a city's lethal danger

Prolonged periods of heat are particularly dangerous for city dwellers. The heatwave of 2003 with more than 70,000 deaths



CTO B. Scharf, CBDO R. Wagner, COO D. Schnepf, F. Kraus, Chr. Göschl





was one of the largest natural disasters in the history of the European continent. Japan saw a record heatwave in 2018, killing at least 80 people and putting more than 35,000 for treatment into hospitals.

With optimum planning, the air temperature can be cooled down by four degrees in the long term. During the peak of a Viennese summer, this corresponds to the difference between the city centre and the outer districts by the Vienna Woods.

Vienna as a trailblazer in climate adaption

But not only temperature plays an essential role when it comes to planning climate-resilient cities and architecture. Rain water management, local CO₂ storage and the efficient use of resources in particular are determining factors for a successful, sustainable and strategic climate adaption, and are therefore an essential part of the Greenpass software. It calculates where and how the optimum climate effects can be achieved with the resources available.

Vienna is considered a model city internationally when it comes to successful climate adaption. The Greenpass technology has already been applied successfully as part of international model projects such as Biotope City and Eurogate II. The first

Greenpass Gold certified project, FLAIR Scherbangasse in Vienna-Liesing will offer its future inhabitants an optimised living environment. ◆

Climate-resilient city planning

Greenpass GmbH is a spin-off from Green4cities GmbH and was founded on 15 June 2018 by landscape architects and city planners Florian Kraus (CEO), Bernhard Scharf (CTO) and Doris Schnepf (COO) in order to create an international competence and software centre for climate-resilient city planning. Green4cities is recognised internationally as a competence and research centre for urban green infrastructure and nature-based solutions (NBS). It is involved in various national and international research projects on smart cities and green infrastructure as a frontrunner. Current projects include Nature4Cities, CleverCities and Biotope City.

<http://greenpass.at>

In action for Vienna

The Vienna Business Agency supports businesses and start-ups in Vienna.

Our offer

We offer a one-stop service for business leaders: from grants and advice, workshops and extensive coaching when establishing a business, help looking for business and office space, through to providing contacts to potential partners in the technology sector or in the creative industry.

The Vienna Business Agency also puts Austria's capital on the map in an international business environment, offers support to international companies during settlements and is the first point of call for expats when they arrive in Vienna. The Vienna Business Agency's complete range of offers and services is available to entrepreneurs as well as future entrepreneurs, and can all be found under one roof at Mariahilferstraße 20.

Record number of settlements

Just how attractive Vienna is as an economic centre and business location is underlined by the steadily increasing number of new international businesses. In 2017, for the sixth time in a row, Vienna has attracted a record number of new international businesses: the numbers increased from 178 in the previous year to 191 in 2017. The new businesses established in 2017 triggered a total investment sum of 537.1 million euros (+86.5 % compared to the previous year) and created 1,087 new jobs.

To achieve international recognition, the Vienna Business Agency places a strong emphasis on direct, personal contacts, worldwide. In 2017, the international activities of the Vienna Business Agency covered a total of 290,000 kilometres – that is more than seven times around the globe – and 219 days in 20 different countries and 38 cities around the world. Compared with other

provinces, Vienna attracted more new international businesses than all the others combined (185).

Vienna – where start-ups are taking off

The Vienna Business Agency supports local and international start-ups that want to settle in Vienna with a wide range of services:

- ▶ Free and individual advice – from the original idea to founding right through to expansion
- ▶ Overview and contacts to the Vienna start-up eco-system
- ▶ Vienna start-up Package for international start-ups
- ▶ Networking and cooperation in the creative industry as well as life sciences and technology
- ▶ Office space for young companies
- ▶ A tight network of subsidies
- ▶ Individual advice, workshops, coaching: free of charge and in multiple languages (17 languages!)
- ▶ In 2017, 257 start-ups and founders were supported with a total of 10.75 mln euros (companies in their foundation phase or younger than five years)
- ▶ Start-up programmes: 41 projects with 5.42 mln euros
- ▶ 188 workshops (2017) for start-ups and young companies – around 1,646 participants
- ▶ 311 free founding, financing and expansion coaching workshops in 2017

Vienna Start-Up Package: Vienna from a start-up's point of view

Since 2015, the Vienna Business Agency has attracted international start-ups to Vienna with the Vienna Start-Up Package. The package allows international start-ups to get an insight into the Austrian business system, enables them to take part in coaching sessions and numerous networking events, and offers them a workspace in one of the 27 co-working spaces.

The offer is a real success; since the start the number of submissions has doubled from year to year. It started three years ago with 40, and in 2017 there were already around 230 submissions. The Vienna Start-Up Package is putting Vienna on the map for the young, international scene and attracts exciting projects to Vienna. (See diagram on the left)

Being part of the start-up initiative "Start Alliance", Vienna is among the alliance of leading start-up metropolises. "Start Alli-



ance” is facilitating the international networking of start-ups and their access to the most important world markets. Viennese start-ups can apply for different programmes, enabling them to test their chances in the respective partner cities and to get to know other start-up hubs.

In return, Vienna is able to present itself as a location for international start-ups who want to set up here. In 2018, the Vienna Business Agency supported 20 Viennese start-ups and start-ups from Tel Aviv, New York City, Shanghai, Paris, London, Dubai, Warsaw, Beijing and Berlin to enter their respective local markets.

The companies receive individual offers such as contact to partners and investors, a place to work from as well as consultations.

Current success stories

1) The **Technology Centre Seestadt** is being expanded by 6,800 sqm flexible production space, creating space for production machinery, high-tech facilities as well as co-working spaces. “The innovative environment in the Technology Centre Seestadt has developed rapidly with global players such as Hoerbiger, ATOS and Opel,” says Gerhard Hirczi, Director of the Vienna Business Agency in an interview with World Champion Austria. “The new buildings have perfectly increased our sector focus on innovative technologies and is very suitable for start-ups and businesses in the fields of Internet of Things,

Vienna Business Agency facts & figures 2017

| |
|--|
| More than 10,000 visitors welcomed to workshops, consultations and networking events |
| Around 5,300 individual consultations |
| 512 concrete funding consultations |
| 528 funded projects by Viennese companies |
| 191 international companies settled in Vienna in 2017 – sixth settlement record in a row |
| 2,570 jobs were secured (by funding and international settlements) |
| 712 mln euros of investments in Vienna (through funding and international settlements) |



Year on year there are record numbers of international companies settling in Vienna.

Industry 4.0 as well as Smart Production.” The Technology Centre Seestadt already stands out with modern architecture and an open-space concept, with around 160 people already working there.

- 2) The **Viennese district Floridsdorf** has a new hotspot for research, innovation and technology development with the Vienna Innovation Area. At Giefinggasse, the AIT (Austrian Institute of Technology) is consolidating its Viennese locations and settling its more than 850 employees in Vienna’s 21st district. The high-tech location Vienna Innovation Area is located close to Siemens City, Atos, the Climate Wind Tunnel from Rail Tec Arsenal, the University of Applied Science as well as other national and international companies, which operate in the technological research and innovation sector.
- 3) A **new university for Vienna**. Alongside its headquarters in Budapest and a lyceum in the State of New York, the Central Eastern Europe University (CEU) is planning a third location for the renowned private university with a campus in Vienna. With Vienna being the largest German speaking university city and being close to Hungary, it offers the ideal requirements for the latest stage of development for the CEU. On the basis of the Memorandum of Understanding, the Otto Wagner Areal is being examined a possible location in Vienna.

The new Silk Road

The “initiative of the century” will create many opportunities for Vienna.

The new Silk Road project (Belt & Road Initiative – B&R), which was initiated by China, is a strategic project of enormous economic significance for all of Europe. It is by far the largest infrastructure programme of the century and also provides big opportunities for Austrian businesses. Vienna in particular has worked hard for its reputation as the logistical hub for Central and Eastern Europe. If this wide gauge railway is built from eastern Slovakia to Vienna, then Vienna’s role as a logistical hub won’t only be maintained, but also expanded.

Opportunities for the Austrian economy

► Infrastructure expansion

High levels of investment in transport, as well as energy and telecommunications networks are planned in almost all the countries along the Silk Road; therefore, Viennese companies in particular will have the chance to display their strength in infrastructure expansion.

► Industry

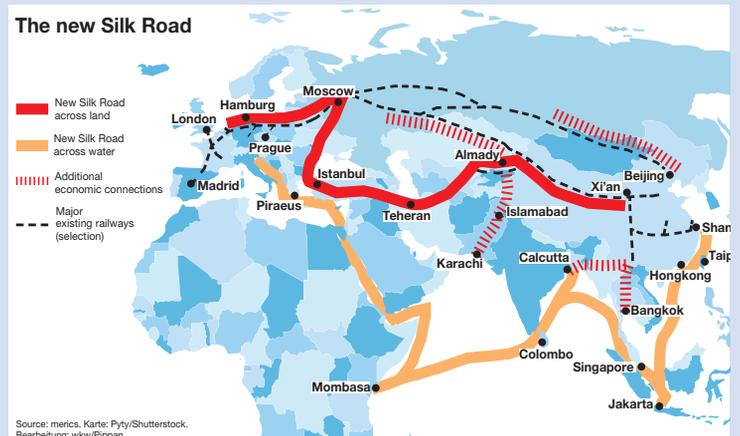
The construction of a manufacturing industry will be greatly boosted in many B&R countries. The Austrian economy has many key areas of strength within the industrial sectors that China wants to further develop, such as the electronics industry, the rail industry, renewable energies, environmental technologies, mechanical engineering, biotechnology, aviation; these are the areas in which Austrian companies can excel with their expertise.

► Financing

Austrian companies often struggle with financing large projects. In collaboration with Chinese businesses, Austrian companies can become active in Silk Road countries and financing will take place via newly created financial institutions.

Facts & figures

China’s Belt and Road Initiative (B&R) started in 2013 and intends to connect several trade routes from Asia to Europe by sea, land and railway. Additionally, existing connections will be expanded, modernised and have new ones added to them. The estimated value of the initiative is 1.3 trillion US dollars. Experts expect large growth in the countries along the new Silk Road thanks to the planned investments. The B&R initiative will comprise 67 countries.



► Investments

As part of the B&R initiative, the founding of subsidiary Chinese companies (e.g. logistics companies) will occur as well as investments in existing companies. China is interested in investing in companies in the field of mechanical engineering, in IT and communications companies as well as in companies with know-how in automation and digitisation of production processes.

► Cooperation on third country markets

In previous years, Chinese companies have already strongly focussed on internationalisation. In accordance with stipulations by the Chinese government, international business operations should be further enhanced. A number of projects along the Silk Road will be financed by China and several Chinese companies will also be engaged. A particular focus of these projects is on Central and Eastern Europe, which is Austria’s domestic market. Cooperation with Chinese companies on these third country markets offers opportunities for Austrian companies to enter into strategic partnerships as well as to provide supplies and expertise.

► Export of services

In the last years, Austria has consistently been building and expanding its strengths in the field of exporting services and has acquired an excellent reputation. Austrian planning, engineering and consulting services could be provided for complex industrial and infrastructure projects.

“This is a favourable location!”

An interview with the President of the Vienna Economic Chamber, Walter Ruck

Austria's capital city, Vienna, is in many ways one of the most dynamic large cities in Europe. This is true of its diverse businesses as well as its lively cultural scene. Roughly 136,000 businesses are located in Vienna – from sole traders to small and medium-sized businesses, all the way to flagship companies active on the global scene. Viennese entrepreneurs manage to create just under 600,000 jobs, guarantee growth and make Vienna one of the most attractive business locations in Europe. At the head of Viennese businesses is Walter Ruck, the President of the Vienna Economic Chamber. He himself has been a successful master builder, knows the location well and is often away on economic missions abroad.

The economy is buzzing, years of stagnation seem to be over. A 2.6 percent growth has been forecast for Vienna in 2018. What has to be done to maintain this boom?

Walter Ruck: The economy is the best it has been in ten years. This needs to be consolidated and accompanying measures are needed to achieve this. For example, important infrastructure projects, such as high-ranking transport projects – the expansion of the road network, of public transport and the airport, or complete broadband coverage will be pushed forward. And we put pressure on to make sure that there are even more business-friendly policies. This is also the reason why we have concluded a strategic agreement with the Vienna city government. All the signs look positive. Whoever invests in Vienna is doing the right thing.

Which initiatives/measures does the Vienna Economic Chamber implement to advertise Vienna as a business location for international businesses?

Facts & figures

Vienna is one of the fastest growing regions in Europe. On an international comparison, Vienna is advantageous as a business location thanks to its expertise in the areas of biotechnology, life sciences, information technology, urban technology and creative industries. There are very well-connected business clusters in Vienna, which are also globally active.

Vienna is very popular among international companies. In the last twelve months roughly 200 companies have newly set up in the Austrian capital. That certainly favours Vienna as a business location.



The Vienna Economic Chamber sees itself as building bridges and opening doors for businesses. With over 100 support centres worldwide, the organisation of economic chambers promotes the internationalisation of the Austrian economy. We strengthen relations within the framework of our economic missions in order to benefit the Austrian economy. This is how we have built up a functioning and service-orientated network over the years. Vienna is what benefits from this as a business location. Finally, we have successfully represented Austria's position and Vienna as a business location in China, as part of the Silk Road project. The largest Chinese bank, ICBC, is now coming to Vienna and will develop its Central European and Nordic location here. Our commitment goes beyond advertising. We are direct mediators, we build up relations and represent the interests of the Viennese economy in order to positively develop Vienna as a business location.

What factors make Vienna a good business location?

Vienna's advantageous geographic location in the heart of Europe with excellent relations with Central Europe is something no one can deny. The city of Vienna is of course also a booming destination for tourists, with over 15 million overnight stays. Companies here have built up an excellent reputation for themselves. Additionally, compared to the rest of the world, Vienna is pretty inexpensive when it comes to office space rental prices. International connections are very well-developed thanks to the airport of Vienna as well as the regional transport network. Personal safety and quality of life also speak in favour of Vienna as a business location.

Hedy Lamarr's "daughters"

Verena Fuchsberger-Staufer won the first Hedy Lamarr Award for her HCI work.

Hedwig Eva Maria Kiesler was born on 9 November 1914, only a few months after World War I broke out. Her mother Gertrud Lichtwitz was a professional concert pianist from Budapest, her father Emil Kiesler from Lviv worked as a bank director at Creditanstalt-Bankverein.

Just before the age 16 Kiesler starred in her first film, "Money on the Street". The Czechoslovakian-Austrian production "Symphony of Love", better known as "Ecstasy" from 1933 turned into a scandal with its ten-minute-long nude scene – bathing in a lake and afterwards walking naked through a forest – and a love scene that "only" showed her face in ecstasy from an orgasm.

Movie star in Hollywood

In 1933 she married metal and military industrialist Fritz Mandl. The jealous husband restricted her freedom massively, forbid her to act and spent a lot of money to hunt down as many copies of "Ecstasy" as possible and get them off the market. In 1937 she suddenly divorced Mandl and travelled via Paris to London where she met Hollywood producer Louis B. Mayer. He contracted her and took her to the United States, where she started a spectacular acting career with a name that Mayer had chosen for her as an homage to silent film star Barbara La Marr.

She didn't land the role in Casablanca but starred in more than two dozen films such as "Tortilla Flat" (1942), "Samson and Delilah" (1949) and "The Story of Mankind" (1957) alongside Spencer Tracy, Clark Gable, Judy Garland and the Marx Brothers, among others.

But she also showed her remarkably innovative technical talent "on the side": When Lamarr and composer George Antheil had to synchronise 16 pianolas with one another and a film for his ballet "Mécannique" they did so by using simultaneously running piano rolls (or punched paper, respectively). Thanks to identic punched paper in sender and receiver, simultaneous frequency shifts were made possible. This became the frequency shift modulation, a remote radio control for torpedoes that spreads the control signal

across several frequencies, making it hard for the enemy to jam it. Lamarr wanted to help the US military to defeat the Nazis with this technology.

The patent for the "Secret Communication System" was submitted in June 1941 and received its patent number in August 1942. However, the US military kept the revolutionary invention under wraps, using it for the first time during the Cuban Missile Crisis in the 1960s.

Ahead of her time...

The technology was only made available for commercial purposes in the 1980s and became the basis for all modern mobile phone,



The **Hedy Lamarr Award** distinguishes extraordinary Austria women who make an impact in tomorrow's digital world just like Hedy Lamarr herself. It underlines the significance of women in IT who serve as role models with their story. So, let's learn more from and about Verena Fuchsberger-Staufer and her successors!



Bluetooth and WiFi technology. But only when digitalisation came about, did the major significance of Lamarr's invention become apparent. She was thanked for the first time only in the 1990s, when the first specialist publications made the connection. "About time," she replied dryly. And when it was mentioned, that she was years (actually decades) ahead of her time, she said "I always am."

Hedy Lamarr died on 19 January 2000 in Florida. A man connected to the Vienna Town Hall, who wants to remain anonymous, initiated the Hedy Lamarr Award for innovative women in IT in a very short time in the first half of 2018. "There was a window of opportunity," he said knowingly, and added: "We even could get financing of 10,000 euros without any real problems."

But as the City of Vienna does not have the resources to organise such an award for the entire country, it used the know-how and expertise of the Austrian Science Fund FWF to honour extraordinary Austrian women "who make an impact in tomorrow's digital world". For its first year, the fund chose about twenty scientific programmes with promising candidates, whose projects had been approved in 2017 and whose graduation did not lie back longer than four years.

Then, four FWF consultants (Roderick Bloem, Ruth Breu, Silvia Miksch und Bernhard Rinner) selected three potential candidates based on their research potential (innovation and originality), their internationally excellent publication work, how well they were connected (inter)nationally and how much they are scientifically recognised.

The other two "daughters of Hedy Lamarr"

Francesca Finotello (33) works in bioinformatics in the field of genome sequencing and the basis of lung carcinoma therapies – a hot topic with a high potential for the future.

Andrea Salfinger (33) researches "situation awareness in crisis situations" and was scientifically speaking the youngest candidate. Just like Verena Fuchsberger-Staufner and Francesca Finotello, she is a fine publisher (dissertation in 2016!).

The first award winners

On 4 October 2018, researcher Verena Fuchsberger-Staufer (35) from Salzburg received the first Hedy Lamarr Award in Vienna for “her extraordinary achievements in the field of information technology”. Her work “Re:tangent – Remote Tangible Engagements” researches the opportunities and risks of the fusion of man and machine. “She works actively on developing new methods that can be used in various applications of everyday life,” the jury explained its decision.

Fuchsberger-Staufers specialist field in the area of conflict between information technology and social sciences is the Human-Computer Interaction (HCI), or rather the tangible interaction, to be exact. This field deals with the findings not only of information technology but also of psychology (in particular media psychology), occupational science, ergonomics, cognitive science, sociology and design. It was popularised by Stuart K. Card, Allen Newell and Thomas P. Moran in their book “The Psychology of Human-Computer Interaction” (1983). The first usage of the term HCI dates back to 1975; it means that contrary to other tools with only a limited purpose (e.g. a hammer) a computer offers various purposes and Human-Computer Interaction represents an open dialogue between man and machine.

Fuchsberger-Staufer is trying to find out how humans experience various physical artefacts in order to infer appropriate strategies for the communication between humans and computers. For this, she works actively on developing new methods that can be



The Hedy Lamarr Award is meant to represent the actress in an abstract way: curvy and beautiful on the outside, complex and playful on the inside.

*„Any girl can be glamorous.
All you have to do is stand still and look stupid.“*

Hedy Lamarr

used in various applications of everyday life: potential usages range from virtual reality to digital humanities. Due to the ever-increasing digitalisation, the jury expects major challenges ahead particularly in this field: “Fuchsberger-Staufer manages to show a balancing act between basic research and concrete potential applications in a very impressive way. She communicates her research results actively and in an easy to understand format for laymen – and she is a role model for young women.”

Verena Fuchsberger-Staufer could not receive the first Hedy Lamarr Award personally as she became mother of a girl only hours before the ceremony. “Unfortunately, I can’t be here today because a young lady wanted to come first”, she said in a video message. But she was particularly happy about winning the award, she said, because it has one important thing in common with her work: Making things visible to others.

The future of the Hedy Lamarr Award will be similarly turbulent:

Next year’s edition won’t be the same quickfire as 2018: Right after the award ceremony, the evaluation for 2019 has already begun. The City of Vienna is of course very grateful for the FWF’s help and wants the whole thing to be done in a more relaxed manner in future. It might even be possible for next year to accept active submissions though nothing has been decided yet. The suspense around Hedy Lamarrs “daughters” continues! ◆

IonOXess bets on cold plasma

PlaMaGrowth has a lot of future potential as a natural alternative for fertilisers and chemical pesticides.

A groundbreaking development of the MCI (Management Center Innsbruck) spin-off IonOXess has been awarded the Tyrolean Innovation Prize in October 2018.

The PlaMaGrowth concept, an industry-optimised method for treating seeds and plants with plasma-activated water, was shortlisted for its outstanding innovation potential and ultimately ranked in the top three in the "Concepts of Innovation Potential" category. The evaluation was based on a proven catalogue of criteria, such as degree of novelty, market potential and customer benefit. The prize was organised by the Tyrolean Economic Chamber and awarded during a ceremony at MedEL.

The high-tech company IonOXess emerged in 2012 from a research project at MCI, and today deals with innovative water treatment processes based on plasma technology. As a university-oriented company, it stands for the close integration of science, research and business. In the PlaMaGrowth process developed by IonOXess, plasma-activated water promotes the germination of seeds and can accelerate plant growth by up to 60 percent without the addition of non-organic fertilisers, as well as preventing undesired fungal growth and bacterial growth on seeds and plants. It also improves resistance to drought and high humidity.

The latest industry-optimised process technology

It has been known for some time that plasma-activated water can promote the growth of plants, but it has so far only been possible to produce small quantities. The IonOXess process is



Thomas Obholzer, Managing Director of IonOXess, and the PlaMaGrowth process



based on state-of-the-art industry-optimised process technology and could in future become a real alternative for fertilisers and chemical pesticides. By means of a strong electric field and a specially developed catalyst, a cold plasma consisting of ions, UV radiation and sterilizing molecules is produced, which can be introduced into irrigation water.

"Our process takes up well-known mechanisms of action and integrates them into state-of-the-art process

technology, so that the development will be available to as many users as possible in the future," explains Thomas Obholzer, Managing Director of IonOXess. ◆

MCI (Management Center Innsbruck) and ionOXess

As an Entrepreneurial School, MCI is positioned to provide a meaningful connection between university, grande école, business school, university of applied sciences, and the world of business. It represents a strong international brand that successfully combines teaching and advanced training, research & development, knowledge transfer and innovative start-ups.

<http://www.mci.edu>

<https://de-de.facebook.com/IonoXess>

Digitalisation in tourism: Alexa, why feratel?

feratel media technologies AG supplies the latest technology for the customer journey.

Feratel gained international popularity in the early 1990s by supplying panorama weather pictures to TV stations throughout Europe. Today, the live videos are not only available on TV but also across all digital channels – from connected TVs to online platforms, apps and local digital signage systems. But feratel is more than just a supplier of live videos and their global distributor. feratel media technologies AG and its sitour subsidiaries accompany guests directly and indirectly across the entire customer journey.

The broad range of products includes countrywide database solutions for destination management, online booking devices and their link-up to all sales channels, digital guest registration, guest card solutions, accreditation tools, a number of digital signage applications as well as a digital holiday companion and its latest product, a chatbot made especially for the tourism sector.

Complete solutions provider

When it comes to digitalisation in tourism, feratel is at the forefront. feratel media technologies AG is not only active in Austria but is operating internationally. The company has established itself as a complete solution provider for digital destination management with

sites in Austria, Germany, Switzerland, Italy, Spain, Belgium, the Netherlands, the Czech Republic, Slovakia, Bulgaria, Japan and the United States. Its core competence can be found in the intelligent link-up of expertise in the tourism sector with more than 4,000

customer relations and technological know-how, turning them into product solutions.

I'm PIA, pleased to meet you

Tourism stakeholders who want to accompany their guests throughout the entire customer journey should take a look at feratel's PIA, the Personal Interests' Assistant. From a technological point of view, PIA is a progressive web app (PWA) – a high-end information, sales and marketing tool. PIA keeps guests up-to-date before, during and after their stay: It is fine-tuned to the interests of each individual guest; PIA simplifies the communication in a quick and modern way, promotes a hotel's additional services, has tips for the destination,

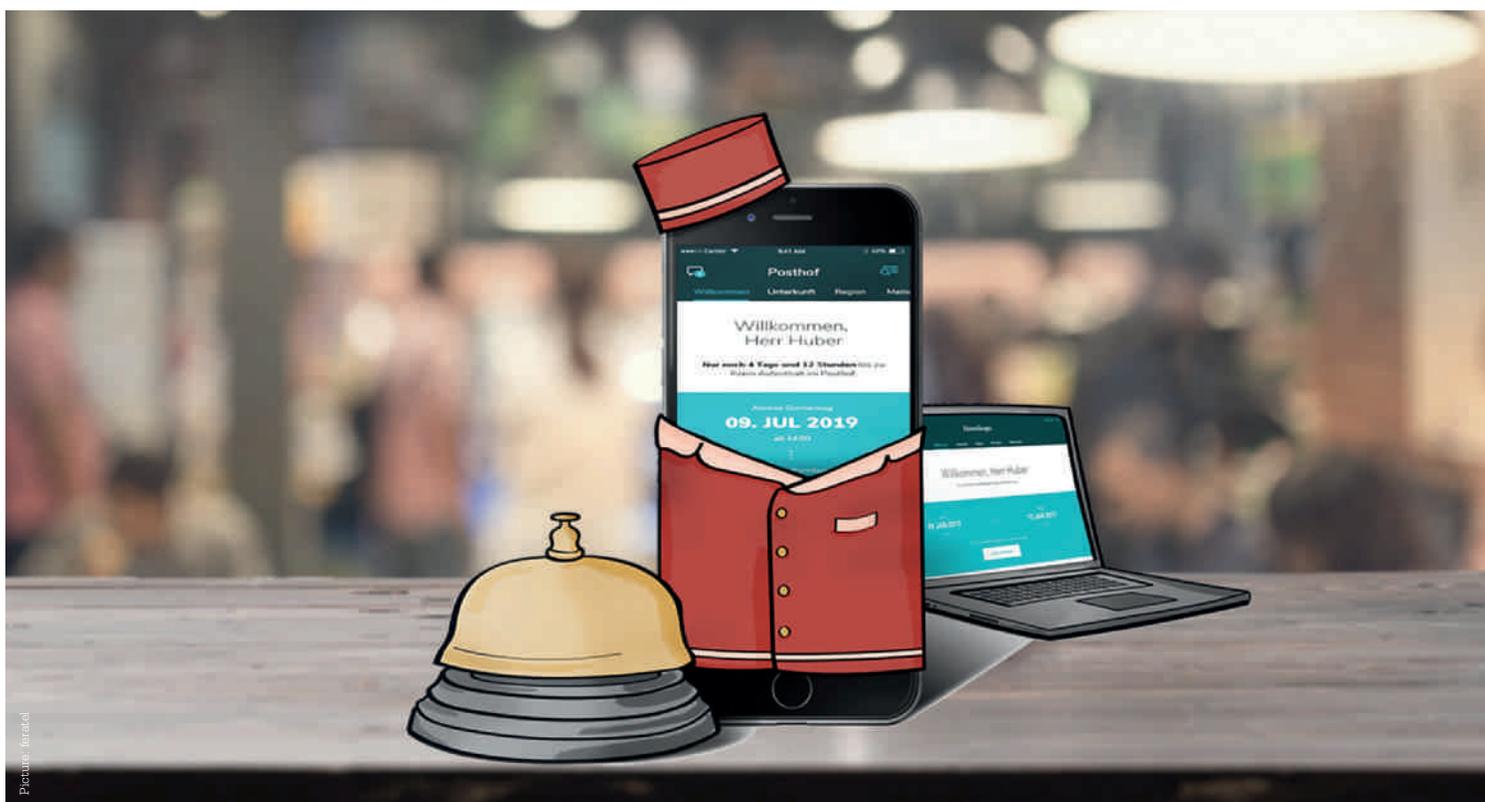
supports and helps out in everyday business. And all that in several languages, of course.

PIA is very flexible in its look: Icon, logo, CI colour – the digital concierge is perfectly adjustable to all visual needs. Another highlight about PIA: The assistant informs guests before they arrive of offers and activities at the destination according to their interests.



“Chatbots, voice control assistants and messenger services are all hot topics and important issues for the future of tourism.”

Markus Schröcksnadel



Tourism experts shouldn't miss the digital concierge PIA: It takes care of guests before, during and after their stay, and supports hotel operators in their everyday business.

During the guests' stay, PIA serves as a 24 hours concierge for daily offers, in-house marketing, additional sales, programmes, events, tips around the area, highlights and culinary offers. And after their departure, PIA helps to make them regular visitors by keeping in touch with specials, relevant news and incentives for return bookings.

Chatbot can answer questions in realtime

Since more and more people are using voice control assistants (Hello Alexa! Hiya Siri!) to organise their spare time, feratel also took an interest in the technology as it is of high importance for the tourism sector. "Chatbots, voice control assistants and messenger services are all hot topics and important issues for the future of tourism," says Markus Schröcksnadel, CEO of feratel.

Therefore, feratel media technologies joined forces with Onlim, a spin-off from the University of Innsbruck, and developed a new product: The Onlim Deskline Edition, a software platform for the automated generation, administration and distribution of content from the destination management system Deskline to chatbots and smart assistants. The software operates across several channels and is thus available for a client's website, the Facebook messengers and integration into smart speakers for voice control assistants such as Alexa. This makes it possible to approach guests in micro-

moments very early in the customer journey and provide them at all times with up-to-date, authentic and high-quality information about their next destination.

The digital assistant answers a client's question instantly and without delay. The service bot is also in perfect shape for classic services; it can answer questions about the room, its facilities, additional services and opening hours of the spa area completely on its own. Therefore, information for countless numbers of potential clients is available simultaneously – at all times, around the clock and in realtime. That is why feratel. ◆

feratel media technologies AG

feratel media technologies AG from Innsbruck is considered the full solution provider in the tourism sector. The corporation's business fields include telecommunication, information and booking systems as well as media. Creating synergies between these three areas is held in high regard at feratel. No customer is too big or too small – feratel serves entire tourism regions, skiing resorts but also small hotels.
www.feratel.at, www.feratel.com

A liveable and innovative technology province in the South

Carinthia impresses with its beautiful landscapes and lakes with drinking quality water as well as first-class technology competence.

In Austria's southernmost province, where the three countries Italy, Austria and Slovenia border, internationally operating leading companies and research-intensive small and mid-size enterprises are determining future developments, particularly in the areas of electronics, microelectronics, mechatronics, sensor technology, robotics and IKT.

Urban centre for the microelectronics sector

Micro and nanoelectronics form the backbone of digitalisation. Over the past few years, Villach has developed into an urban centre for the microelectronics sector. Leading the way is Austria's most research-intensive company, Infineon Technologies Austria. In May 2018, Infineon announced it was set to expand the location in Villach by 1.6 billion euros and will build a new chip plant. In the coming six years, Infineon will intensify research, development and production in Carinthia – particularly in the areas of digital mobility,

energy and security. In the meantime, Infineon technology is on-board eight out of ten electric cars, helping to control the vehicle's drivetrain.

Also, the technology company Flex (known as Flextronics until 2015) is expanding its Carinthian location in Althofen. Twenty million euros is being invested in additional production space, high-tech equipment and intelligent systems.

At Flex in Althofen, electronic modules as well as complete devices are being produced for international customers from the automotive industry, medical technology as well as other sectors.

A research hotspot

Strong business know-how is complemented by an attractive research landscape in Villach. The largest non-university-based research centre Carinthian Tech Research CTR at the High Tech Campus Villach is one of the leading research institutes in Austria in the fields of intelligent sensor technology and system integration. The research laboratory captured the curiosity of the European Space Agency last year. ESA is currently testing a laser ignition system, which researchers from CTR helped to develop a few years ago. In the future, CTR will be one of the three locations of Silicon Austria Labs. By 2023, Silicon Austria Labs will expand to 415 employees, of which 192 will be based in Carinthia. The Federal government as well as the provinces are financing the Labs with 140 million euros up until 2023; the electronics industry will double this amount.

The right location for IT companies

Information and communication technologies is for Klagenfurt, what microelectronics is for Villach. An IT campus has developed around the 34,000 sqm large Lakeside Science and Technology Park, which is one of a kind in Austria. At the end of July, the fifth construction stage started.



An important leading company: Infineon Technologies AG in Villach



The Lakeside Science & Technology Park (Lakeside Park for short) is a science and technology park in the St. Martin area of Klagenfurt.

Since it opened in 2015, Lakeside Park has grown to become an internationally distinguished and renowned innovation centre. “Almost 70 companies and three research institutes have since settled at the park, and we are at full capacity,” says Director Hans Schönegger. “Around 13 million euros are going to be invested by autumn 2019 for a further 4,600 sqm of offices, labs and research institutes.”

Six metres high laboratories for the research into industry-relevant robot-human-collaboration as well as the nearly available infrastructure for a robotics security centre is setting new standards and opening up new business fields. Joanneum Research Director Wolfgang Pribyl underlines the unique selling point in Austria: “We are really glad about having first-class infrastructure, which allows for a greater scope in our research, as well as the advantages of the business location. Together with the Alpen-Adria-University Klagenfurt as a cooperation partner, we can use the laboratory areas across numerous institutes and thus expand our focus on mobile manipulation also in the air.”

The perfect framework and the good networking between research, educational institutes and companies has also convinced Joanneum Research in the research areas of robotics and me-

Carinthia's selling points

- ▶ Innovative technology province with a high quality of life
- ▶ Business-friendly environment
- ▶ A logistics and economic hub in the Alpe-Adria region in the heart of Europe
- ▶ Attractive funding landscape with the focus on technology, research and IT sectors
- ▶ Two attractive science parks with a connection to research, businesses and educational institutions (Lakeside Science Park Klagenfurt and High Tech Campus Villach)

chatronics to settle in Klagenfurt in due time. The young team of around 20 employees has already made a name for itself internationally: It developed a programme code for the open source operating system ROS (Robot Operating System), which has attracted attention in the robotics community.

In addition, they are working on the research area Innovative Mobility Modelling. Questions surrounding mobility behaviour as well as spatial development are being worked on, which are essential areas for future forms of mobility such as car sharing as well as autonomous driving. A software is currently being developed, which will combine and control autonomous driving with people's traffic behaviour. The German automobile industry is already showing interest in the Carinthian research results.

The students at the Alpen Adria University also benefit from the strong focus on research taking place next door. The technical faculty cooperates with Airbus, Siemens and of course local companies such as Kostwein, Funder and Skidata. In autumn, a new endowed professorship "Industry 4.0: adaptive and networked production systems" will begin, which has been set up between the TU Graz and several companies. One of the youngest, most-successful spin-offs of the university is Bitmovin. When you watch films via Amazon these days, you will implicitly be using technology from Klagenfurt.

World market leader opens development center in Klagenfurt

With Dynatrace, a clear world market leader in the areas of Application Performance Monitoring (APM), Digital Experience Monitoring (DEM), IT Infrastructure Monitoring (ITIM) and Algorithmic IT Operation (AIOps) has also settled in the Carinthian capital. Dynatrace was founded in 2005 in Linz and in the meantime has more than 1,600 employees worldwide. In addition to the existing software labs in Linz, Gdansk, Detroit and Barcelona, the company has founded another software engineering site at Lakeside Park. The aims are, by all means, ambitious. By the end of 2018, the number of software developers should rise from the current eight to thirty, and in the mid-term, more than 100 employees are envisioned.

"The proximity to the university as well as to the University of Applied Sciences in Klagenfurt of course opens up great perspectives when looking for the best candidates for our new team of developers," says Bernd Greifeneder, Dynatrace co-founder and CTO. "We are looking for software engineers who want to play a part in the continuous development of a worldwide leading product, which is currently in use by 72 of the Fortune 100 companies."



BABEG strengthens technical research and innovation in the south of Austria

Technical playground for 5G

The first test region in Austria for 5G, the considerably quicker and more efficient new mobile technology standard, can be found in Carinthia. Going by the name 5G Playground Carinthia, local businesses are being offered a 5G test laboratory under real life conditions, where they can develop and test new technologies. This includes, for example, autonomous vehicles as well as intelligent drones, which can locate injured people independently and can guide rescuers to the accident scene.

A remarkable research ratio

The commitment and investment in research and development is paying off in Carinthia. The research ratio lies at 3.15 percent; the forefront of innovation is increasing, attractive and sustainable jobs are being created and as a result of these activities Carinthia is attracting an increase in interest both nationally and internationally.

Information and questions



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Transport, innovation and technology under one umbrella

The future along with research is right at home at the Ministry of Transport, Innovation and Technology (the BMVIT). Transport, innovation and technology – there are hardly any areas left these days which complement research quite as well. The following pages will demonstrate just exactly what the BMVIT does for Austria as a business location.

Within the Austrian federal government, the BMVIT is responsible for applied research and technology development. Important partners for this are those companies that should be encouraged to make greater investments in the areas of research, technology and innovation as well as cooperation with research institutes. Among some of the main goals underlying the BMVIT's measures are contributions made by research, technology and innovation in resolving social challenges.

When it comes to social challenges and research, institutes of higher learning and universities are not far behind. Places of higher learning and universities are the driving forces behind progress: They modify society through education and research, and are also themselves subject to constant change, as scientific and social problems are carried forward to them. This is reason enough for the BMVIT to be present precisely in this area – endowed professorships.

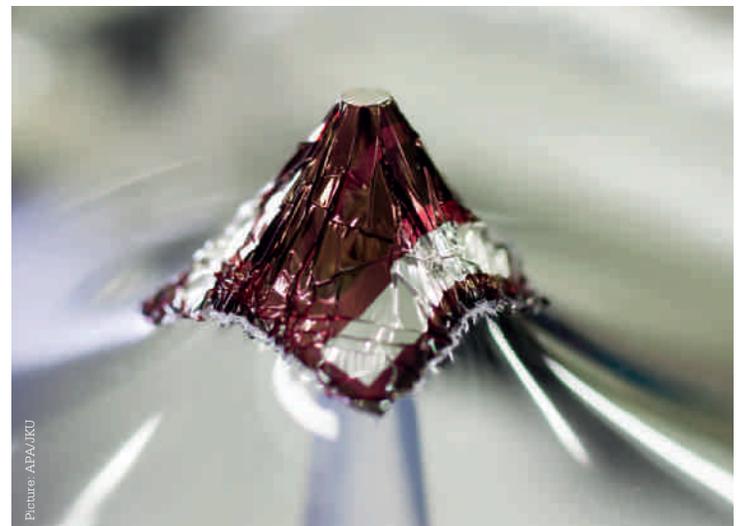
Endowed professorships are meant to attract outstanding researchers to Austria. The funding period is limited to a maximum of 5 years and includes the development and establishment of new topics in the Austrian university and research sector. Endowed professorships are of special interest to the BMVIT in those key topical areas where there are considerable academic skills but where gaps still exist.

The establishment of endowed professorships should strengthen important areas of science and contribute to the further development of cooperation between science and the economy in Austria as a location for innovation. Endowed scholarships create a good image for universities and also serve to attach highly qualified junior employees to companies early on.

Endowed scholarships in detail

At the Vienna University of Technology, an endowed scholarship in the field of production was set up. Since June 2017, the BMVIT endowed chair Sebastian Schlund has been working in the field of cyber physical production and assembly systems with a focus on research and development in the interoperability of technology with people and organisation, keeping a close dialogue with the industry and the economy. BRP-Powertrain GmbH & Co, FACC AG, Infineon Technologies Austria AG and Siemens AG Österreich are partner companies that are supporting endowed scholarships.

At the Graz University of Technology, Sergio Amancio is looking at innovative materials and production techniques in particu-



Picture: APA/JKU

An organic solar cell from the Johannes Kepler University – freely transformable.



lar for the field of aviation. Amancio was born in Brazil and attained his doctorate at the University of Technology in Hamburg. He has been a “BMVIT endowed scholar in aviation” since March 2018. He has reputable Austrian companies as finance partners supporting him, such as Böhler Edelstahl GmbH & Co KG, Böhler Schmiedetechnik GmbH & Co KG, Diamond Aircraft Industries GmbH, Fuchshofer GmbH, TCM International, Tool Consulting & Management GmbH and voestalpine Edelstahl GmbH.

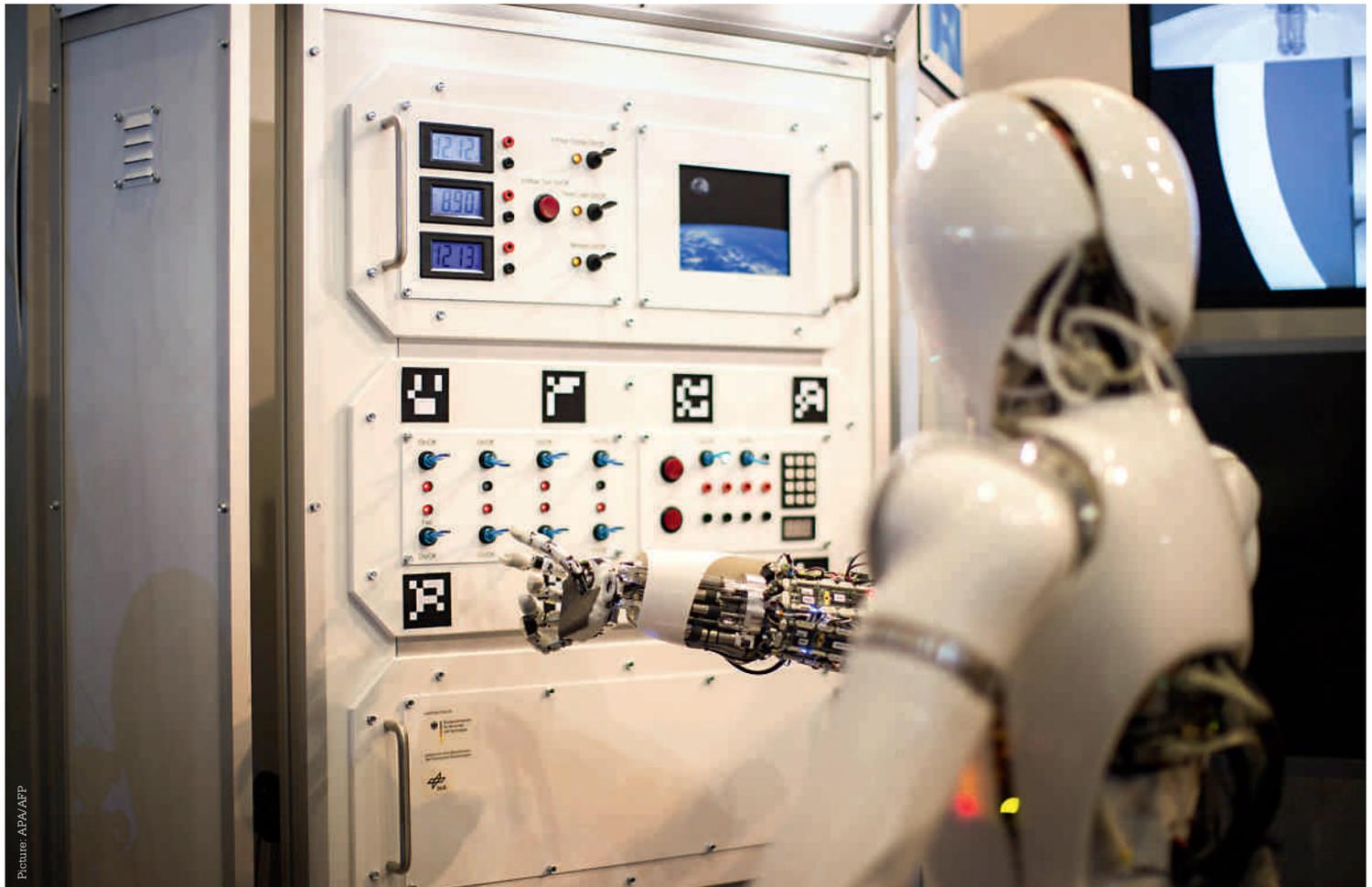
Endowed professor Cristina Olaverri took up her new position at the start of September 2018 at the Johannes-Kepler-Universität in Linz. She works within the areas of mobility and transport logistics and will be looking closely at the new field of research “physical internet” in connection with the sustainable reorganisation of transport logistics and the mobility of goods in conurbations in order to achieve positive economic, ecological and social effects.

Her financing partners are the Logistikum at the University of Applied Sciences Upper Austria, DB Schenker, Österreichische Post AG, Hödlmayr International AG and Pfeiffer HandelsgmbH.

A second endowment scholarship at the Graz University of Technology is in the field of IT, to be more precise, in the field of data science and big data management. The university gained a proven expert in Mathias Böhm, who also took up his scholarship at the start of September 2018 and brings with him the expertise he gained at IBM Research in the United States. At the Graz University of Technology, he will be concentrating on big data management and integration with a focus on smart production applications. The scholarship is in conjunction with AVL LIST GmbH, Infineon Technologies Austria AG, Magna Steyr Fahrzeugtechnik AG & Co KG & Magna Automotive Europe GmbH and Voestalpine Stahl Donawitz GmbH.

Artificial intelligence and robotics

Since 2002, the BMVIT has been providing funding in the core area of IT with the FIT-IT (research, innovation and technology) programme to corresponding subfields, in particular via its Programme line Embedded Systems, which includes robotics, semantic systems and visual computing. In the IT programmes



alone, well over 100 million euros have been invested up until now in artificial intelligence (AI) and AI-relevant areas. Moreover, considerable funding was allocated to the basis and structural programmes.

Thanks to the availability of large data volumes, increasing processing power and constantly growing automated decision-making processes via IT systems, the importance of artificial intelligence and robotics is steadily increasing. The BMVIT recognised the growing significance of artificial intelligence in other policy areas and its social impacts early on, and set up the Council for Robotics in 2017.

This committee, which is made up of nine members, will first and foremost advise the BMVIT on how to develop the strategy for artificial intelligence and robotics, but also on how to autonomously handle significant technological, financial, social and legal issues, and submit recommendations. The members are made up of experts in robotics in the fields of research, teaching and economics, who together can formulate and shed a light on diverse and various issues.

We are the robots

The number of robots and areas in which robots are used in industry, services and increasingly also at home are growing rapidly. Value creation and location security can only be achieved via further automation. Austria has achieved a successful position by steeping itself in Industry 4.0 for a good reason. There is still a need, however, to catch up when it comes to industrial robots, as statistically Austria currently lies in the lower mid-table with a third of the number of robots that Germany or South Korea have. Robots will help us to be more successful in having smaller batch sizes and faster reconfigurability in individualised production.

Until this is the case, testing has to be carried out in so-called pilot factories. In Austria, there are currently two located in Graz and Linz. Those mainly in charge for the new test labs are the University of Technology in Graz and the Johannes Kepler University in Linz, working together with local facilities. Pilot factories are realistic models of a factory and help to make new products market-ready faster – this is where local companies test the digital production of tomorrow.



The BMVIT funds half of the pilot factory costs – up to two million euros – across a period of three years. In the new pilot factory in Graz, four million euros have been invested in total. Along with the investment made by the Ministry of Infrastructure, there have been investments from the Graz University of Technology and 20 participating companies, such as Siemens Österreich, AVL List GmbH and Magna Steyr. Altogether, the BMVIT funds research and development in Industry 4.0 with 184 million euros a year.

Pilot factories in Graz and Linz

New production methods are explored at the “smartfactory@tugraz”, which can produce small quantities affordably, such as customised cars. A special focus here is on data security and reliability of computer-controlled production systems. The pilot factory is in essence open to all sectors and hopes to take small and medium-sized companies into consideration in particular.

At the “LIT factory” of the Johannes Kepler University in Linz, innovative process technology is being researched with the goal

of utilising materials for new purposes. An example of this is the development of light weight parts of synthetic material to be used for cars instead of steel, in order to connect the engine to the chassis. Other research projects are being carried out in the fields of production technology, medical technology, mechanical engineering, construction and recycling technology.

The new pilot factories, which are run by their respective universities, will additionally form an interface between institutes of higher learning and the economy – the key word here is knowledge transfer. Furthermore, pilot factories are available to all companies and researchers in Austria who are interested in using them.

IoT – Internet of Things

The second most important focus of the sponsorship programme “IT of the future” by the BMVIT and the Austrian Research Promotion Agency FFG is cyber security in all connected applications including the Internet. Researchers at the Austrian Institute of Technology (AIT) are looking at this in cooperation with universi-



ties as well as representatives of the Austrian high-tech industry and research institutes in a pioneering project.

The trailblazing national project "IoT4CPS" sees new security concepts being developed for the Internet of Things (IoT), in order to guarantee the increasing rate of networks and its corresponding demands placed on the durability, security and reliability of "cyber-physical" systems. The "IoT4CPS" project creates close cooperation between the industry, the economy and research to bring about an important impetus for innovation in future-orientated fields of application for Austria as a business location, the AIT Austrian Institute of Technology explains.

The focus of the project is on connected vehicles as well as smart production. The funding for the project, which is set to run for three years, amounts to three million euros.

Silicon Austria

In future, Silicon Austria labs will give Austria a world-class international research centre for microelectronics. The BMVIT is a leading actor in bringing this into fruition. Silicon Austria is a research investment campaign by the BMVIT for the Austrian electronics industry in the field of electronics-based systems (EBS). As representatives of the industry, the association for the electric and electronics industry holds 24.95% in this project. The other stakeholders are the government (50.1%) and the Federal Provinces of Carinthia (10%), Upper Austria (4.95%) and Styria (10%).

The campaign's stated goal is to elevate Austria's international impact and visibility in the areas of microelectronics and electronics-based systems, and to turn it into an attractive and leading business location for the sector. It aims to achieve this not only with the aid of the aforementioned endowment scholarships and pilot factories for electronics and microelectronics, but also via the establishment of the research centre Silicon Austria Labs. Additionally, accompanying measures have been planned, such as the creation of open workshops at universities and

schools, electronics model projects within the framework of the research programme "IT of the Future" as well as research infrastructure.

The sites in Graz, Linz and Villach are pressing ahead in the combination, expansion and reorientation of research capacities in the field of EBS to strengthen and develop the Austrian microelectronics sector and the industrial EBS users in the long term. The facilities TU Graz Campus Inffeld, Science Park Linz and High Tech Campus Villach meld into a nationwide research association.

Over the next five years, the BMVIT and the provinces will invest 70 million euros each into the project; the Austrian industrial sector has already declared it will double the public funding. This amounts to an overall investment volume of 280 million euros.

Furthermore, up to 500 high-tech jobs are created at the three sites of the research centre. In an age of rapid digitalisation and automation, Silicon Austria makes a significant contribution to shaping the industrial business and innovation location Austria in a competitive and sustainable way. Electronics and microelectronics are the basis of digitalisation and therefore for a large number of promising business fields. In addition, the microelectronics sector is the most research-intensive and most innovative sector in the country.

ASAP to space

Since 2014, the BMVIT is also officially Austria's Space Ministry; it has been promoting research and development in this field since 2002 with the Austrian Space Programme ASAP. With more than 600 successful projects, ASAP is the research sector's basis for accessing international markets, global space cooperation and increasing competitiveness. This programme supports the Austrian space high-tech sector to achieve outstanding international achievements across the whole range of space travel: from space research and science to technology developments to applications in space technologies such as earth surveillance, telecommunication and navigation.

Austria's first satellites in space were built with help from ASAP. TUGSAT of the Graz University of Technology and Uni-BRITE of the University of Vienna have been orbiting Earth since 2013. The travel around the planet in an altitude of 800 kilometres and at a speed of 27,000 kilometres per hour. Their task is to collect data on the brightness fluctuation of the brightest stars in the skies.

The European launch rocket Ariane-6 uses flight electronics and engine ignition from Austria. By 2050, it will be the main carrier system of European space travel. Furthermore, Austrian companies and institutes take part in a number of missions of the European Space Agency ESA, such as the Rosetta mission, Eco-

Mars for the search for life on Mars and BepiColombo for the exploration of the planet Mercury.

Every year, the BMVIT invests about 70 million euros into the space sector. Adding the EU's flagship programmes Copernicus, Galileo/EGNOS and H2020, this amount rises to about 100 million euros annually. Austria is also co-financing ESA programmes and thus gives Austrian companies the opportunity to participate in ESA missions. As a result, the fuel lines and the valves for the liquid propulsion system of launch rocket Ariana-5 have been made in Austria, among other things.

Next year, Graz University of Technology will send the satellite OPS-SAT into orbit for the European Space Agency ESA. In 2020, the satellite PRETTY, built at the same university, will strengthen ESA's global weather monitoring. Its task is to measure and register ice on glaciers and the poles, as well as the movement of ocean waves as the first nanosatellite ever. This new satellite will be part of the environment and weather monitoring fleet, helping to explore climate change.

Smart cities

Climate change and the use of scarce resources are two of today's society's major challenges and are the leitmotif of the Austrian

Federation's FTI Strategy. The SET Plan (Strategic Energy Technology Plan for Europe) tries to solve the issues in the energy sector on a technological level by introducing new energy technologies by 2020. Therefore, cities of the futures shall become smart cities. The challenge is the intelligent mixture of technologies and systems, and their integration into a highly efficient overall system. Relevant topics are, for example, smart buildings, mobility, sustainably energy supply, supply with raw materials and the recovery of waste material.

A highly developed smart city can be an Internet of Things and Services: The entire urban environment is equipped with sensors that make all collected data available in a cloud. This has the effect of a permanent interaction between city dwellers and the technology that surrounds them. A city's inhabitants become part of its technological infrastructure.

"City of the Future", the research and technology programme of the BMVIT, aims to explore and develop new technologies, technological (sub)systems and urban services for a smart city, based on the previous programmes "Houses of the Future" and "Energy(systems) of the Future".

A central concern of the Austrian research and development policy is the development of a sustainable energy system. Based





on this, the FTI programme “City of the Future” pursues three goals in its quest for intelligent energy solutions for buildings and cities:

- ▶ Resilient cities and districts with a high resource and energy efficiency, increased usage of renewable energies and a high quality of life
- ▶ Optimising and adaptation of urban infrastructure and the expansion of urban services with advancing urbanisation and the necessary resource and energy efficiency in mind
- ▶ Setting up and securing technology leadership and increasing the international competitiveness of Austrian businesses and research institutes

The idea of the programme is not only to give an impetus to technological development. It also aims to launch and promote development processes in cities that are contributing to achieving the programme’s goals. Visionary projects and use cases are implemented and documented so other cities and urban regions can copy their processes.

The focus of “City of the Future” is on buildings and urban energy systems, quarters, districts and the connection of a city with its surrounding regions. New technologies shall help to make working and living in combination with a city’s traffic and production more environment-friendly and energy-efficient.

At the same time, the idea is that technological solutions make people’s everyday life easier while being affordable.

Magic formula 5G

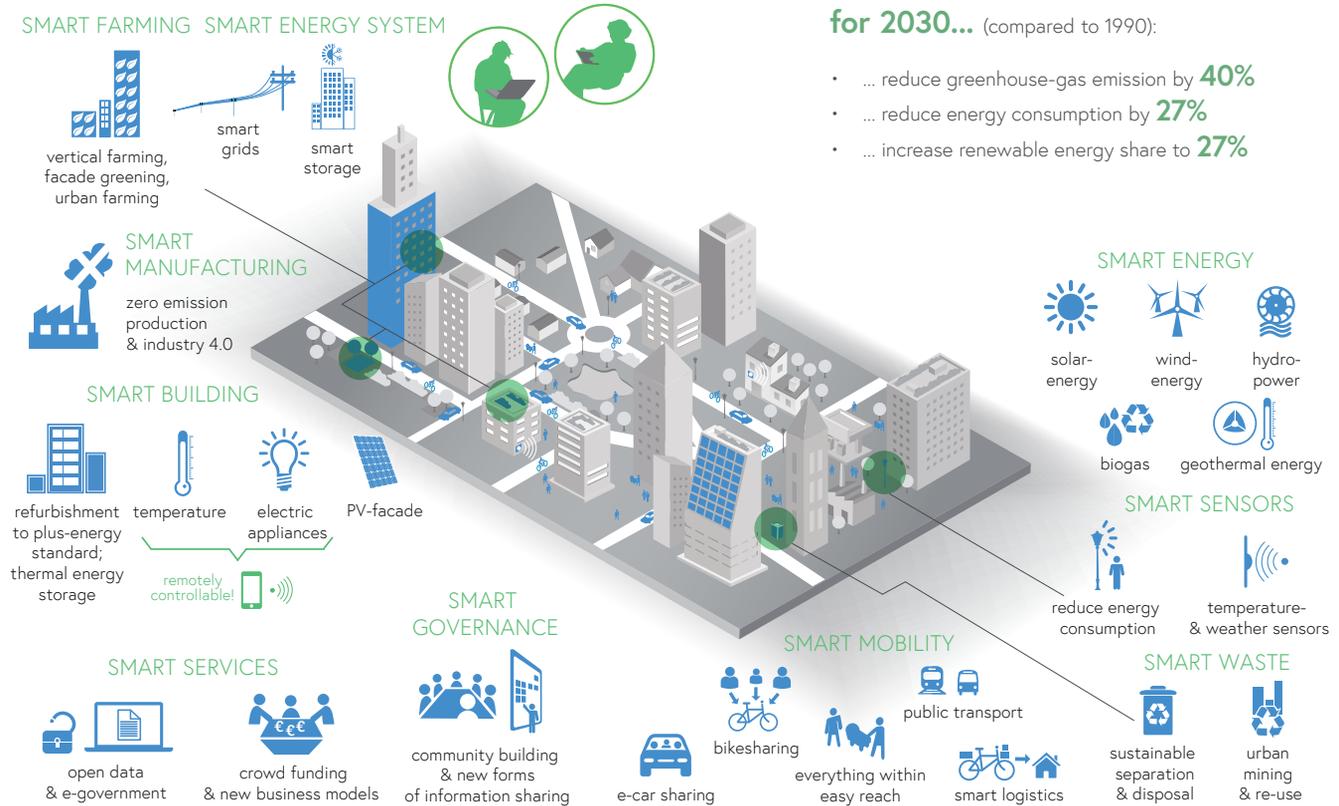
Self-driving cars, people collaborating with robots and many other smart technologies for cities, medicine and the industry need extremely fast and reliable communication systems. The future mobile telephony generation 5G will make this happen. Therefore, the AIT has started the new national 5G research project MARCONI in cooperation with NOKIA and AVL, developing the radio propagation necessary for 5G as well as simulation models and radio systems for the industry and autonomous cars. The BMVIT finances the project as part of the subsidised programme “IT of the Future” of the Austrian Research Promotion Agency FFG.

Smart City Living

Climate and Energy goals of the European Council

for 2030... (compared to 1990):

- ... reduce greenhouse-gas emission by **40%**
- ... reduce energy consumption by **27%**
- ... increase renewable energy share to **27%**



Source: Federal Ministry for Transport, Innovation and Technology

Future 5G technology will be more fail-proof than current mobile telephony technologies and will therefore lay the foundations for the many newly announced developments and technological revolutions such as self-driving cars and smart home systems (Internet of Things), which have to react in the shortest amount of time to their environment. This includes robots, among other things, that will work together with humans. Due to a too high latency, today's LTE and 4G networks are unsuitable for such tasks. Current mobile telephony networks need on average fifty milliseconds, for example, to submit a signal. But when you need to control high-speed, high-precision lathes or prevent cars from colliding, considerably faster reaction times are needed.

Last year, a 5G test region has been set up at the Lakeside Park in Klagenfurt, the High Tech Campus in Villach and at the Industriepark St. Veit. The BMVIT and the Province of Carinthia subsidised the project with a total of 1.6 million euros to help with the installation of the necessary fibre optics infrastructure and the first prototypes of 5G transmitters. Businesses can use this infrastructure to test their 5G products and applications. ◆

Pages 104 to 111 were written in editorial cooperation with and paid by the Federal Ministry for Transport, Innovation and Technology (BMVIT).

Contact us

The BMVIT creates the framework for Austria's infrastructure, from rails to roads, from waterways to airways and from telecommunications to technology development.

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and Technology

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Located in Salzburg, Commend employs around 200 people and maintains an international network of partners with a total of around 400 staff. Our annual turnover in 2017 was around €70 million. The Commend Group is part of the Dutch TKH Group (www.tkhgroup.com).



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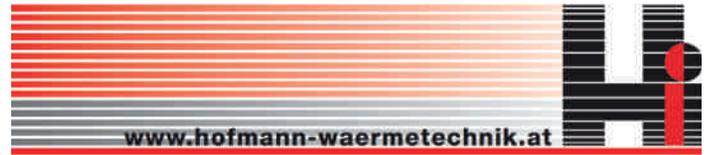


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COPA-DATA is an internationally operating software manufacturer for industrial automation with its headquarters in Salzburg. The zenon software platform controls machinery, oversees complex plants and visualises data, always tailored ergonomically to humans operating in an Industry 4.0 environment. Around 135,000 installed systems worldwide provide companies with new scope for efficient automation. Being an independent company, COPA-DATA acts quickly and flexibly, always creates new standards in functionality and usability, and is therefore a trendsetter in the market. COPA-DATA generates 95 percent of its turnover outside of Austria and was ranked first in the Austrian Export Prize 2017 in the category Information & Consulting.



COPADATA

Ing. Punzenberger COPA-DATA GmbH

Karolingerstr. 7B | 5020 Salzburg | E-Mail: sales@copadata.com
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The name Meissl no longer only stands for diverse umbrella sizes, but also for individual large surface coverings and mobile wind protection walls. No matter how extreme the location or load may be, Meissl always finds a solution that not only convinces but that really inspires restaurateurs and their guests.

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Ellmauthal 40, 5452 Pfarrwerfen, Tel: 06462/25100
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Pfeifer: Passion for timber

Tyrolean Pfeifer Group is among the leading players of the European timber industry. It employs about 2,000 people in eight locations in Austria, Germany and the Czech Republic. The product range includes sawn timber, profiled timber, shuttering panels, formwork beams, glulam, single and three-ply panels, pallet blocks, briquettes, pellets and bio power. Pfeifer exports to more than 90 countries. Bisnode's credit rating puts Pfeifer Group among the best-rated Austrian companies.

www.pfeifergroup.com



The Lower Austrian Company is one of the major suppliers of combustion technology systems for biogenic fuels and is renowned for the planning and supply of turnkey plants. Polytechnik offers these combustion plants with a range of performance of 300 to 30,000 kW. Hot water, high temperature water, steam and thermal oil are used as a heat transfer medium. The plants can be used to produce heating and process heat as well as to generate energy (200 kW to 20,000 kW). There are already more than 3,200 Polytechnik plants in operation all around the world; the export ratio amounts currently to more than 98%.



Polytechnik Luft-und Feuerungstechnik GmbH

A-2564 Weissenbach, Austria
Tel. +43(0)2672/890-0, Fax: 890-13
office@polytechnik.at · www.polytechnik.com



At two locations in St. Pölten, Sunpor Kunststoff GmbH produces around 230,000 tonnes of EPS granules (expandable polystyrene) per year according to the Responsible Care standard. An important part of this is due to the gray high-tech EPS Lambdapor® with improved insulation performance. 90% of the production is exported.

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The company is 100% owned by the Norwegian O.N. Sunde A/S.



THE EPS-DESIGNER

Sunpor Kunststoff GmbH

Tiroler Straße 14, 3105 St.Pölten
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With more than 600,000 devices sold per year, emporia is one of the leading providers of mobile phones for the older generation. Since 1991, the company has been developing its products and intelligent services in Austria. When it comes to innovation and development, emporia is working with partners such as universities and designers from all over Europe. Our products are making mobile telephony accessible to people of all ages in order to allow them an active, safe and self-determined life. In 2015, emporia launched the first simple smartphone for the older generation.

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Major Stocks listed on the Vienna

By HELGA KRÉMER

Agrana Holding

1020 Vienna, Friedrich-Wilhelm-Raiffeisen-Platz 1, Tel.: 43 (0) 1 211 37-0, www.agrana.com

AGRANA is an internationally oriented Austrian company, which adds value to agricultural commodities to produce a wide range of industrial products for the processing sector. With around 8,700 staff at 58 production facilities around the world, Agrana maintains a global presence and generates consolidated revenues of almost 2.6 billion euros. Agrana was founded in 1988 and is listed on the Vienna Stock Exchange since 1991. The share of the Z&S Zucker und Stärke Holding AG in Vienna amounts to 78.34 percent of the capital stock; 2.74 percent belong to Südzucker AG and 18.92 percent of shares are in free float.

CEO: Johann Marihart

Management Board: Stephan Büttner, Fritz Gattermayer, Thomas Kölbl

Supervisory Board: Erwin Hameseder, Wolfgang Heer, Klaus Buchleitner, Helmut Friedl, Hans-Jörg Gebhard, Ernst Karpfinger, Thomas Kirchberg, Josef Pröll, et al.

Agrana Beteiligungs AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/3 – 28/2. |
| ISIN: | AT000AGRANA3 |
| Segment: | Prime Market, VÖNIX |
| Type of share: | Common |
| Number of shares: | 62,488,976 |
| Volatility (3 months): | 25.295 |
| Last dividend: | 4.50 euros per share |
| Ex-dividend date: | 11/7/2018 |
| Market capitalisation: | 1,309.10 mln euros |
| First day of trading issuer: | 10/7/1991 |

AMAG Austria Metall

5282 Ranshofen, Lamprechtshausnerstraße 61, Tel.: 43 (0) 77 22 801-0, www.amag.at

AMAG is a leading Austrian premium producer of primary aluminium and high quality casting alloy, rolling products that are used in aeroplane and automotive manufacturing, in the packaging and building industry, in machinery construction and for lighting and for sports goods. With a share of about 75 to 80 percent of recycled materials being used in production, AMAG is one of the global leaders when it comes to recycling. Thanks to a share in Canadian Elektrolyse Alouette, AMAG is also a trailblazer in the sustainable production of primary aluminium.

CEO: Helmut Wieser

Management Board: Helmut Kaufmann, Gerald Mayer

Supervisory Board: Josef Krenner, Hanno Bästlein, Heinrich Schaller, Franz Gasselsberger, Herbert Ortner, Patrick F. Prügger, Sabine Seidler, Franz Viehböck, Max Angermeier, Robert Hofer, Günter Mikula, Martin Aigner

AMAG Austria Metall AG

| | |
|------------------------------|-----------------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT00000AMAG3 |
| Segment: | Prime Market, ATX GP, VÖNIX |
| Type of share: | Common |
| Number of shares: | 35,264,000 |
| Volatility (3 months): | 13.237 |
| Last dividend: | 1.20 euros per share |
| Ex-dividend date: | 24/4/2018 |
| Market capitalisation: | 1,699.70 mln euros |
| First day of trading issuer: | 8/4/2011 |

Andritz

8045 Graz, Stattegger Straße 18, Tel.: 43 (0) 316 69 02-0, www.andritz.com

Andritz is a globally leading supplier of plants, equipment and services for hydropower plants (Andritz Hydro), plants for the production of pulp and paper (Andritz Pulp & Paper), rolling and strip treatment plants (Andritz Metals) and communal and industrial solid/liquid separation (Andritz Separation). The Andritz Group is an internationally active technology corporation located in Graz. The company employs 26,000 staff at 250 locations in more than 40 countries.

CEO: Wolfgang Leitner

Management Board: Humbert Köfler, Mark von Laer (CFO), Joachim Schönbeck, Wolfgang Semper

Supervisory Board: Christian Nowotny, Fritz Oberlechner, Jürgen Hermann Fechter, Alexander Isola, Monika Kircher, Kurt Stiassny, Georg Auer, Andreas Martiner, Monika Suppan

Andritz AG

| | |
|------------------------------|-----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT00000730007 |
| Segment: | ATX, ATX FIVE, ATX GP |
| Type of share: | Common |
| Number of shares: | 104,000,000 |
| Volatility (3 months): | 19.065 |
| Last dividend: | 1.55 euros per share |
| Ex-dividend date: | 27/3/2018 |
| Market capitalisation: | 5,257.20 mln euros |
| First day of trading issuer: | 25/6/2001 |

AT&S

8700 Leoben, Fabriksgasse 13, Tel.: 43 (0) 38 42 200-0, www.ats.net

Founded in 1987, AT&S is the largest manufacturer of printed circuit boards in Europe today, and one of the leading manufacturers of high-tech printed circuit boards and IC substrates. AT&S has production sites in Austria (Leoben, Fehring), India (Nanjangud), China (Shanghai, Chongqing) and Korea (Ansan). Each location specialises in a specific technology portfolio. The Austrian works supply mainly the European but also increasingly the American market. In China, the company manufactures high volumes of goods for customers in the field of mobile devices. The AT&S Group employs about 9,500 people worldwide.

CEO: Andreas Gerstenmayer

Management Board: Monika Stoisser-Göhring (CFO), Heinz Moitzl (CTO)

Supervisory Board: Hannes Androsch, Willi Dörflinger, Regina Prehofer, Gerhard Pichler, Georg Riedl, Karl Fink, Albert Hochleitner, Karin Schaupp, et al.

AT&S Austria Technologie & Systemtechnik AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/4 – 31/3 |
| ISIN: | AT00000969985 |
| Segment: | ATX, ATX GP, VÖNIX |
| Type of share: | Common |
| Number of shares: | 38,850,000 |
| Volatility (3 months): | 52.155 |
| Last dividend: | 0.36 euros per share |
| Ex-dividend date: | 24/7/2018 |
| Market capitalisation: | 852.80 mln euros |
| First day of trading issuer: | 20/5/2008 |

Stock Exchange

BAWAG Group AG

1010 Vienna, Wiesingerstraße 4, Tel.: 43 (0) 5 99 05, www.bawaggroup.com

BAWAG Group is the listed holding company of BAWAG P.S.K., located in Vienna, with its subsidiaries Easybank, one of the country's leading direct banks, Start.Bausparkasse in Austria and Südwestbank in Germany. It is one of Austria's largest banks with more than 2.5 million customers and is among the country's best-known brands (Bank für Arbeit und Wirtschaft, Postsparkasse). 35.1 percent of the BAWAG Group are held by Cerberus Capital Management, 25.7 percent by GoldenTree Asset Management and 39.2 percent are in free float.

CEO: Anas Abuzaakouk

Management Board: Enver Sirucic (CFO), Stefan Barth, David O'Leary, Andrew Wise, Sat Shah

Supervisory Board: Pieter, Korteweg, Christopher Brody, Egbert Fleischer, Fredrick Haddad, Adam Rosmarin, Kim Fennebresque, Ingrid Streibel-Zarfl, Beatrix Pröll, Verena Spitz

BAWAG Group AG

| | |
|------------------------------|-----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000BAWAG2 |
| Segment: | ATX |
| Type of share: | Common |
| Number of shares: | 100,000,000 |
| Volatility (3 months): | 25.000 |
| Last dividend: | 0.583 Euros per share |
| Ex-dividend date: | 15/5/2018 |
| Market capitalisation: | 3,992 mln Euros |
| First day of trading issuer: | 25/10/2017 |

Burgenland Holding AG

7000 Eisenstadt, Marktstraße 3 Technologiezentrum, Tel.: 43 (0) 2236 200 24186, www.buho.at

Burgenland Holding AG was founded in 1990 as a holding company for the partial privatisation of BEGAS Burgenländische Erdgasversorgungs-AG and BEWAG Burgenländische Elektrizitätswirtschafts-AG. It holds 49 percent of the capital stock of Energie Burgenland AG, which is a merger of BEGAS Energie AG (BEGAS) and BEWAG. The remaining 51 percent of shares are held by the Landesholding Burgenland GmbH. EVN AG is the majority shareholder with 73.63 percent; Verbund AG holds more than 10 percent, Wien Energie GmbH between 5 and 10 percent. Further shareholders own less than 4 percent each.

Management Board: Nikolaus Sauer, Klaus Kohlhuber

Supervisory Board: Stefan Szyszkowitz, Felix Sawerthal, Mag. Michael Amerer, Rita Heiss, Johannes Lang, Franz Mittermayer, Jörg Sollfeller, Ute Teufelberger, Peter Weinelt

Burgenland Holding AG

| | |
|------------------------------|-------------------------|
| Business Year: | 1/10 – 30/9 |
| ISIN: | AT0000640552 |
| Segment: | Standard Market Auction |
| Type of share: | Common |
| Number of shares: | 3,000,000 |
| Volatility (3 months): | 28.087 |
| Last dividend: | 3.45 euros per share |
| Ex-dividend date: | 22/3/2018 |
| Market capitalisation: | 231 mln euros |
| First day of trading issuer: | 14/5/1990 |

C-Quadrat Investment AG

1070 Vienna, Schottenfeldgasse 20, Tel.: 43 (0) 1 515 66-0, www.c-quadrat.at

The C-Quadrat Investment Group consists of several independent asset management companies specialising both in quantitative and discretionary absolute and total return strategies. It was founded in 1991 in Vienna and by now has offices in Vienna, London, Frankfurt, Paris, Geneva, Zurich, Madrid and Erivan, serving institutional and private investors in more than twenty countries in Europe and Asia. The group oversees 9.218 billion euros as of June 2018.

CEO: Alexander Schütz

Management Board: Carlos Mendez de Vigo (CFO), Cristobal Mendez de Vigo

Supervisory Board: Marcus D. Mautner Markhof, Franz Fuchs, Hubert Cussigh, Harry Ploemacher

C-Quadrat Investment AG

| | |
|------------------------------|-------------------------|
| Business Year: | 1.1.–31.12. |
| ISIN: | AT0000613005 |
| Segment: | Standard Market Auction |
| Type of share: | Stammaktien |
| Number of shares: | 4.363.200 |
| Volatility (3 months): | 35,329 |
| Last dividend: | 2,00 Euro je Aktie |
| Ex-dividend date: | 09.05.2018 |
| Market capitalisation: | 270,50 Mio. Euro |
| First day of trading issuer: | 26.05.2008 |

CA Immobilien Anlagen

1030 Vienna, Mechelgasse 1, Tel.: 43 (0) 1 532 59 07-0, www.caimmo.com

Founded in 1987, CA Immo oversees real estate assets of 4 billion euros in Germany, Austria, and Eastern Europe. The CA Immo Group divides its core activity into the business areas of letting investment properties and developing real estate. In both of these business areas, CA Immo specialises in commercial real estate with a clear focus on office properties in Central European capital cities. With 26%, Immofinanz is the largest shareholder of CA Immo. The remaining shares (about 74% of the capital stock) are in free float of private and institutional investors.

CEO: Andreas Quint

Management Board: Hans Volkert Volckens

Supervisory Board: Torsten Hollstein, Florian Koschat, Richard Gregson, Michael Stanton, John Nacos, Oliver Schumy, Stefan Schönauer, Sven Bienert et al.

CA Immobilien Anlagen AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000641352 |
| Segment: | ATX, VÖNIX |
| Type of share: | Common |
| Number of shares: | 98,808,332 |
| Volatility (3 months): | 22.941 |
| Last dividend: | 0.80 euros per share |
| Ex-dividend date: | 14/05/2018 |
| Market capitalisation: | 3,177.70 mln euros |
| First day of trading issuer: | 20/4/1988 |

World Champion Austria

The top stocks on the Vienna Stock Exchange in 2018

Cleen Energy

7062 St. Margarethen, Eselmühle 1, Tel.: 43 (0) 2680 / 20 600-400, www.cleen-energy.com

Cleen Energy is considered the most important start-up in the field of sustainable energy efficiency in the German-speaking world. The business activities range from measures for energy efficiency for lighting and water-saving fittings to the serving of electricity and natural gas customers to energy providers. Cleen Energy offers an added value package with the switch to efficient LED lighting technology and other products that allow saving energy costs for electricity and gas. Cleen Energy operates mainly in Austria but has a partner company in Germany acting as a licensee. The company is listed on the Vienna Stock Exchange since April 2017 and therefore one of the newcomers.

Management Board: Lukas Scherzenleher, Erwin Stricker

Supervisory Board: Friedrich Habliczek, Michael Eisler, Heinz Herczeg

CLEEN Energy AG

| | |
|------------------------------|-------------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000A1PY49 |
| Segment: | Standard Market Auction |
| Type of share: | Common |
| Number of shares: | 3,570,000 |
| Volatility (3 months): | 387.227 |
| Last dividend: | – |
| Ex-dividend date: | – |
| Market capitalisation: | 10.40 mln euros |
| First day of trading issuer: | 20/4/2017 |

Do & Co

1010 Vienna, Stephansplatz 12, Tel.: 43 (0) 1 740 00-0, www.doco.com

Do & Co was founded in 1981. By now, the company has turned into an internationally operating restaurant and catering corporation with eight production sites in six countries across two continents. Do & Co operates globally in the business areas Airline Catering, International Event Catering and Restaurants, Lounges & Hotels. Last year, the company generated about 30 percent of its turnover in Turkey but its shares at the Vienna Stock Exchange came under pressure in summer 2018 due to the monetary crisis in Turkey.

CEO: Attila Dogudan

Management Board: Gottfried Neumeister

Supervisory Board: Andreas Bierwirth, Peter Hoffmann-Ostenhof, Cem M. Kozlu, Georg Thurn-Vrints, Christian Konrad

Do & Co Aktiengesellschaft

| | |
|------------------------------|----------------------|
| Business Year: | 1/4 – 31/3 |
| ISIN: | AT0000818802 |
| Segment: | ATX, ATX GP |
| Type of share: | Common |
| Number of shares: | 9,744,000 |
| Volatility (3 months): | 49.739 |
| Last dividend: | 0.85 euros per share |
| Ex-dividend date: | 16/7/2018 |
| Market capitalisation: | 569 mln euros |
| First day of trading issuer: | 30/6/1998 |

Erste Group

1100 Vienna, Am Belvedere 1, Tel.: 43 (0) 50 100-10 100, www.erstegroup.com

Founded in 1819 as “Erste Oesterreichische Spar-Casse”, Erste Bank went public in 1997 in order to finance the expansion of its retail business in Central and Eastern Europe. Measured by the number of customers and the balance sheet total, Erste Group has turned into one of the largest financial service providers in the Eastern EU thanks to numerous acquisitions and organic growth. Major shareholders of Erste Group are the trust Erste Stiftung (11.2%), CaixaBank (9.9%) and asset manager BlackRock (4.2%). 70.5 percent of shares are in free float.

CEO: Andreas Treichl

Management Board: Peter Bosek, Petr Brávek, Willibald Cernko, Gernot Mittendorfer, Jozef Sikela

Supervisory Board: Friedrich Rödler, Jan Homan, Maximilian Hardegg, Elisabeth Bleyleben-Koren, Gunter Griss, Jordi Gual, Marion Khüny, Elisabeth Krainer Senger-Weiss, Brian D. O'Neill et al.

Erste Group Bank AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000652011 |
| Segment: | ATX, ATX FIVE, VÖNIX |
| Type of share: | Common |
| Number of shares: | 429,800,000 |
| Volatility (3 months): | 23.400 |
| Last dividend: | 1.20 euro per share |
| Ex-dividend date: | 29/5/2018 |
| Market capitalisation: | 15,008.60 mln euros |
| First day of trading issuer: | 4/12/1997 |

EVN

2344 Maria Enzersdorf, EVN Platz, Tel.: 43 (0) 2236 200-0, www.evn.at

EVN arose in 1986 as a result of the merger of the Lower Austrian provincial electricity company NEWAG with the natural gas and district heating firm NIOGAS. The company offers its 4.6 million customers electricity, gas, heating, water and wastewater as well as thermal waste utilisation. The Province of Lower Austria holds a 51 percent stake in the share capital of EVN AG; EnBW Trust e.V. holds 30.1 percent, 1.1 percent are own shares and 17.8 percent are in free float. Furthermore, EVN's stock is also on the US capital market as part of a Sponsored Level 1 ADR Programme (ADR = American Depositary Receipt).

CEO: Stefan Szyszkowitz

Management Board: Franz Mittermayer

Supervisory Board: Bettina Glatz-Kremsner, Norbert Griesmayr, Willi Stoiwoicek, Philipp Gruber, Dieter Lutz, Reinhard Meißl, Susanne Scharnhorst et al.

EVN AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/10 – 30/9 |
| ISIN: | AT0000741053 |
| Segment: | Prime Market, VÖNIX |
| Type of share: | Common |
| Number of shares: | 179,878,402 |
| Volatility (3 months): | 21.825 |
| Last dividend: | 0.44 euros per share |
| Ex-dividend date: | 24/1/2018 |
| Market capitalisation: | 2,842.10 mln euros |
| First day of trading issuer: | 27/11/1989 |

FACC

4910 Ried im Innkreis, Fischerstraße 9, Tel.: 43 (0) 59 616-0, www.facc.com

FACC is a globally active company designing, developing and producing advanced fibre composite compounds and systems for the aviation industry. FACC works for all major aircraft manufacturers like Airbus, Boeing, Bombardier and Embraer. The Aviation Industry Corporation of China (AVIC) retains 55.5 percent of shares through the AVIC Cabin Systems Co. Ltd; since the end of August, JP Morgan Asset Management (UK) holds 4.2%. 40.3% are in free float. In the business year 2017/18, FACC recorded an annual turnover of 705.7 million euros with its 3,400 staff across 13 international locations.

CEO: Robert Machtlinger

Management Board: Andreas Ockel (COO), Aleš Stárek (CFO), Yongsheng Wang (CCO)

Supervisory Board: Ruguang Geng, Zhen Pang, Weixi Gong, Wenbiao Han, Qinghang Liu, Jing Guo, Junqi Sheng, George Maffeo, Barbara Huber, Karin Klee, Peter Krohe, Ulrike Reiter

FACC AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/3 – 28/2 |
| ISIN: | AT00000FACC2 |
| Segment: | ATX, ATX GP |
| Type of share: | Common |
| Number of shares: | 45,790,000 |
| Volatility (3 months): | 45.483 |
| Last dividend: | 0.11 euros per share |
| Ex-dividend date: | 5/7/2018 |
| Market capitalisation: | 993.60 mln euros |
| First day of trading issuer: | 25/6/2014 |

Flughafen Wien (Vienna Airport)

1300 Vienna Airport, PO Box 1, Tel.: 43 (0) 1 7007-0, www.viennaairport.com

Flughafen Wien AG is one of the few listed airports in Europe, offering a large range of services including airport operation, ground services and security services. In 2017, the number of passengers handled rose by 4.5% to about 24.4 million compared to 2016. The Province of Lower Austria and the City of Vienna each hold 20% of stocks, 10% belong to the employee's private holding fund, 39.8% belong to the Austrian fund IFM Global Infrastructure Fund through its subsidiary Airports Group Europe S.à.r.l. and 10.2% are in free float.

CEO: Julian Jäger

Management Board: Günther Omer

Supervisory Board: Ewald Kirschner, Karin Rest, Bettina Glatz-Kremsner, Richard Grasl, Werner Kersch, Lars Bespolka, Robert Lasshofer, Gerhard Starsich et al.

Flughafen Wien AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT00000VIE62 |
| Segment: | Prime Market |
| Type of share: | Common |
| Number of shares: | 84,000,000 |
| Volatility (3 months): | 17.387 |
| Last dividend: | 0.68 euros per share |
| Ex-dividend date: | 4/5/2018 |
| Market capitalisation: | 2,755.20 mln euros |
| First day of trading issuer: | 15/6/1992 |

Frauenthal

1090 Vienna, Rooseveltplatz 10, Tel.: 43 (0) 1 1 505 42 06, www.frauenthal.at

The Frauenthal Group is a diversified group consisting of the divisions Frauenthal Automotive and Frauenthal Trade. Frauenthal Automotive develops and produces components for all leading European commercial vehicle manufacturers, the automotive industry and other industrial companies. Frauenthal Trade is Austria's leader in wholesale plumbing supplies, heating and installation technology. The division consists of SHT Haustechnik GmbH and Frauenthal Handel GmbH, the piping and underground construction specialist Kontinentale, and the service provider Frauenthal Service.

CEO: Hannes Winkler (Frauenthal Handel)

Management Board: Erika Hochrieser (CFO), Martin Sailer (Frauenthal Automotive)

Supervisory Board: Johann Schallert, Dietmar Kubis, Johannes Strohmayer, Andreas Starbacher, Thomas Zwettler, August Enzian

Frauenthal Holding AG

| | |
|------------------------------|-------------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000762406 |
| Segment: | Standard Market Auction |
| Type of share: | Common |
| Number of shares: | 7,534,990 |
| Volatility (3 months): | 13.139 |
| Last dividend: | 0.20 euros per share |
| Ex-dividend date: | 2/6/2014 |
| Market capitalisation: | 177.8 mln euros |
| First day of trading issuer: | 10/6/1991 |

Gurktaler

1190 Vienna, Heiligenstädter Straße 43, Tel.: 43 (0) 1 367 08 49-0, www.gruppe.gurktaler.at

This company is a split of the entire herbal spirits division from Schlumberger AG. The Gurktaler Aktiengesellschaft includes the herbal spirits holding company Gurktaler Alpenkräuter GmbH, Rosbacher Vertriebs GmbH, Leibwächter Kräuter GmbH and the financial holdings in Peter Zwack & Consorten Handels-AG with its headquarters in Vienna and the Underberg GmbH & Co KG in Germany. 75 percent of the common shares are held by H. Underberg-Albrecht GmbH & Co. Verwaltungs- und Vertriebs KG, about 9.7 percent by Schlumberger AG. The remaining common shares with a voting interest of 15.2 percent are in free float.

CEO: Karin Trimmel

Supervisory Board: Hubertine Underberg-Ruder, Eduard Kranebitter, Tobias Bürgers, Gerd Peskes

Gurktaler AG

| | |
|------------------------------|-------------------------|
| Business Year: | 1/4 – 31/3 |
| ISIN: | AT0000A0Z9G3 |
| Segment: | Standard Market Auction |
| Type of share: | Common |
| Number of shares: | 1,500,000 |
| Volatility (3 months): | 58.026 |
| Last dividend: | 0.08 euros per share |
| Ex-dividend date: | 15/9/2017 |
| Market capitalisation: | 14.90 mln euros |
| First day of trading issuer: | 8/2/2013 |

World Champion Austria

The top stocks on the Vienna Stock Exchange in 2018

Immofinanz

1100 Vienna, Wienerbergstraße 11, Tel.: 43 (0) 1 88 090, www.immofinanz.com

The core business includes the management and development of retail and office real estate in selected countries in Central and Eastern Europe. For office spaces, the focus is on the core countries' capitals and the largest office locations in Germany. About 62.9 percent of the portfolio's value come down to offices; the retail portfolio amounts to 33.6 percent. Immofinanz' portfolio has a book value of 4.3 billion euros as of 30 June 2018 and includes 229 real estates. Immofinanz is listed on the stock exchanges in Vienna (ATX index) and Warsaw.

CEO: Oliver Schumy

Vorstand: Mag. Stefan Schönauer Bakk. (CFO), Mag. Dietmar Reindl (COO)

Supervisory Board: Michael Knap, Rudolf Fries, Christian Böhm, Nick J.M. van Ommen, Horst Populorum, Wolfgang Schischek, Larissa Lielacher et al.

Immofinanz AG

| | |
|------------------------------|---------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000A21KS2 |
| Segment: | ATX |
| Type of share: | Common |
| Number of shares: | 112,085,269 |
| Volatility (3 months): | 16.879 |
| Last dividend: | 0.07 euro per share |
| Ex-dividend date: | 17/5/2018 |
| Market capitalisation: | 2,573.50 mln euros |
| First day of trading issuer: | 5/12/1994 |

Kapsch TrafficCom

1120 Vienna, Am Europlatz 2, Tel.: 43 (0) 50 811-0, www.kapschtraffic.com

Kapsch TrafficCom's is a provider of intelligent traffic systems in the fields of toll collection, traffic management, smart urban mobility, traffic safety and connected driving. Kapsch TrafficCom covers the entire value-added chain of its clients with its holistic solutions, ranging from components to design, installation and operation of systems. The more than 5,200 staff generated in the business year 2017/18 a turnover of 693.3 million euros. 63.3 percent of shares are owned by Kapsch Group Beteiligungs GmbH, 36.7 percent are in free float.

CEO: Georg Kapsch

Management Board: André F. Laux (COO), Alexander Lewald (CTO)

Supervisory Board: Franz Semmerneegg, Kari Kapsch, Sabine Kauper, Harald Sommerer, Christian Windisch, Martin Gartler

Kapsch TrafficCom AG

| | |
|------------------------------|-----------------------------|
| Business Year: | 1/4 – 31/3 |
| ISIN: | AT000KAPSCH9 |
| Segment: | Prime Market, ATX GP, VÖNIX |
| Type of share: | Common |
| Number of shares: | 13,000,000 |
| Volatility (3 months): | 27.085 |
| Last dividend: | 1.50 euros per share |
| Ex-dividend date: | 13/9/2017 |
| Market capitalisation: | 495.30 mln euros |
| First day of trading issuer: | 26/6/2007 |

KTM Industries

4600 Wels, Edisonstraße 1, Tel.: 43 (0) 7242 / 69402, www.ktm-industries.com

The KTM Industries Group is a leading European vehicle group with the core areas of Powered Two Wheelers, Design and Concept Development as well as eMobility. With its worldwide renowned brands KTM, Husqvarna Motorcycles and WP, KTM Industries is among the technology and market leaders in its segments. The group has about 4,300 staff, more than 80% of them in Austria. In the first half of 2018, KTM recorded record sales of 126,808 motorbikes with a turnover of 821.8 million euros. 61.81 percent of shares are held by Pierer Industrie AG, 38.19 percent are in free float.

CEO: Stefan Pierer

Management Board: Friedrich Roithner (CFO), Hubert Trunkenpolz, Harlad Plöckinger

Supervisory Board: Josef Blazicek, Ernst Chalupsky, Alfred Hörtenhuber, Klaus Rinnerberger

KTM Industries AG

| | |
|------------------------------|-------------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000KTMIO2 |
| Segment: | Standard Market Auction |
| Type of share: | Common |
| Number of shares: | 22,538,674 |
| Volatility (3 months): | 32.353 |
| Last dividend: | 0.03 euros per share |
| Ex-dividend date: | 2/5/2017 |
| Market capitalisation: | 1.586,70 mln euros |
| First day of trading issuer: | 22/3/2004 |

Lenzing

4860 Lenzing, Werkstraße 2, Tel.: 43 (0) 7672 701-0, www.lenzing.com

Lenzing is the world market leader in the field of cellulose fibres. Being a producer of cellulose fibres, Lenzing is at the start of the value-added chain for the production of textiles and fleece products. The company has the brands Tencel, an umbrella brand for all special textiles, Veocel, an umbrella brand for all special fleeces, and the specialist brand Lenzing for the needs of industrial users. 50 percent of shares are held by the B & C Privatstiftung; Oberbank AG holds 3.97 percent. 46.03 percent of shares are in free float.

CEO: Stefan Doboczky, MBA

Management Board: Robert van de Kerckhof, Thomas Obendrauf, Heiko Arnold

Supervisory Board: Hanno Bästlein, Christoph Kollatz, Veit Sorger, Helmut Bernkopf, Franz Gasselsberger, Patrick Prügger, Astrid Skala-Kuhmann et al.

Lenzing AG

| | |
|------------------------------|---------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000644505 |
| Segment: | ATX, ATX GP, VÖNIX |
| Type of share: | Common |
| Number of shares: | 26,550,000 |
| Volatility (3 months): | 25.075 |
| Last dividend: | 3.00 euro per share |
| Ex-dividend date: | 16/4/2018 |
| Market capitalisation: | 2,774.50 mln euros |
| First day of trading issuer: | 19/9/1985 |

Mayr-Melnhof

1041 Vienna, Brahmssplatz 6, Tel.: 43 (0) 1 501 36-0, www.mayr-melnhof.com

Mayr-Melnhof is the world's biggest producer of coated recyclable carton boards with a growing position in fresh fibre cartons and Europe's leading producer in folding boxboards. The Group's operations are entirely concentrated on the core business areas, which are managed in the two segments MM-Karton and MM-Packaging. In 2017, The MM Group employed as 9,856 people and generated a turnover of 2.336 billion euros. The Mayr-Melnhof families are the largest shareholders, owning 57 percent through a syndicate. The rest is in free float

CEO: Wilhelm Hörmanseder

Management Board: Franz Hiesinger (CFO), Andreas Blaschke, Franz Rappold

Supervisory Board: Rainer Zellner, Johannes Goess-Saurau, Nikolaus Ankershofen, Romuald Bertl, Guido Held, Georg Mayr-Melnhof, Andreas Hemmer et al.

Mayr-Melnhof Karton AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000938204 |
| Segment: | Prime Market |
| Type of share: | Common |
| Number of shares: | 20,000,000 |
| Volatility (3 months): | 17.781 |
| Last dividend: | 3.10 euros per share |
| Ex-dividend date: | 2/5/2018 |
| Market capitalisation: | 2,216 mln euros |
| First day of trading issuer: | 22/4/1994 |

Oberbank

4020 Linz, Untere Donaulände 28, Tel.: 43 (0) 732 7802-0 www.oberbank.at

Oberbank emerged from the "Stock Company in Partnership with its Consorts" founded on 13 April 1869 in Linz and named "Bank für Ober-Oesterreich und Salzburg". In 1948, it became the Marshallplan-Bank (ERP Bank). In the second half of 2018, Oberbank plans to establish seven branches in the German provinces Baden-Württemberg and Saxony for the first time. Additional new branches are planned in Vienna and Budapest. The first half of 2018 already saw new subsidiaries in Hesse and the Czech Republic. With a total of 10 to 12 new branches in 2018, Oberbank will have a total of 170 branches in all its markets.

Management Board: Franz Gasselsberger, Josef Weißl, Mag. Florian Hagenauer

Supervisory Board: Herta Stockbauer, Ludwig Andorfer, Gerhard Burtscher, Wolfgang Eder, Barbara Leitl-Staudinger, Peter Mitterbauer, Barbara Steger et al.

Oberbank AG

| | |
|------------------------------|-------------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000625108 |
| Segment: | Standard Market Auction |
| Type of share: | Common |
| Number of shares: | 32,307,300 |
| Volatility (3 months): | 1.239 |
| Last dividend: | 0.90 Euros per share |
| Ex-dividend date: | 22/5/2018 |
| Market capitalisation: | 2.868.90 mln Euros |
| First day of trading issuer: | 1/7/1986 |

OMV

1020 Vienna, Trabrennststraße 6–8, Tel.: 43 (0) 1 404 40-0, www.omv.at

OMV is an integrated, international oil and gas company active in the upstream (exploration & production) and downstream businesses (refining & marketing including petrochemicals; gas & power). With a group turnover of 20 billion euros and around 20,700 staff in 2017, OMV is one of the largest industrial companies listed on the Austrian Stock Exchange. 2018 was a special year for OMV as it celebrated a 50-year long partnership with Russian Gazprom. As part of the festivities both companies extended the contract for natural gas supplies to Austria until 2040.

CEO: Rainer Seele

Management Board: Reinhard Florey (CFO), Johann Pleininger, Manfred Leitner

Supervisory Board: Peter Löscher, Gertrude Tumpel-Gugerell, Alyazia Ali Al Kuwaiti, Helmut Draxler, Wolfgang C. Berndt, Marc H. Hall, Mansour Mohamed Al Mulla, Karl Rose, Herbert Werner et al.

OMV AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000743059 |
| Segment: | ATX, ATX FIVE |
| Type of share: | Common |
| Number of shares: | 327,272,727 |
| Volatility (3 months): | 27.702 |
| Last dividend: | 1.50 euros per share |
| Ex-dividend date: | 29/5/2018 |
| Market capitalisation: | 14,933.50 mln euros |
| First day of trading issuer: | 3/12/1994 |

Österreichische Post (Austrian Post)

1030 Vienna, Rochusplatz 1, Tel.: 43 (0) 577 67-0, www.post.at

Austrian Post is the leading logistics and postal services provider in Austria with more than 2 billion euros in turnover and about 20,500 staff. Its main business activities include the transport and delivery of letters, advertising mail, print media and parcels. The branch network with more than 1,800 own and third party run offices ranks among the largest private customer networks in the country. Since 2013, Österreichische Post is listed on the US capital market via the Level 1 American Depositary Receipt (ADR) Program.

CEO: Georg Pözl

Management Board: Walter Oblin (CFO), Walter Hitziger, Peter Umundum

Supervisory Board: Edith Hlawati, Edeltraud Stifinger, Jochen Danninger, Huberta Gheneff, Peter Kruse, Chris E. Muntwyler, Herta Stockbauer et al.

Oesterreichische Post AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000APOST4 |
| Segment: | ATX, VÖNIX |
| Type of share: | Common |
| Number of shares: | 67,552,638 |
| Volatility (3 months): | 17.619 |
| Last dividend: | 2.05 euros per share |
| Ex-dividend date: | 30/4/2018 |
| Market capitalisation: | 2.569,70 mln euros |
| First day of trading issuer: | 31/05/2006 |

World Champion Austria

The top stocks on the Vienna Stock Exchange in 2018

Ottakringer

1160 Vienna, Ottakringer Straße 91, Tel.: 43 (0) 1 49100 - 0, www.ottakringer.at

Ottakringer Getränke AG is Austria's only listed beverage company. It includes the Ottakringer Brauerei GmbH in the business field of breweries, Vöslauer Mineralwasser GmbH in the business field of mineral water and Trinkservice GmbH in the business field trade & services with 100 percent ownership each. It also holds 61.8 percent in Del Fabro & Kolarik GmbH. Ottakringer Getränke AG has a 6 percent free float, 88 percent are owned by Ottakringer Holding AG, which in turn is owned by the Austrian families Wenckheim, Menz, Trauttenberg and Pfusterschmid. The remaining 6 percent are held by Ottakringer Getränke AG itself.

Management Board: Alfred Hudler, Doris Krejcarek

Supervisory Board: Christiane Wenckheim, Herbert Werner, Sigi Menz, Johann Marihart, Thomas Polányi

Ottakringer Getränke AG

| | |
|------------------------------|-------------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000758008 |
| Segment: | Standard Market Auction |
| Type of share: | Common |
| Number of shares: | 2,412,829 |
| Volatility (3 months): | 89.344 |
| Last dividend: | 4.00 euros per share |
| Ex-dividend date: | 4/7/2018 |
| Market capitalisation: | 265.40 mln euros |
| First day of trading issuer: | 10/11/1986 |

Palfinger

5101 Bergheim, Lamprechtshausener Bundesstraße 8, Tel.: 43 (0) 662 2281-0, www.palfinger.com

Palfinger stands for the most innovative, reliable and cost-effective lifting solutions for use on commercial vehicles and in the maritime field. The company is the world market leader with its core product, the Loader Crane. In Timber and Recycling Cranes on- and off-road as well as Hooklifts, Palfinger is also the world's biggest manufacturer. The Palfinger Group is 59 per cent owned by the Palfinger family and Sany Germany GmbH owns 7.5 percent of the shares. About 33.5 percent are in free float. In 2017, the multinational group generated a total turnover of 1,471.1 million euros with 10,212 staff.

CEO: Andreas Klausner

Management Board: Felix Strohbichler (CFO), Martin Zehnder

Supervisory Board: Hubert Palfinger jun., Gerhard Rauch, Hannes Palfinger, Heinrich Kiener, Hannes Bogner, Elynn Shenglin Cai, Johannes Kücher, Alois Weiss, Erwin Asen

Palfinger AG

| | |
|------------------------------|-----------------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000758305 |
| Segment: | Prime Market, ATX GP, VÖNIX |
| Type of share: | Common |
| Number of shares: | 37,593,258 |
| Volatility (3 months): | 24.415 |
| Last dividend: | 0.47 euros per share |
| Ex-dividend date: | 9/3/2018 |
| Market capitalisation: | 1,165.40 mln euros |
| First day of trading issuer: | 4/6/1999 |

Polytec

4063 Hörsching, Polytec-Straße 1, Tel.: 43 (0) 7221 701-0, www.polytec-group.com

The Polytec Group is a worldwide developer and producer of high-quality plastics parts with 28 locations and over 4,500 employees. The Austrian company is a full-service provider in the field of injection moulding, a specialist in fibre-reinforced plastics as well as a manufacturer of original accessory parts made of plastic and stainless steel. In the first half of 2018, the Polytec Group recorded a turnover of 328.7 million euros. 64.29 percent of shares are in free float, 29.04 percent belong to the Huemer Group, 5.17 percent to NN Group N.V. and 1.5 percent are own shares.

CEO: Friedrich Huemer

Management Board: Markus Huemer (COO), Peter Bernscher (CSO), Peter Haidenek (CFO)

Supervisory Board: Fred Duswald, Manfred Helmut Trauth, Viktoria Kickinger, Robert Büchelhofer, Reinhard Schwendtbauer

Polytec Holding AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000A00XX9 |
| Segment: | Prime Market |
| Type of share: | Common |
| Number of shares: | 22,329,585 |
| Volatility (3 months): | 40.819 |
| Last dividend: | 0.45 euros per share |
| Ex-dividend date: | 22/5/2018 |
| Market capitalisation: | 238 mln euros |
| First day of trading issuer: | 28/4/2006 |

Porr

1100 Vienna, Absberggasse 47, Tel.: 43 (0) 50 626-0, www.porr-group.com

Porr is one of Austria's largest building companies and one of the oldest, having been founded in 1869. The company sees itself as a flexible full service provider offering all types of construction such as structural and underground construction, energy-related construction, road construction and tunnelling. Outside the company's domestic markets Austria, Germany, Switzerland, Poland and the Czech Republic it is also active in CEE/SEE as well as Norway, Great Britain and Qatar. The Porr stock is the oldest in the country. Core shareholder is the syndicate Otner-Strauss with 53.7 percent. The remainder is in free float.

CEO: Karl-Heinz Strauss

Management Board: Andreas Sauer (CFO), Hans Wenkenbach (COO)

Supervisory Board: Karl Pistotnik, Klaus Ortner, Robert Grüneis, Walter Knirsch, Iris Ortner, Bernhard Vanas, Susanne Weiss, Thomas Winischhofer et al.

Porr AG

| | |
|------------------------------|---------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000609607 |
| Segment: | Prime Market |
| Type of share: | Common |
| Number of shares: | 29,095,000 |
| Volatility (3 months): | 32.845 |
| Last dividend: | 1.10 euro per share |
| Ex-dividend date: | 5/6/2018 |
| Market capitalisation: | 776.80 mln euros |
| First day of trading issuer: | 8/4/1869 |

Leading Bank in Austria and the Eastern Part of the EU

Erste Group is considered the most innovative retail bank in Austria and is among the market leaders in its core markets.

The right business model

Today, Erste Group is one of the leading banks in Central and Eastern Europe, the region with Europe's most dynamic economic development. Founded in 1819 as the first Savings Bank in Austria (Erste österreichische Spar-Casse), Erste Group's strategy has remained unchanged at its core for 200 years: The focus is on the financial needs of retail and corporate clients and on increasing prosperity in CEE.

A strong local presence and group-wide cooperation ensure excellent service, no matter where the customers live. Erste Group provides comprehensive and transparent banking services to 16 million private and business clients in about 2,500 branches in seven countries. The majority of customers live in the European Union – in Austria, the Czech Republic, Romania, Slovakia, Hungary and Croatia. In addition, Erste Group also has a small presence in Serbia.

Facts & figures, first three quarters 2018

| | |
|-----------------------|----------------------------|
| Customers: | 16 mln |
| Staff: | 47,500 |
| Branches: | about 2,500 in 7 countries |
| Net profit: | 1,228.3 mln euros |
| Operating income: | 1,993.9 mln euros |
| Total equity capital: | 18,4 bln euros |

Erste Group Bank AG
Am Belvedere 1, 1100 Vienna
Tel. +43 (0) 50 100-10 100
www.erstegroup.com



Developing innovative banking in Austria

In addition to traditional banking products, Erste Group offers a number of digital solutions. More than 3 million people in Austria, the Czech Republic, Slovakia and Romania already use “George”, the most modern digital platform in Central Europe.

High capitalisation and on a course of growth

In the last few years, Erste Group has been increasing its capitalisation continuously despite a lasting low-interest environment and constantly growing regulatory challenges. One of its strengths is the solid re-financing base – also due to the customer deposits in the subsidiaries.

The positive economic development in the core markets is reflected by the credit growth: Mortgage loans are in high demand, for example. At the same time, the credit quality went up and the risk costs are at a historically low level.



World Champion Austria

The top stocks on the Vienna Stock Exchange in 2018

Raiffeisen Bank International

1030 Vienna, Am Stadtpark 9, Tel.: 43 (0) 1 717 07-0, www.rbinternational.com

Raiffeisen Bank International considers Austria and Central and Eastern Europe its home market. In Austria, it is a leading commercial and investment bank for the country's top 1,000 commercial customers. In CEE, its subsidiaries cover de facto the entire region. 16.7 million customers are serviced through more than 2,400 business outlets in the corporate and private customer segments as well as in investment banking. 58.8% of the shares are held by Raiffeisenlandesbanken and 41.2% are in free float.

CEO: Johann Strobl

Management Board: Martin Grüll (CFO), Andreas Gschwenter (COO/CIO), Peter Lennkh, Lukasz Januszewski, Hannes Mösenbacher (CRO), Andrii Stepanenko

Supervisory Board: Erwin Hameseder, Martin Schaller, Heinrich Schaller, Klaus Buchleitner, Eva Eberhartinger, Andrea Gaal, Peter Gauper et al.

Raiffeisen Bank International AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000606306 |
| Segment: | ATX, ATX FIVE, VÖNIX |
| Type of share: | Common |
| Number of shares: | 328,939,621 |
| Volatility (3 months): | 29.670 |
| Last dividend: | 0.62 euros per share |
| Ex-dividend date: | 28/6/2018 |
| Market capitalisation: | 8,151.10 mln euros |
| First day of trading issuer: | 25/4/2005 |

Rath

1015 Vienna, Walfischgasse 14, Tel.: 43 (0) 1 513 44 27-0, www.rath-group.com

RATH develops, produces and sells refractory products, including refractory bricks, hot gas filter components and continuous ceramic fibres. The company's specialty is refractory materials for temperatures up to 1800°C, and temperatures up to 1000°C for hot gas filtration. Rath does its research and development in its in-house laboratories and produces everything itself, from basic materials to components. 66.7 percent of shares are held by the Rath Holding GmbH, 18.8 belong to the Rath family members and 14.5 percent are in free float.

Management Board: Andreas Pfneiszl (CFO, CSO), Jörg Sitzenfrey (COO, CTO)

Supervisory Board: Stefan Ehrlich-Adam, Philipp Rath, Dieter Hermann, Andreas Meier, Ulla Reisch

Rath AG

| | |
|------------------------------|-------------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000767306 |
| Segment: | Standard Market Auction |
| Type of share: | Common |
| Number of shares: | 1,500,000 |
| Volatility (3 months): | 66.947 |
| Last dividend: | 0.75 euros per share |
| Ex-dividend date: | 4/6/2018 |
| Market capitalisation: | 34.5 mln euros |
| First day of trading issuer: | 20/12/1989 |

Rosenbauer

4060 Leonding, Paschinger Straße 90, Tel.: 43 (0) 732 6794-0, www.rosenbauer.com

Rosenbauer is the world's leading manufacturer of systems for firefighting and disaster protection. The company develops and produces vehicles, fire extinguishing systems, equipment and telematics solutions for professional, industrial, plant and volunteer fire services, and systems for preventive firefighting. All of the main sets of standards are covered by products manufactured in Europe, the US and Asia. The group has an active service and sales network in over 100 countries, its vehicles are used in more than 150 countries. The listed family company is in its sixth generation and has served fire departments for more than 150 years.

CEO: Dieter Siegel

Management Board: Andreas Zeller (CSO), Daniel Tomaschko (CTO), Sebastian Wolf (CFO)

Supervisory Board: Christian Reisinger, Rainer Siegel, Bernhard Matzner, Martin Paul Zehnder, Rudolf Aichinger, Alfred Greslehner

Rosenbauer International AG

| | |
|------------------------------|---------------------|
| Business Year: | 1.1.–31.12. |
| ISIN: | AT0000922554 |
| Segment: | Prime Market, VÖNIX |
| Type of share: | Stammaktien |
| Number of shares: | 6.800.000 |
| Volatility (3 months): | 24,717 |
| Last dividend: | 1,20 Euro je Aktie |
| Ex-dividend date: | 23.05.2017 |
| Market capitalisation: | 363,80 Mio. Euro |
| First day of trading issuer: | 27.09.1994 |

S IMMO

1010 Vienna, Friedrichstraße 10, 5. Stock, Tel.: 43 (0) 1 22795-1112, www.simmoag.at

S IMMO AG is a real estate investment company with its head office in Vienna. It invests exclusively in the European Union with a focus on capital cities in Austria, Germany and CEE. Over 70% of the property portfolio consists of offices, shopping centres and hotels. The remainder comprises residential properties. At the moment, the RPR Group of business man Ronny Pecik holds 21.86% in S IMMO, the Signa Group 7.28%. This equity stake is meant to go to Immofinanz. 10.22% are held by the VIG subsidiary S Versicherung and 67.92% are held by private and institutional investors.

CEO: Ernst Vejdovszky

Management Board: Friedrich Wachernig

Supervisory Board: Martin Simhandl, Franz Kerber, Andrea Besenhofer, Christian Hager, Manfred Rapf, Wilhelm Rasinger, Hanna Bomba et al.

S IMMO AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000652250 |
| Segment: | ATX |
| Type of share: | Common |
| Number of shares: | 66,917,179 |
| Volatility (3 months): | 26.621 |
| Last dividend: | 0.40 euros per share |
| Ex-dividend date: | 14/5/2018 |
| Market capitalisation: | 1,199.20 mln euros |
| First day of trading issuer: | 28/6/2002 |

Wienerberger: Building the Future

The Wienerberger Group is a global player in the building materials sector. Thanks to innovative solutions in building construction and infrastructure (bricks for walls, facades and roofs, pipes and pavers), Wienerberger is on a profitable path of growth.

Record year 2017

In 2017, Wienerberger generated record revenues of 3.1 billion euros and EBITDA of 415 million euros. Through the consistent implementation of its growth strategy, Wienerberger wants to further increase its EBITDA to 460-470 million euros in 2018.

Accelerated growth

In the pursuit of its ambitious targets, Wienerberger focuses on organic growth, operational excellence as well as growth projects and the optimization of its portfolio. Organic growth is driven consistently through innovative products and digitalization to facilitate networking with Wienerberger's customers. Through acquisitions, Wienerberger adds innovative premium products to its portfolio. At the same time, parts of the business that no longer match the portfolio or the growth targets are sold.

An optimization program aims to further increase the Group's profitability. Wienerberger is therefore in an excellent position to continue successfully on its path of growth.

"We are successfully implementing our growth strategy in all areas. We will use our opportunities for growth, make additional acquisitions and divest strategically less attractive parts of our business."

Heimo Scheuch
Chief Executive Officer
of Wienerberger AG



The company expects to achieve consolidated EBITDA of about 680 million euros by 2020.

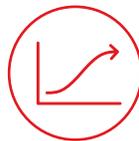
"We will continue to increase our profitability even more intensively. We are therefore very optimistic to reach our medium-term growth and revenue targets," says Heimo Scheuch, Chief Executive Officer of Wienerberger AG.

www.wienerberger.com

Wienerberger at a glance



16,297
Employees



Record revenues of
€ 3.1 billion



195 production sites
in **30** countries



EBITDA of
€ 415 million



6 product groups
for building materials



100% free float
company

wienerberger

World Champion Austria

The top stocks on the Vienna Stock Exchange in 2018

Schoeller-Bleckmann

2630 Temitz, Hauptstraße 2, Tel.: 43 (0) 26 30 315-0, www.sbo.at

Schoeller-Bleckmann Oilfield Equipment (SBO) is the global market leader in high-precision components made of high-alloy steel and a leading supplier of key components for the oilfield service industry. The business focus is on non-magnetic drillstring components and high-tech downhole tools for drilling and completing directional and horizontal wells. SBO is represented at all major hubs of the oilfield service industry worldwide and follows its customers as their partner when they move to new regions around the globe. In 2016, SBO extended its network by establishing sales companies in Saudi Arabia and Mexico. Core shareholder is Berndorf Industrieholding AG with 33.4%, 66.6% of shares are in free float.

CEO: Gerald Grohmann

Management Board: Klaus Mader (CFO)

Supervisory Board: Norbert Zimmermann, Brigitte Ederer, Helmut Langanger, Wolfram Littich, Karl Schleinzer, Sonja Zimmermann

Schoeller-Bleckmann Oilfield Equipment AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000946652 |
| Segment: | ATX, ATX GP |
| Type of share: | Common |
| Number of shares: | 16,000,000 |
| Volatility (3 months): | 31.328 |
| Last dividend: | 0.50 euros per share |
| Ex-dividend date: | 9/5/2018 |
| Market capitalisation: | 1,530.40 mln euros |
| First day of trading issuer: | 27/3/2003 |

Semperit

1031 Vienna, Modecenterstraße 22 / B1, Tel.: 43 (0) 1 79 777-0, www.semperitgroup.com

Semperit develops, produces, and sells highly specialised rubber and plastic products: examination and surgical gloves, hydraulic and industrial hoses, conveyor belts, escalator handrails, construction profiles, cable car rings, and products for railway superstructures. The Semperit Group employs more than 6,800 people worldwide, including around 3,700 in Asia and more than 800 in Austria. In the business year 2015, the Group generated a turnover of 874.2 million euros and an EBITDA of 100.2 million euros. The B & C Privatstiftung is the majority owner of Semperit with 54% of shares. FMR Co., Inc (Fidelity Management & Research Company) holds 5%. The remainder is in free float.

CEO: Martin Füllenbach

Management Board: Frank Gumbinger (CFO), Michele Melchiorre (CTO)

Supervisory Board: Christoph Kollatz, Stefan Fida, Klaus F. Erkes, Felix Fremerey, Walter Koppensteiner, Petra Preining, Astrid Skala-Kuhmann et al.

Semperit AG Holding

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000785555 |
| Segment: | Prime Market, ATX GP |
| Type of share: | Common |
| Number of shares: | 20,573,434 |
| Volatility (3 months): | 36.109 |
| Last dividend: | 0.70 euros per share |
| Ex-dividend date: | 30/5/2017 |
| Market capitalisation: | 332.10 mln euros |
| First day of trading issuer: | 27/9/1890 |

Strabag

1220 Vienna, Donau-City-Straße 9, Tel.: 43 (0) 1 224 22-0, www.strabag.com

Strabag is a European technology group for construction services – from design to planning, from construction to property and facility services, from operation all the way to demolition. Strabag covers the entire range of services (structural and civil engineering, traffic route engineering, special underground construction and tunnelling) as well as the construction value chain. In the first half of 2018, 73,394 staff generated a turnover of 6,875.39 mln euros and a record order backlog of 18,874.2 mln euros. The total turnover for 2018 is expected to be at least 15 billion euros

CEO: Thomas Birtel

Management Board: Christian Harder (CFO), Peter Krammer, Hannes Truntschnig, Siegfried Wanker

Supervisory Board: Alfred Gusenbauer, Erwin Hameseder, Andreas Brandstetter, Thomas Bull, Kerstin Gelbmann, Oleg Kotkov, Magdolna P. Gyulainé et al.

Strabag SE

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT000000STR1 |
| Segment: | Prime Market |
| Type of share: | Common |
| Number of shares: | 109,999,997 |
| Volatility (3 months): | 21.770 |
| Last dividend: | 1.30 euros per share |
| Ex-dividend date: | 22/6/2018 |
| Market capitalisation: | 3,795.00 mln euros |
| First day of trading issuer: | 19/10/2007 |

SW Umwelttechnik

9020 Klagenfurt, Bahnstraße 89, Tel.: 43 (0) 463 32109 703, www.sw-umwelttechnik.com

The company has been developing and producing precast concrete elements used in infrastructure construction above and below ground level for water protection – for over 105 years in Austria, 25 years in Hungary and 15 years in Romania. Products for water protection are made in mainly in the three Austrian locations in Klagenfurt, Lienz and Sieming, such as oil separators, rain water usage plants and small waste water plants. Wolscher Privatstiftung holds 43.94% in SW Umwelttechnik, VBG Verwaltungs- und Beteiligungs GmbH and Bernd Wolschner personally hold more than 5% each. The remainder is in free float.

CEO: Klaus Einfalt

CFO: János Vácz

Supervisory Board: Heinz Taferner, Ulrich Glaunach, Reinhard Iro, Herta Stockbauer, Bernd Wolschner, Heinz Wolschner

SW Umwelttechnik Stoiser & Wolschner AG

| | |
|------------------------------|-------------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000808209 |
| Segment: | Standard Market Auction |
| Type of share: | Common |
| Number of shares: | 659,999 |
| Volatility (3 months): | 118.085 |
| Last dividend: | 0.10 euros per share |
| Ex-dividend date: | 8/5/2018 |
| Market capitalisation: | 7.40 mln euros |
| First day of trading issuer: | 19/11/1997 |

Telekom Austria

1020 Vienna, Lassallestraße 9, Tel.: 43 (0) 50 664-0, www.telekomaustria.com

Telekom Austria AG is the leading communications provider in Central and Eastern Europe with about 24 million customers in seven countries: Austria and Slovenia (A1), Croatia (Vipnet), the Republic of Serbia (Vip mobile), the Republic of Macedonia (one.Vip), Bulgaria (A1 Bulgaria) and Belarus (velcom). The group employed more than 19,000 people in the business year 2017 and generated a turnover of more than 4.38 billion euros. America Movil, the world's third largest mobile telecommunications provider holds 51% of Telekom Austria shares; 28.42% are held by the Republic of Austria through ÖBIB and 20.58% are in free float.

CEO: Thomas Arnoldner

Management Board: Alejandro Plater (COO), Siegfried Mayrhofer (CFO)

Supervisory Board: Edith Hlawati, Carlos García Moreno Elizondo, Alejandro Cantú Jiménez, Karin Exner-Wöhler, Bettina Glatz-Kremsner, Peter Hagen, Carlos M. Jarque, Peter F. Kollmann et al.

Telekom Austria AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000720008 |
| Segment: | ATX, VÖNIX |
| Type of share: | Common |
| Number of shares: | 664,500,000 |
| Volatility (3 months): | 19.563 |
| Last dividend: | 0.20 euros per share |
| Ex-dividend date: | 6/6/2018 |
| Market capitalisation: | 4,890.70 mln euros |
| First day of trading issuer: | 21/11/2000 |

UBM Development

1100 Vienna, Laaer-Berg-Straße 43, Tel.: 43 (0) 50 626-1471, www.ubm-development.at

Founded in 1873 as Union-Baumaterialien-Gesellschaft, UBM celebrates its 145-year anniversary. Today, UBM Development is the leading hotel developer in Europa. The strategic focus is on the three core markets Austria, Germany and Poland and the three asset classes Residential, Hotels and Commercial. The UBM management and its supervisory board hold 11% of shares, the syndicate Ortner & Strauss 38.8% and the remainder is in free float.

CEO: Thomas G. Winkler

Management Board: Martin Löcker (COO), Patric Thate (CFO)

Supervisory Board: Karl-Heinz Strauss, Iris Ortner, Christian B. Maier, Klaus Ortner, Ludwig Steinbauer, Paul Unterluggauer, Bernhard Vanas, Susanne Weiss u.a.

UBM Development AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000815402 |
| Segment: | Prime Market |
| Type of share: | Common |
| Number of shares: | 7,472,180 |
| Volatility (3 months): | 18.749 |
| Last dividend: | 2.00 euros per share |
| Ex-dividend date: | 5/6/2018 |
| Market capitalisation: | 313.80 mln euros |
| First day of trading issuer: | 10/4/1873 |

Uniqa

1029 Vienna, Untere Donaustraße 21, Tel.: 43 (0) 506 77-670, www.uniqagroup.com

The Uniqa Insurance Group is one of the leading insurance groups in its core markets of Austria and Central and Eastern Europe. The company and its 40 subsidiaries serve more than 9.6 million customers in 18 countries. In Austria, the company has a market share of 22 percent and serves about 3.5 million customers. The shareholder structure is: Own shares 0.7%, Collegialität Versicherungsverein Privatstiftung 2.5%, RZB Versicherungsbeteiligung GmbH 10.9%, Uniqa Versicherungsverein Privatstiftung (Group) 49%, free float 36.9%.

CEO: Andreas Brandstetter

Management Board: Eric Leyers (COO), Kurt Svoboda (CFO/CRO)

Supervisory Board: Walter Rothensteiner, Christian Kuhn, Erwin Hameseder, Burkhard Gantenbein, Markus Andréewitch, Marie-Valerie Brunner u. a.

UNIQA Insurance Group AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000821103 |
| Segment: | ATX |
| Type of share: | Common |
| Number of shares: | 309,000,000 |
| Volatility (3 months): | 23.011 |
| Last dividend: | 0.51 euros per share |
| Ex-dividend date: | 7/6/2018 |
| Market capitalisation: | 2,570.90 mln euros |
| First day of trading issuer: | 8/11/1999 |

Valneva

44800 Saint-Herblain, Campus Bio-Ouest / Rue Alain Bombard 6, France
Tel.: 33 2 28 07 37 10, www.valneva.com

Valneva is a fully integrated, commercial stage biotech company focused on developing innovative life-saving vaccines. Valneva's portfolio includes two commercial vaccines for travellers IXI-ARO/JESPECT indicated for the prevention of Japanese encephalitis and DUKORAL indicated for the prevention of cholera and, in some countries, prevention of diarrhea caused by ETEC. The company is listed on the Vienna Stock Exchange and Euronext Paris, and has locations in Austria, Sweden, the United Kingdom, France, Canada and the US with more than 450 employees.

CEO: Thomas Lingelbach

Management Board: Franck Grimaud (CBO), David Lawrence (CFO), Wolfgang Bender, Frédéric Jacotot

Supervisory Board: Frédéric Grimaud, Alain Munoz, Alexander von Gabain, Anne-Marie Graffin, Dr. Balaji Muralidhar, Jim Sulat, Lisa Shaw-Marotto, Mailsys Ferrere (für BPI France SA) u.a.

Valneva SE

| | |
|------------------------------|---------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | FR0004056851 |
| Segment: | Prime Market, VÖNIX |
| Type of share: | Common |
| Number of shares: | 77,583,714 |
| Volatility (3 months): | 26.603 |
| Last dividend: | – |
| Ex-dividend date: | – |
| Market capitalisation: | 308 mln euros |
| First day of trading issuer: | 28/5/2013 |

Verbund

1010 Wien, Am Hof 6a, Tel.: 43 (0) 503 13-0, www.verbund.at

Verbund is Austria's leading electricity company, one of the largest producers of electricity from hydropower in Europe and operates more than 100 hydropower plants in Austria and Germany. About 95% of Verbund's electricity comes from hydropower supplemented by wind power. As set out in the Austrian constitution, 51% of the share capital is owned by the Republic of Austria. More than 30% of the stock capital is owned by regional energy providers and less than 20% are in free float. Verbund shares are available in London as part of the European Quoting Service (EQS) and in the US as part of the ADR programme.

CEO: Wolfgang Anzengruber

Management Board: Johann Sereinig, Peter F. Kollmann (CFO), Günther Rabensteiner

Supervisory Board: Gerhard Roiss, Michael Süß, Elisabeth Engelbrechtsmüller-Strauß, Harald Kaszanits, Werner Muhm, Susanne Riess, Jürgen Roth, Stefan Szyszkowitz, Christa Wagner et al.

Verbund AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000746409 |
| Segment: | ATX, VÖNIX |
| Type of share: | Common |
| Number of shares: | 170,233,686 |
| Volatility (3 months): | 22.395 |
| Last dividend: | 0.42 euros per share |
| Ex-dividend date: | 30/4/2018 |
| Market capitalisation: | 5,825.40 mln euros |
| First day of trading issuer: | 6/12/1988 |

VIG

1010 Vienna, Schottenring 30, Tel.: 43 (0) 50 390-22000, www.vig.at

The Vienna Insurance Group (VIG) is the leading insurance company in Austria and the clear number 1 in Central and Eastern Europe. Today, the group is represented in 25 countries by 50 companies with around 25,000 staff. VIG has an A+ rating with a stable outlook from rating agency Standard & Poor's, which makes it the best rated company of all on the ATX. About 70 percent of VIG shares are owned by the Wiener Städtische Versicherungsverein, the remaining shares are in free float. In addition, the VIG shares are traded as American Depository Receipts (ADR) on the US capital market.

CEO: Elisabeth Stadler

Management Board: Franz Fuchs, Judit Havasi, Liane Hirner (CFO), Peter Höfingier,

Peter Thiring

Supervisory Board: Günther Geyer, Rudolf Ertl, Maria Kubitschek, Bernhard Backovsky, Martina Dobringer, Gertrude Tumpel-Gugerell et al.

Vienna Insurance Group AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000908504 |
| Segment: | ATX, VÖNIX |
| Type of share: | Common |
| Number of shares: | 128,000,000 |
| Volatility (3 months): | 15.939 |
| Last dividend: | 0.90 euros per share |
| Ex-dividend date: | 28/5/2018 |
| Market capitalisation: | 2,959.40 mln euros |
| First day of trading issuer: | 17/10/1994 |

voestalpine

4020 Linz, Voestalpine-Straße 1, Tel.: 43 (0) 503 04 15-0, www.voestalpine.com

Voestalpine is a leading technology and capital goods group focussing on product and system solutions based on steel and other metals of the highest quality in technology-intensive industries. It operates about 500 companies and business locations in more than 50 countries across all five continents, employing about 50,000 people. In the first quarter of 2018/19, Voestalpine recorded a turnover of almost 3.5 billion euros, making it the highest ever figure in any quarter.

CEO: Dr. Wolfgang Eder (passing over to Herbert Eibensteiner on 3 July 2019)

Management Board: Herbert Eibensteiner (CEO as of 3 July 2019), Franz Kainersdorfer,

Robert Ottel, Franz Rotter, Peter Schwab

Supervisory Board: Joachim Lemppenau, Heinrich Schaller, Franz Gasselsberger, Hans-Peter Hagen, Michael Kutschera, Helga Nowotny et al.

voestalpine AG

| | |
|------------------------------|-----------------------|
| Business Year: | 1/4 – 31/3 |
| ISIN: | AT0000937503 |
| Segment: | ATX, ATX FIVE, ATX GP |
| Type of share: | Common |
| Number of shares: | 176,349,163 |
| Volatility (3 months): | 24.976 |
| Last dividend: | 1.40 euro per share |
| Ex-dividend date: | 12/7/2018 |
| Market capitalisation: | 6,660.70 mln euros |
| First day of trading issuer: | 9/10/1995 |

Warimpex

1210 Vienna, Floridsdorfer Hauptstraße 1, Tel.: 43 (0) 1 310 55 00, www.warimpex.com

Warimpex Finanz- und Beteiligungs AG is a "hybrid" real estate company that develops and operates properties itself as an asset manager and property owner until the time at which the highest added value can be realised through sale. The company is specialised in the development and operation of hotel properties in Central and Eastern Europe: Warimpex is currently active in CEE, Russia, Austria and France. 14% of Warimpex shares are held by Franz Jurkowitzsch, 15% by Georg Folian, 11% each by Amber Privatstiftung and Bocca Privatstiftung, >5% by MetLife PTE, the remainder is in free float.

CEO: Franz Jurkowitzsch

Management Board: Georg Folian, Alexander Jurkowitzsch, Florian Petrowsky

Supervisory Board: Günter Korp, Thomas Aistleitner, William Henry Marie de Gelsey, Harald Wengust, Hubert Staszewski

Warimpex Finanz- und Beteiligungs AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000827209 |
| Segment: | Prime Market |
| Type of share: | Common |
| Number of shares: | 54,000,000 |
| Volatility (3 months): | 21.174 |
| Last dividend: | 0.06 euros per share |
| Ex-dividend date: | 20/6/2018 |
| Market capitalisation: | 71.3 mln euros |
| First day of trading issuer: | 26/1/2007 |

CSR

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CSR Guide

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2019

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Wiener Privatbank

1010 Vienna, Parkring 12, Tel.: 43 (0)1 534 31 -0, www.wienerprivatbank.com

Wiener Privatbank SE is a publically traded private bank, specialising in the fields of private banking, asset management, fund management, financing, brokerage and research as well as real estate investments. Its customers include family offices, private investors, institutions and foundations in Austria and abroad. 72.5% of shares are held, among others, by K5 Beteiligungs GmbH, Kerbler Holding GmbH and J.K. Beteiligungs GmbH; 8.49% are held by Herbert Schoderböck through Alpha Global Ltd. and 19.01% are in free float.

Management Board: Helmut Hardt, Eduard Berger

Supervisory Board: Gottwald Kranebitter, Johann Kowar, Günter Kerbler, Heinz Meidinger, Juraj Dvorák.

Wiener Privatbank SE

| | |
|------------------------------|-------------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000741301 |
| Segment: | Standard Market Auction |
| Type of share: | Common |
| Number of shares: | 5,004,645 |
| Volatility (3 months): | 30.650 |
| Last dividend: | 3.20 euros per share |
| Ex-dividend date: | 28/5/2018 |
| Market capitalisation: | 55.10 mln euros |
| First day of trading issuer: | 25/6/1992 |

Wienerberger

1100 Vienna, Wienerbergstraße 11, Tel.: 43 (0) 601 92-0, www.wienerberger.com

Founded in 1819 and traded on the Vienna Stock Exchange since 1869, Wienerberger is the world's biggest producer in bricks with 193 production sites in 30 countries, and the European market leader in clay roofing tiles, market leader in concrete blocks in Central and Eastern Europe and market leader in pipe systems in Europe. Wienerberger is a true public company without any core shareholders – all its shares are in free float. In the US, Wienerberger's shares are available in the OTC market as part of an ADR Level 1 programme of the Bank of New York. In the first half of 2018, Wienerberger recorded a turnover of 1,609.9 million euros.

CEO: Heimo Scheuch

CFO: Willy van Riet

Supervisory Board: Regina Prehofer, Peter Johnson, David Davies, Caroline Grégoire Sainte Marie, Franz Josef Haselberger, Christian Jourquin, Myriam Meyer, Wilhelm Rasinger et al.

Wienerberger AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/1 – 31/12 |
| ISIN: | AT0000831706 |
| Segment: | ATX, VÖNIX |
| Type of share: | Common |
| Number of shares: | 117,526,764 |
| Volatility (3 months): | 28.297 |
| Last dividend: | 0.40 euros per share |
| Ex-dividend date: | 18/6/2018 |
| Market capitalisation: | 2,747.80 mln euros |
| First day of trading issuer: | 15/4/1869 |

Wolford

6900 Bregenz, Wolfordstraße 1, Tel.: 43 (0) 55 74 690-0, www.wolford.com

The company sees itself as a fashion brand in the segment of affordable luxury products and deals in the product segments legwear, ready-to-wear, lingerie, accessories and merchandise. Wolford products are available around the world in 60 countries in more than 260 own and partner-operated boutiques, through 3,000 trade partners and online. On 24 September 2018, Wolford switched from the Prime Market to the Standard Market. After changing the majority shareholder (the owning families Wilhelm and Palmers sold 51% to Fosun Industrial Holdings Ltd.) and increasing the capital, less than 10% are in free float.

CEO: Axel Dreher

CFO: Brigitte Kurz

Supervisory Board: Junyang Shao, Thomas Dressendörfer, Claudia Beerman, Birgit Wilhelm et al.

Wolford AG

| | |
|------------------------------|-------------------------|
| Business Year: | 1/5 – 30/4 |
| ISIN: | AT0000834007 |
| Segment: | Standard Market, ATX GP |
| Type of share: | Common |
| Number of shares: | 6,719,151 |
| Volatility (3 months): | 51.461 |
| Last dividend: | 0.20 euros per share |
| Ex-dividend date: | 19/9/2016 |
| Market capitalisation: | 100.10 mln euros |
| First day of trading issuer: | 14/2/1992 |

Zumtobel

6850 Dornbirn, Höchstler Straße 8, Tel.: 43 (0) 55 72 509-0, www.zumtobelgroup.com

The Zumtobel Group is a leading global player offering innovative, high-quality lighting solutions and lighting components. Apart from the smaller brands acdc and Reiss, the company is divided into three internationally established brands: Thorn, Tridonic and Zumtobel. The company is listed on the Vienna Stock Exchange and employed at the end of the business year 2017/18 6,224 people, recording a turnover of 1,196.5 million euros. The Zumtobel family holds 35.5% of shares, Lazard Freres Gestion SAS and Erste Asset Management hold more than 4% each. The remaining roughly 55% are in free float.

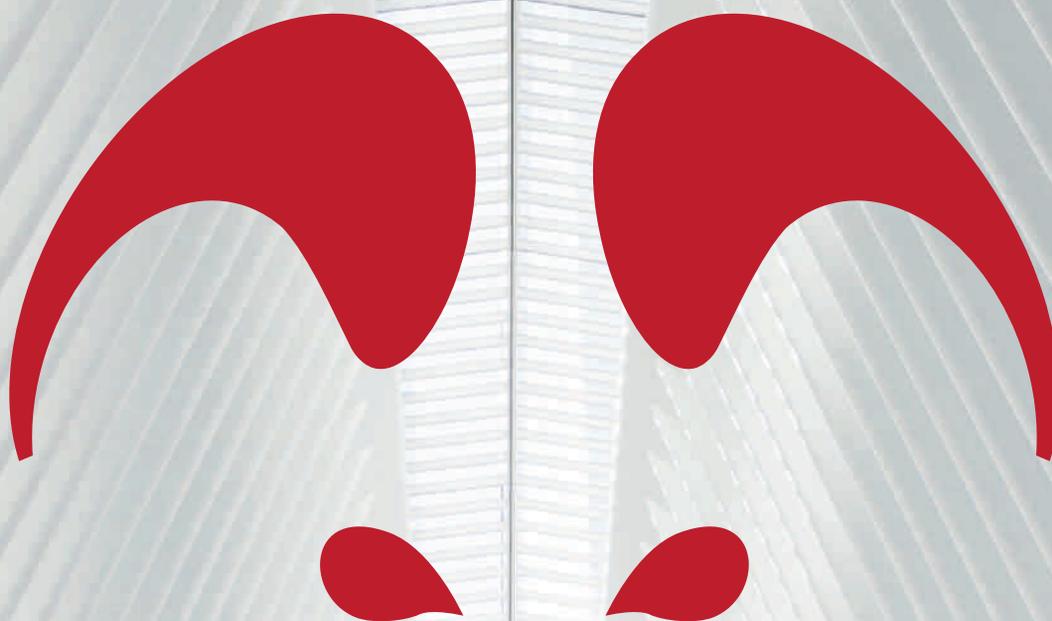
CEO: Alfred Felder

Management Board: Thomas Tschol (CFO), Bernard Motzko (COO)

Supervisory Board: Jürg Zumtobel, Volkhard Hofmann, Johannes Burtscher, Fritz Zumtobel, Richard Apnar, Dietmar Dünser, Kai Arbinger

Zumtobel Group AG

| | |
|------------------------------|----------------------|
| Business Year: | 1/5 – 30/4 |
| ISIN: | AT0000837307 |
| Segment: | Prime Market, VÖNIX |
| Type of share: | Common |
| Number of shares: | 43,500,000 |
| Volatility (3 months): | 65.189 |
| Last dividend: | 0.23 euros per share |
| Ex-dividend date: | 31/7/2017 |
| Market capitalisation: | 343.40 mln euros |
| First day of trading issuer: | 12/5/2006 |



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